FEDERAL MINISTRY OF HEALTH

NATIONAL MEDICAL SUPPLIES FUND

MDS MEDICINES DATA SHEET

2nd Edition - October-2015

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If you are looking for a medicine, the NMSF is ready to satisfy the medication needs of clients through the following locations:

1. The NMSF Central Stores or,
2. Our pharmacies are located in Khartoum state.

Our Pharmacies

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National Medical Supplies Fund

Huria St. Khartoum

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Pharmacist- in-charge: Elfatih A. Eltahir

Pharmacy No. 2

Isbitalia St. Khartoum

Contact No. 0120798311

Pharmacist -in-charge: Rawia A. Khaleel

Pharmacy No.3

Khartoum North Teaching Hospital-khartoum North

Contact No.0120798316

Pharmacist -in-charge: Fath Elrahman Hag Aman

Pharmacy No.4

Ashuhada Gandhi St. Omdurman

Contact No. 0120799312

Pharmacist- in-charge: Shiraz Nasr Eldeen

Federal Ministry of Health

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Preface

In 2012, The National Medical Supplies Fund (NMSF) previously known as Central Medical Supplies Public Corporation (CMSPC), has issued the first edition of Medicines Data Sheet, a promising and accomplished effort of Dr. Nagla Hamid Ibrahim and Dr. Selma SalahAldeen from the Planning and Follow-up Directorate. Now, this is the first update of the Medicines Data Sheet book, which includes medicines, consumables and diagnostic agents used by NMSF clients.

Following the immediate response, from most of the government's medical partners, to the decision of joint procurement and due to the expansion of the health services by widening the coverage map, after the adoption of the comprehensive coverage program declared by the Federal Ministry of Health, NMSF medical items have increased from 237 to 398 in 2015. That represents only the chemical composition of the items regardless of their strengths and the pharmaceutical dosage forms. For the consumable items, the list has increased from 225 to 337 item in 2015. Some newly added items haven't been priced yet.

The Medicines Data Sheet aims at providing prescribers, pharmacists, NMSF clients and other health care professionals, with a sound and up to date information on the available items. It offers detailed, comprehensive information on the available items. Each item includes chemical composition, strength, actions, cautions, dose, and main side effects and prices in Sudanese SDG. You may find the exact current price in the revised, NMSF price list at the website page (www.nmsf.gov.sd).

The updated list consists of twenty-four sections. Twenty two of them are medical items, divided into groups and subgroups depending on their pharmacological actions. The newly added sections are the cough preparations, eye preparations, ear, nose and oropharynx, dermatological preparations, and genito-urinary medicines.

There is one section for consumable and one for diagnostic agents, there are two appendices (Drug -Drug interactions and Drug during pregnancy).

The National Medical Supplies "Planning and Follow-up Directorate" welcomes all comments and suggestions for improvement.

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Acknowledgments

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Abbreviations:

ADHD	Attention deficit hyperactivity disorder
ACEI	Angiotensin-Converting Enzyme Inhibitor
Amp	Ampoule
BPH	Benign Prostatic Hyperplasia
CNS	Central Nervous System
CSM	Committee on Safety of Medicines
CVS	Cardio-Vascular System
DMARDs	Disease Modifying Agents used in Rheumatoid Disorder
ECG	Electro-Cardiography
G6PD	Glucose-6-Phosphate Dehydrogenase Deficiency
HBIG	Hepatitis B Immunoglobulin
HBV-DNA	Hepatitis B deoxyribonucleic acid
HCG	Human Chorionic Gonadotrophin
HCl	Hydrochloric Acid
HIV/AIDS	Human Immunodeficiency Virus infection and Acquired Immunodeficiency Syndrome
HRT	Hormonal Replacement Therapy
IgA	Immunoglobulin A
Inj	Injection
IU/kg	International Unit per Kilogram
I.V	Intra-Venous
Lit	Liter
NHS	National Health Service
NMSF	National Medical Supplies Fund
NSAIMs	Non Steroid AntiInflammatory Medicines
OTC	Over the- Counter
SDG	Sudanese Currency
SLE	Systemic Lupus Erythematosus
SSRIs	Selective Serotonin Re-uptake Inhibitors
Tab	Tablet
WHO	World Health Organization

Added Medical Items:

1.2.1.2 Lidocaine Hydrochloride 2% aresole
1.2.1.2 Lidocaine Hydrochloride 2% gel
1.2.1.3 Lignopanthen Cream.
2.1.6 Indomethacin
2.1.7 Naproxen
2.1.8 Nefopam
2.1.10 Meloxicam
2.1.11 Piroxicam
2.1.12 Etodolac
2.1.13 Indomethacine
2.1.14 Hydroxychloroquine sulfate
2.1.15 Glucosamine + MSM + Chondroitin + Vitamin C
2.1. Orphenadrine with Paracetamol
2.4.2 Glucosamine
4.5.6 Gabapentin
4.5.7 Topiramate
4.5.8 Piracetam
4.7.1 Zolmitriptan
5.1.3 Isosorbide mononitrate
5.1.4 Nifedipine
5.1.5 Felodipine
5.1.7 Diltiazem Hydrochloride
5.3.6 Carvedilol
5.3.10 Captopril
5.3.11 Enalapril maleate
5.3.12. Ramipril
5.3.14 Minoxidil
5.3.13.1 Losartan
5.3.13.2 Candesartan cilexetil
5.3.15.1.1 Indapamide
5.3.15.1.2 Chlortalidone (Chlorthalidone)
5.3.15.1.3 Hydrochlorothiazide with Amiloride
5.3.15.2 Furosemide
5.3.15.3.1 Spironolactone
5.3.15.4 Osmotic diuretic
5.3.15.4.1 Mannitol
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5.6.1.1 Colestyramine
5.6.2 Fenofibrate
5.6.3 Gemfibrozil
5.6.4.1 Fluvastatin
5.6.4.2 Simvastatin
5.6.4.3 Atorvastatin
5.7 Beta-sitosterol
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6.2.1.4 Ampicillin
6.2.1.7 Cefixime
6.2.1.8 Cefotaxime
6.2.1.9 Cefditoren
6.2.1.11 Cefadroxil
6.2.1.14 Cephradine
6.2.1.15 Cefpodoxime
6.2.1.17 Cefdinir
6.2.1.18 Meropenem
6.2.1.9 Cefditoren pivoxil
6.2.2.3 Clarithromycin
6.2.4.5 Ofloxacin
6.2.5.1 Tetracycline
6.2.6.1 Kanamycin
6.2.6.2 Clindamycin
6.2.6.4 Lincomycin
6.3.3 Tobramycin
6.4.2 Clotrimazole1% Cream (15g/tube)
6.4.3 Fluconazole
6.4.4 Itraconazole
6.4.5 Isoconazole
6.4.6 Econazole
6.4.7 Econazole nitrate with Triamcinolone acetonide
6.4.8 Nystatin
6.4.9 Miconazole
6.4.10 Terbinafine
6.4.11 Pyrantel pamoate
6.4.12 Ketoconazole
6.4.13 Griseofulvin
6.5.2 Zidovudine
6.6.1.3 Artesunate
6.6.1.6 Mefloquine

Added Consumable Items,

Serial	Item	Unit
1	Vaseline gauze coated with Vaseline petroleum sterile absorbent non-adhering dressing	Roll
2	Plaster of Paris bandage (low plaster loss) 6 inch	Roll
3	Plaster of Paris bandage (low plaster loss) 8 inch	Roll
4	Plaster of Paris bandage (low plaster loss) 4 inch	Roll
5	Crepe bandage 10cm x 4.5m	Roll
6	Soft comfortable Orthopedic Padding cotton size 4 inch (100mm*3m)	Roll
7	Soft comfortable Orthopedic padding cotton size 6 inch (150mm*3m)	Roll
8	Soft comfortable Orthopedic Padding cotton size 8 inch (200mm*3m)	Roll
9	Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 20g / 55mm	Piece
10	Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 19 G / 55mm	Piece
11	Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 21G / 55mm	Piece
12	Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 23G / 55mm	Piece
13	Disposable, Sterile and Non-Pyrogenic IV cannula with 3-way size 18	Piece
14	Surgical Blade without handle size 10 box of 100 pcs	Box
15	Surgical Blade without handle size 11 box of 100 pcs	Box
16	Surgical Blade without handle size 15 Box of 100 pcs	Box
17	Surgical Blade without handle size 20 box of 100 pcs	Box
18	Surgical Blade without handle size 21 box of 100 pcs	Box
19	Surgical Blade without handle size 22 Box of 100 pcs	Box
20	Surgical Blade without handle size 23 box of 100 pcs	Box
21	Surgical Blade without handle size 24 box of 100 pcs	Box
22	Surgical Blade without handle size 25 box of 100 pcs	Box
23	Disposable syringe 50ml with needle sterile non-toxic, pyrogen free, 21 G X 1.25-1.50 inch	Piece
24	Blood lancet Box of 200 pcs	Box

Serial	Item	Unit
25	Empty bag for clinical nutrient 1500 ml	Bag
26	Colostomy bags (60mm) disposable mounted with base plate size 60mm	Piece
27	Colostomy bags (70mm) disposable mounted with base plate size 70mm	Piece
28	Single blood bags: Volume capacity = (450ml), Volume of Anticoagulant (C P D A-1) equal 63ml. The plastic bags flexible to often minimum resistance during filling and emptying under normal condition of use. Bags must be not contains more than 5ml of airbags must be sufficiently transparent to allow adequate visual examinat4ion of its contents. Resistance to centrifugation load. Resistance to ultra keep freezing for align storing period.(-80 for year).Needle poor should be 16mm with Blood Given set: Sterile, non pyrogenic & Non toxic .Discard after use. Do not store at extreme and humidity.	Bag
29	Triple blood bags: Volume capacity = (450ml), Volume of Anticoagulant (C P D A-1) equal 63ml. The plastic bags flexible to often minimum resistance during filling and emptying under normal condition of use. Bags must not contain more than 5ml of air. Bags must be sufficiently transparent to allow adequate visual examination of its contents. Resistance to centrifugation load. Resistance to ultra keep freezing for align storing period.(-80 for year).Needle poor should be 16mm .with Blood Given set: Sterile, non pyrogenic & Non toxic. Discard after use .Do not store at extreme and humidity.	Bag
30	Disposable Blow-extruded PVC, sterilized by steam, non-toxic, pyrogen-free quadruple blood bag system includes one primary bag capacity (450ml) having anticoagulant CPDA / CPDA - II / CPD solution USP / BP (63ml) and three empty satellite bags (capacity 400ml) with donor needle .Each set packed in one PE or PET compounded vacuum pouch, 3 to 5 sets packed in one lightproof aluminum foil compounded pouch, and then 30 to 50 sets packed in one carton	Bag
31	Sterile gastric (Stomach) polyurethane or silicon feeding tubees size 10	Piece
32	Sterile enteral catheter , gastric (Stomach) polyurethane or silicon feeding tubees size 20 large	Piece
33	Sterile silicon long term nasogastric polyurethane or silicone feeding tubee for children feeding with diameter 8FR length 75cm	Piece
34	Sterile urethral catheter size 3	Piece
35	Sterile urethral catheter size 4	Piece
36	Sterile urethral catheter size 5	Piece
37	Sterile urethral catheter size 6	Piece
38	Sterile urethral catheter size 7	Piece
39	Central Venous Catheter 0.8*1.4mm (275)	Piece

Serial	Item	Unit
40	Tunnelled central venous catheter (“CVC”, “central venous line” or “central venous access catheter”) internal jugular vein size 12	Piece
41	Tunnelled central venous catheter (“CVC”, “central venous line” or “central venous access catheter”) internal jugular vein size 15	Piece
42	Tunnelled central venous catheter (“CVC”, “central venous line” or “central venous access catheter”) internal jugular vein size 18	Piece
43	Condom catheter	Piece
44	Symmetrical tip 14.5 fr / ch 4.8mm * 19cm permanent catheter size 36	Piece
45	Symmetrical tip 14.5 fr / ch 4.8mm * 19cm permanent catheter size 42	Piece
46	Medical disposable non-toxic PVC Suction catheter size 12	Piece
47	Medical disposable non-toxic PVC Suction catheter size 14	Piece
48	Examination gloves, disposable, latex powdered (medium size)	Piece
49	Examination gloves, disposable, latex powdered (large size)	Piece
50	Examination gloves, disposable, latex powdered (small size)	Piece
51	Nasogastric tube sterile disposable non toxic pyrogen free size FG 16 (Adult)	Piece
52	Nasogastric tube sterile, non toxic, pyrogen free, disposable, size FR 18 (Adult)	Piece
53	Nasogastric tube sterile disposable non toxic pyrogen free size FG 14 (Adult)	Piece
54	Sterile gastric (Stomach) polyurethane or silicon feeding tubees size 12	Piece
55	Nasogastric tube sterile, non toxic pyrogen, single use, free size FR 5 (Infant)	Piece
56	Nasogastric tube, sterile, non toxic pyrogen, single use, free size FR 8 (Infant)	Piece
57	Percutaneous Endoscopic Gastrostomy (PEG) tubee size 9CH	Piece
58	Ventricular shunt, CSF-flow control shunt kit (low pressure)	Piece
59	Ventricular shunt, CSF-flow control shunt kit (small medium pressure)	Piece
60	Ventricular shunt, CSF-flow control shunt kit (high pressure)	Piece
61	Intravenous set, non-pyrogenic, sterile vented with: protective cap, closure piercing device, drip tubee, air vent, drip chamber, disk filter.	Piece
62	Blood transfusion set	Set
63	½ Circle round bodied taper point 12mm needle on 75cm chromic catgut suture size 6/0	Foil
64	3/8 Circle reverse cutting 12mm needle on 45cm polyglycolic acid suture size (6/0)	Foil

Serial	Item	Unit
65	3/8 Circle reverse cutting 18mm needle on 45cm polyglycolic acid suture size (4/0)	Foil
66	½ Circle reverse cutting needle 35mm needle on 75cm polyglycolic acid suture size (3/0)	Foil
67	½ Circle reverse cutting 35mm needle on 75cm polyglycolic acid suture size (2/0)	Foil
68	½ Circle reverse cutting 40mm needle on 75cm polyglycolic acid suture size (0)	Foil
69	½ Circle reverse cutting 40mm needle on 75cm polyglycolic acid suture size 1	Foil
70	½ Circle spatulated needle 8mm double armed on 45cm polyglactin 910 size 6/0	Foil
71	½ Circle spatulated needle 8mm double armed on 45cm polyglactin 910 size 5/0	Foil
72	3/8 Circle micro point spatula 6.5mm needle on 30cm polyglactin 910 suture size 7/0	Foil
73	½ Circle spatulated 6.2mm double needle on 30cm black polyamide suture size 10/0	Foil
74	½ Circle spatulated 6.2mm double needle on 30cm black polyamide suture size 8/0	Foil
75	½ Circle round bodied taper point 26mm needle on 75cm polyamide suture size 3/0	Foil
76	½ Circle round bodied taper point 35mm needle on 75cm polyamide suture size 2/0	Foil
77	½ Circle reverse cutting 40mm needle on 75cm polyamide suture size 1	Foil
78	½ Circle reverse cutting 45mm needle on 75cm polyglycolic acid suture size 2	Foil
79	½ Circle round bodied taper point 45mm needle on 75cm polyamide suture size 2	Foil
80	½ Circle spatulated 6.2mm double needle on 30cm black braided Silk suture size 10/0	Foil
81	3/8 Reverse cutting needle 8mm black braided Silk suture 8/0 on 45cm	Foil
82	3/8 Circle reverse cutting 12mm needle on 45cm black braided silk suture size (7/0)	Foil
83	3/8 Circle reverse cutting 17mm needle on 45cm black braided silk suture size (6/0)	Foil
84	3/8 Circle reverse cutting 17mm needle on 45cm black braided silk suture size (5/0)	Foil
85	½ Circle reverse cutting 26mm needle on 75cm black braided silk suture size (3/0)	Foil
86	½ Circle reverse cutting 40mm needle on 75cm black braided silk suture size (0)	Foil
87	½ Circle reverse cutting 40mm needle on 75cm black braided silk suture size (1)	Foil
88	½ Circle reverse cutting 40mm needle on 75cm black braided silk suture size (2)	Foil
89	½ Circle spatulated 6.2mm double needle on 30cm polypropylene suture size 10/0	Foil
90	1/4 Circle tapercut 13mm needle on 20cm polyprolene suture size 10/0	Foil
91	3/8 Circle reverse cutting 17mm needle on 45/75cm polypropylene suture size 5/0	Foil

Serial	Item	Unit
92	½ Circle reverse cutting 18mm needle on 75cm polyprolene suture size 4/0	Foil
93	½ Circle reverse cutting 26mm needle on 75cm polypropylene suture size 3/0	Foil
94	½ Circle round bodied taper point 35mm needle on 75cm polypropylene suture size 2/0	Foil
95	½ Circle reverse cutting 35mm needle on 75cm polyprolene suture size 2/0	Foil
96	½ Circle reverse cutting 40mm needle on 75cm polypropylene suture size 0	Foil
97	½ Circle reverse cutting 40mm needle on 75cm polypropylene suture size 1	Foil
98	½ Circle round bodied taper point 45mm needle on 75cm polypropylene suture size 2	Foil
99	½ Circle reverse cutting 45mm needle on 75cm polyprolene suture size 2	Foil
100	Absorbable haemostate collagen 5cm x 8 cm	Piece
101	Absorbable haemostate collagen 10cm x 20cm	Piece
102	Fibrin Sealant Patch ,degradable fibrin sealant product, consists of two Active Substances - Human Fibrinogen and Human Thrombin – coated onto a Collagen Sponge of equine origin for topical use	Piece
103	Identification Bracelet,Child-Blue	Piece

1 Anaesthetic Medicines

1.1 General Anaesthetic Medicines

1.1.1 Inhalational Anaesthetics

1.1.1.1 Halothane

Indications: Halothane is a volatile liquid Anaesthetic that is occasionally used for inhalation induction of anesthesia with careful monitoring for cardiorespiratory depression and arrhythmias. It is potent, induction is smooth, and the vapor is non-irritant and seldom induces coughing or breath-holding.

Cautions: Severe hepatotoxicity can follow halothane anesthesia. The risk of severe hepatotoxicity appears to be increased by repeated exposures within a short time interval.

Contra-indications: In those susceptible to malignant hyperthermia.

Side-effects: Increase cerebrospinal pressure and should be used with caution in those with raised intracranial pressure. They can also cause hepatotoxicity in those sensitized to halogenated Anaesthetics, halothane has been associated with severe hepatotoxicity.

Dose: Induction of anesthesia, using specifically calibrated vaporizer, in oxygen or nitrous oxide-oxygen, adult and child over 1month, initially 0.5% then increased gradually according to response to 2–4% Maintenance of anesthesia, using specifically calibrated vaporizer, in oxygen, oxygen-air, or nitrous oxide-oxygen, adult and child over 1month, 0.5–2%.

Halothane, NMSF net price 250ml/bottle of Kahira Pharm. & Chem. Ind. Co. Cairo - A.R.E. =160 SDG

1.1.1.2 Isoflurane

Indications: Isoflurane is a **Indications**: Isoflurane is a volatile liquid Anaesthetic; it is the preferred inhalational Anaesthetic for use in obstetrics.

Cautions: Heart rhythm is generally stable during Isoflurane anesthesia, but heart-rate can rise, particularly in younger patients. Systemic arterial pressure and cardiac output can fall, owing to a decrease in systemic vascular resistance. Muscle relaxation occurs and the effects of muscle relaxant Medicines are potentiated.

Side-effects: Isoflurane can irritate mucous membranes, causing cough, breath-holding, and laryngospasm.

Dose: Induction of anesthesia, using specifically calibrated vaporizer, in oxygen or nitrous oxide-oxygen, increased gradually from 0.5% to 3%.

Maintenance of anesthesia, using specifically calibrated vaporizer, 1-2.5% in nitrous oxide- oxygen, an additional 0.5-1% may be required when given with oxygen alone, caesarean section, 0.5-0.75% in nitrous oxide-oxygen.

Isoflurane , NMSF net price 250ml/bottle of Baxter = 250 SDG

1.1.2 Intravenous Anaesthetics

Medicines used for intravenous anesthesia may be used either to induce anesthesia or for maintenance of anesthesia throughout surgery. Intravenous Anaesthetics nearly all produce their effect in one arm-brain circulation time and can cause apnea and hypotension, and so adequate resuscitative facilities must be available.

1.1.2.1 Ketamine

Indications: Induction and maintenance of anesthesia.

Cautions: Ketamine causes less hypotension than Thiopental and Propofol during induction. Increased cerebrospinal fluid pressure, predisposition to seizures, hallucinations, nightmares, psychotic disorders, head injury or intracranial mass lesions, thyroid dysfunction, raised intra-ocular pressure.

Contra-indications: Hypertension, pre-eclampsia or eclampsia, severe cardiac disease, stroke, raised intracranial pressure, head trauma, acute porphyria.

Side-effects: Nausea, vomiting, tachycardia, hypertension, arrhythmias, hypotension, bradycardia, hyper salivation, laryngospasm, anxiety, insomnia, diplopia, nystagmus, raised intra-ocular

pressure, rash, apnea and respiratory depression also reported.

Dose: Intramuscular injection, short procedures, initially 6.5-13mg/kg, adjusted according to response (10mg/kg usually produces 12-25 minutes of surgical anesthesia).

Ketamine inj. 50mg/ml, NMSF net price in 10ml/vial of Claris Lifesciences Ltd. = 10 SDG
Ketamine inj. 50mg/ml, NMSF net price in 10ml/vial of Troikaa Pharmaceutical India = 10 SDG

1.1.2.2 Propofol

Indications: Induction of anesthesia.

Cautions: Propofol is associated with rapid recovery and less hangover effect than other intravenous Anaesthetics. Significant extraneous muscle movements can occur. Rarely, convulsions, anaphylaxis, and delayed recovery from anesthesia can occur after Propofol administration, the onset of convulsions can be delayed.

Contra-indications: In children under 16 years receiving intensive care because of the risk of Propofol infusion syndrome (potentially fatal effects, including metabolic acidosis, cardiac failure, rhabdomyolysis, hyperlipidemia, and hepatomegaly), cardiac impairment, respiratory impairment, elderly, hypovolaemia, epilepsy, hypotension, raised intracranial pressure, monitor blood-lipid concentration if risk off at overload or if sedation longer than 3 days.

Side-effects: Hypotension, tachycardia, flushing, transient apnea, hyperventilation, coughing ,and hiccup during induction, headache, less commonly thrombosis, phlebitis, rarely arrhythmia, headache, vertigo, shivering, euphoria, very rarely pancreatitis, pulmonary oedema, sexual disinhibition, and discoloration of urine, serious and sometimes fatal side-effects reported with prolonged infusion of doses exceeding 5mg/kg/hour, including metabolic acidosis, rhabdomyolysis, hyperkalaemia, and cardiac failure, dystonia and dyskinesia also reported.

Dose: Induction of anesthesia using 0.5% or 1% injection, by intravenous injection or infusion, adult under 55 years and child over 12 years, 1.5-2.5mg/kg at a rate of 20-40mg every 10 seconds until response, adult over 55 years or debilitated, 1-1.5mg/kg at a rate of 20mg every 10 seconds until response, child 1month-12 years, administer slowly until response (usual dose in child over 8 years 2.5mg/kg, may need more in younger child e.g. 2.5-4 mg/kg). Induction of anesthesia using 2% injection, by intravenous infusion, adult under 55 years and child over 12 years, 1.5-2.5mg/kg at a rate of 20-40mg every 10 seconds, adult over 55 years or debilitated, 1-1.5mg/kg at a rate of 20mg every 10 seconds until response, child 3-12 years, administer slowly until response (usual dose in child over 8 years 2.5mg/kg, may need more in younger child e.g. 2.5-4mg/kg). Maintenance of anesthesia using 1% injection, by intravenous infusion, 4-12mg/kg/hour (3-6mg/kg/hour in elderly or debilitated) or by intravenous injection, 25-50mg repeated according to response, child 1 month-12 years, by intravenous infusion, 9-15mg/kg/hour. Maintenance of anesthesia using 2% injection, by intravenous infusion, 12mg/kg/hour (3-6mg/kg/hour in elderly or debilitated), child 3- 12 years, by intravenous infusion, 9-15mg/kg/hour.

Propofol 1%injection (emulsion), NMSF net price 10mg/ml, 20-ml amp of B.Braun Germany =13 SDG
Propofol 1%injection (emulsion), NMSF net price10mg/ml, 20-ml amp of Troikaa Pharmaceutical India = 8SDG

1.1.2.3 Thiopental Sodium

Indications: Induction of general anesthesia, anesthesia of short duration, reduction of raised intracranial pressure if ventilation controlled, status epilepticus.

Cautions: Cardiovascular disease, reconstituted solution is highly alkaline-extravasation causes tissue necrosis and severe pain, avoid intra-arterial injection.

Contra-indications: Acute porphyria, myotonic dystrophy.

Side-effects: Hypotension, arrhythmias, myocardial depression, laryngeal spasm, cough, headache, sneezing, hypersensitivity reactions, rash.

Dose: Induction of general anesthesia, by slow intravenous injection usually as a 2.5% (25mg/ml) solution, adult over 18 years, fit and premedicated, initially 100-150mg (reduced in elderly or debilitated) over 10-15 seconds (longer in elderly or debilitated), followed by further quantity if necessary according to response after 30-60 seconds, or up to 4mg/kg (max. 500 mg), child 1 month-18 years, initially up to 4mg/kg, then 1mg/kg repeated as necessary (max. total dose 7mg/kg).

Thiopental Sodium Injection 500mg/vial with diluents, NMSF net price of Neon Lab India = 7 SDG
Thiopental Sodium Injection 500mg/vial with diluents, NMSF net price of Panpharma Laboratories = 9 SDG

1.1.3 Antimuscarinic Medicines

1.1.3.1 Atropine Sulphate

Indications: Pre-medication, intra-operative bradycardia, with anticholinesterases for reversal of non-depolarizing neuromuscular block, antidote to Organophosphorous poisoning), symptomatic relief of gastro-intestinal disorders characterized by smooth muscle spasm bradycardia acardiopulmonary resuscitation cycloplegia, anterior uveitis.

Cautions: Antimuscarinics should be used with caution in Down syndrome, in children and in the elderly, they should also be used with caution in gastro-oesophageal reflux disease, diarrhoea, ulcerative colitis, autonomic neuropathy, acute myocardial infarction, hypertension, conditions characterized by tachycardia (including hyperthyroidism, cardiac insufficiency, cardiac surgery), pyrexia, and in individuals susceptible to angle-closure glaucoma.

Contra-indications: Anti-muscarinics are contra-indicated in Myasthenia gravis (but may be used to decrease muscarinic side-effects of anticholinesterases paralytic ileus, pyloric stenosis, toxic mega colon, and prostatic enlargement).

Side-effects: Anti-muscarinics include constipation, transient bradycardia (followed by tachycardia, palpitation and arrhythmias), reduced bronchial secretions, urinary urgency and retention, dilatation of the pupils with loss of accommodation, photophobia, dry mouth, flushing and dryness of the skin. Side-effects that occur occasionally include confusion (particularly in the elderly), nausea, vomiting, and giddiness, very rarely, angle-closure glaucoma may occur.

Dose: Adult dose pre-medication, by intravenous injection, 300–600 micrograms immediately before induction of anesthesia. By subcutaneous or intramuscular injection, 300–600 micrograms 30–60 minutes before induction of anesthesia. Intra-operative bradycardia, by intravenous injection, 300–600 micrograms (larger doses in emergencies control of muscarinic side-effects of Neostigmine in reversal of competitive neuromuscular block, by intravenous injection, 0.6-1.2mg, child under 12 years, 20 micrograms/kg (max. 1.2mg).

Atropine sulphate, NMSF net price 1mg/1ml ampoule of Laboratories Renaudin = 3 SDG

1.1.3.2 Hyoscine N-butyl bromide

Indications: Pre-medication, intra-operative bradycardia, with anticholinesterases for reversal of non-depolarizing neuromuscular block, antidote to Organophosphorous poisoning, symptomatic relief of gastro-intestinal disorders characterized by smooth muscle spasm, bradycardia, cardiopulmonary resuscitation cycloplegia, anterior uveitis.

Contra-indications: Antimuscarinics are contra-indicated in Myasthenia gravis (but may be used to decrease muscarinic side-effects of anticholinesterases paralytic ileus, pyloric stenosis, toxic-mega colon, and prostatic enlargement.

Side-effects: Include constipation, transient bradycardia (followed by tachycardia, palpitation and arrhythmias), reduced bronchial secretions, urinary urgency and retention, dilatation of the pupils with loss of accommodation, photophobia, dry mouth, flushing and dryness of the skin. Side-effects that occur occasionally include confusion (particularly in the elderly), nausea, vomiting, and giddiness, very rarely, angle-closure glaucoma may occur.

Dose: Pre-medication, by subcutaneous or intramuscular injection, 200-600micrograms 30-60 minutes before induction of anesthesia, child 15micrograms/kg.

Hyoscine-butylbromide10mg tab., NMSF net price of Cima = 0.290 SDG
Hyoscine-butylbromide 10mg tab. NMSF net price of Memphis Co. For Pharmaceutical = 0.310 SDG
Hyoscine-butylbromide 20mg/1ml injection,

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NMSF net price of Laboratories Renaudin = 2.50 SDG
Hyoscine-butylbromide 20mg/1ml injection, NMSF net price of Greenfield Pharmaceutical = 1.01SDG
Hyoscine 5mg/5ml syrup 100ml/bottle, NMSF net price of Greenfield Pharmaceutical = 7.00 SDG

1.2 Local Anaesthetic Medicines

Indications: Local Anaesthetic medicines act by causing a reversible block to conductions on nerve fibers. They vary widely in their potency, toxicity, duration of action, stability, solubility in water, and ability to penetrate mucous membranes. These factors determine their application, e.g. topical (surface), infiltration, peripheral nerve block, intravenous regional anesthesia (Bier's block), plexus, epidural (extradural), or spinal (intrathecal or subarachnoid) block. Local Anaesthetics may also be used for postoperative pain relief, thereby reducing the need for analgesics such as opioids.

Cautions: Local Anaesthetics should be administered with caution in children, elderly or debilitated patients (consider dose reduction), or in patients with impaired cardiac conduction, cardiovascular disease, hypovolaemia, shock, impaired respiratory function, epilepsy, or myasthenia gravis.

Contra-indications: Local Anaesthetics should not be injected into inflamed or infected tissues nor should they are applied to damaged skin. In such circumstances, increased absorption into the blood increases the possibility of systemic side-effects, and the local Anaesthetic effect may also be reduced by altered local pH. Local Anaesthetics can cause ototoxicity and should not be applied to the middle ear. They are also contraindicated in patients with complete heart block.

Side-effects: Toxic effects after administration of local Anaesthetics are a result of excessively high plasma concentrations; severe toxicity usually results from inadvertent intravascular injection or to a rapid injection. The systemic toxicity of local Anaesthetics mainly involves the central nervous and cardiovascular systems. CNS effects include a feeling of inebriation and light headedness followed by sedation, numbness of the tongue and perioral region, restlessness, paraesthesia (including sensations of hot and cold), dizziness, blurred vision, nausea and vomiting, muscle twitching, tremors, and convulsions. Transient excitation may also occur, followed by depression with drowsiness, respiratory failure, unconsciousness, and coma. Effects on the cardiovascular system include myocardial depression and peripheral vasodilatation resulting in hypotension and bradycardia, arrhythmias and cardiac arrest can occur. Hypersensitivity reactions occur mainly with the ester-type local Anaesthetics such as Tetracaine, reactions are less frequent with the amide types such as Articaine, Bupivacaine, Levo-Bupivacaine, Lidocaine, Mepivacaine, Prilocaine, and Ropivacaine. Cross-sensitivity reactions may be avoided by using the alternative chemical type.

1.2.1 Bupivacaine (as Hydrochloride)

Bupivacaine has a longer duration of action than other local Anaesthetics. It has a slow onset of action, taking up to 30 minutes for full effect. It is often used in lumbar epidural blockade and is particularly suitable for continuous epidural analgesia in labour,or for postoperative pain relief. It is the principal drug used for spinal anesthesia. Hyperbaric solutions containing glucose may be used for spinal block.

Dose: local infiltration, max. 60ml, using a 2.5mg/ml (0.25%) solution. Peripheral nerve block, max. 60ml (150mg), using a 2.5mg/ml (0.25%) solution, max. 30ml, using a 5mg/ml (0.5%) solution. Epidural block surgery, lumbar, 10-20ml (50-100mg), using a 5mg/ml (0.5%) solution Surgery, caudal, 15-30 ml (75-150mg), using a 5mg/ml (0.5%) solution, child (up to 10 years) using a 2.5mg/ml (0.25%) solution, up to lower-thoracic (T10) 0.3-0.4 ml/kg (0.75-1 mg/kg), up to mid-thoracic (T6) 0.4-0.8 ml/kg (1–2 mg/kg) labour, lumbar, 6-12ml (15-30mg) using a 2.5mg/ml (0.25%) or 6-12ml (30-60mg) using a 5mg/ml (0.5%) solution Sympathetic block, 20-50ml (50-125mg), using a 2.5mg/ml (0.25%) solution.

Bupivacaine (as Hydrochloride) 4ml/amp. (Spinal), NMSF net price of Asterazenca =20 SDG

1.2.2 Lidocaine Hydrochloride

Lidocaine is effectively absorbed from mucous membranes and is a useful surface Anaesthetic in concentrations up to 10%. Except for surface anesthesia and dental anesthesia, solutions should not usually exceed 1% in strength. The duration of the block (with Adrenaline) is about 90 minutes.

Indication: Infiltration anesthesia, intravenous reginol anesthesia and nerve blocks, surface anesthesia, dental use, urethral sounding and catheterization, cystoscopy, anesthesia of mucus membranes of oropharynx, trachea, or respiratory tract, anesthesia before venous cannulation or venepuncture, postherpetic neuralgia, maxillary sinus puncture, during delivery in obstetrics, bronchoscopy, laryngoscopy, oesophagoscopy and endotracheal Intubation, and ventricular arrhythmia.

Cautions: In children and elderly or debilited patients, or in patient with cardiac conduction, cardiovascular disease, hypovlaemia, shock, impaired respiratory function, epilepsy, or myasthenia gravis and hypertension.

Contra-indications: Local Anaesthetics should not be injected into inflamed or infected tissues nor should be applied to damaged skin. In such circumstances, increased absorption into the blood increases the possibility of systemic side effects, and the local Anaesthetic effect may also be reduced by altered local pH. Local Anaesthetic preparations containing preservatives should not be used for caudal, epidural, or spinal block, or for intravenous regional anesthesia (Bier's block). Local Anaesthetics can cause ototoxicity and should not be applied to the middle ear. They are also contraindicated in patients with complete heart block.

Side-effects: Systemic toxicity of local Anaesthetics mainly involve s the central nervous and cardiovascular systems. CNS effects include a feeling of inebriation and lightheadness followed by drowsness, numbness of tongue and perioral region, restlessness, paraesthesia, dizziness, blurred vision, tinnitus, nausea and vomiting, muscle twitching, tremors, and convulsions. Transient excitation may also occur, followed by depression with drowsiness, respiratory failure, unconsciousness, and coma. Effects on the cardiovascular system include myocardial depression and peripherial vasodilation resulting in hypotension and bradycardia, arrhythmias, cardiac arrest and hypersensitivity reaction can occur. Also methaemoglobinaemia, nystagmus, rash, hypoglycaemia also reported.

Dose: In filtration anesthesia, according to patient's weight and nature of procedure, max. 200mg (or 500mg if given in solutions containing Adrenaline.

Spinal anesthesia, using 5% solution (with glucose 7.5%), adult, 50-75mg (1-1.5ml).

Lidocaine Hydrochloride (anhydrous) 2% with Adrenaline1in 80000 (12.5mcg/ml) of Adrenaline in cartilage (dental)

Dental cartridge: 2% (Hydrochloride) + epinephrine 1:80000.

Lidocaine HCl 2%, 10ml injection, NMSF net price of Pharmaceutical Solutions Industry = 2.10 SDG
Lidocaine HCL 2% inj. 20ml, NMSF net price of Indoco remedies Limited = 3.00 SDG
Lidocaine HCL 2% inj. 20ml, NMSF net price of Pharmaceutical Solutions Industry = 3.00 SDG
Lidocaine HCl 2% (W/V) 30ml, NMSF net price of Claris Lifesciences = 4.00 SDG
LidocaineHCl 5 % Spinal + dextrose 7.5%, NMSF net price of Laboratories Renaudin = 3 SDG
Lidocaine HCl 2% + Adrenaline 12.5mcg/ml (1.8ml) dental cartilage, NMSF net price of Septodont = 3 SDG
Lidocaine HCl 2% + Adrenaline 12.5mcg/ml (1.8ml) dental cartilage, NMSF net price of Darou Pakhsh Pharmaceutical = 3 SDG
Lidocaine HCl 2% + Adrenaline 12.5mcg/ml (1.8ml) dental cartilage, NMSF net price of Laboratories INIBSA S.A = 3 SDG

1.2.3 Lidocaine Hydrochloride 2% Aresole

Dose: Dental practice, 1-5 doses.

Maxillary sinus puncture, 3 doses.

During delivery in Obstetrics, up to 20 doses, bronchoscopy, laryngoscopy, oesophagoscopy, endrotracheal intubation, up to 20 doses, child up to 3mg/kg.

Lidocaine Hydrochloride 2%, 50ml aerosol solution Can, NMSF net price of Asterazenca = 55.00 SDG

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1.2.4 Lidocaine Hydrochloride 2% Gel and 5% Ointment

Dose: Urethral sounding and catheterization, 6-11ml into urethra.

Cystoscopy, 11ml (a further instillation of 6-11 ml may be required).

Lidocaine Hydrochloride 2% 40gm topical gel tube , NMSF net price of Hayat Pharmaceuticals industries = 10.0 SDG

Lidocaine Hydrochloride 2%, 40gm topical gel tube, NMSF net price of Asterazenca = 26.50 SDG

Lidocaine Hydrochloride 5%, 40gm topical ointment tube, NMSF net price of Asterazenca = 23.50 SDG

1.2. 5 Lignopanthen

Local Anaesthetic with promoting healing of wounds.

Indications: The control in pain itching, burning and unpleasant symptoms and enhances healing in cases of minor wounds and burns, abrasion and bedsores, stomatitis aphthosa, non poisonous insect bites, inoperable anorectal conditions, hemorrhoids, fissures and nipple soreness, napkin rash, chafing and mild skin irritations in infants and children, and poison ivy, poison oak and minor skin irritations.

Cautions: Not more than 30g. Cream should be applied in one day. Although Lignopanthen has been shown to be relatively free from allergic and sensitizing properties, these possibilities should not be overlooked. Apply with caution to severely traumatized mucosa and sepsis in the region of application.

Contra-indications: Known hypersensitivity to local Anaesthetics of the amide type or D- panthenol.

Side-effects Hypersensitivity reactions may be encountered but they are rare.

Dose: Applies to the affected area once or twice daily or in any suitable frequency. For fissured nipples apply the cream after each feed, but aseptic cleansing prior to each feeding is essential. The use of a sterile gauzed pad is suggested when applying the product to broken or burnt skin.

New Item

1.3 Medicines used with Anaesthetics

1.3.1 Neuromscular blocking Medicines

1.3.1.1 Atracurium Besylate

Indications: Neuromuscular blockade (short to intermediate duration) for surgery or during intensive care

Cautions: Allergic cross-reactivity between neuromuscular blocking medicines has been reported, caution is advised in cases of hypersensitivity to these medicines. Their activity is prolonged in patients with myasthenia gravis and in hypothermia, and lower doses are required. Non-depolarizing neuromuscular blocking medicines should be used with great care in those with other neuromuscular disorders and those with fluid and electrolyte disturbances, as response is unpredictable. Resistance can develop in patients with burns, who may require increased doses, low plasma cholinesterase activity in these patients requires dose titration for Mivacurium. The rate of administration of neuromuscular blocking medicines should be reduced in patients with cardiovascular disease.

Side-effects: Benzyl Isoquinolinium non-depolarizing neuromuscular blocking medicines (except is Atracurium) are associated with histamine release, which can cause skin flushing, hypotension, tachycardia, bronchospasm, and very rarely anaphylactoid reactions. Most amino steroid neuromuscular blocking Medicines produce minimal histamine release. Medicines with vagolytic activity can counteract any bradycardia that occurs during surgery. Acute myopathy has also been reported after prolonged use in intensive care.

Dose: Intubation and surgery, adult and child over 1 month, by intravenous injection, initially 300–600 micrograms/kg, and then 100–200 micrograms/kg as required or initially by intravenous injection, 200–600 micrograms/kg.

Intensive care, adult and child over 1 month, by intravenous injection, initially 300-600 micrograms /kg (optional) then by intravenous infusion 270–1770micrograms/kg/hour (usual dose 650–780 micrograms/kg/hour).

Atracurium Besylate10mg/ml for I.V inj, NMSF net price of Hikma = 27.00 SDG

Atracurium Besylate10mg/ml for I.V inj, NMSF net price of Hameln = 35.00 SDG

Atracurium Besylate10mg/ml for I.V inj, NMSF net price of NeonIndia = 28.00 SDG

1.3.1.2 Pancuronium Bromide

Indications: Neuromuscular blockade (long duration) for surgery or during intensive care.

Cautions: Allergic cross-reactivity between neuromuscular blocking medicines has been reported, caution is advised in cases of hypersensitivity to these medicines. Their activity is prolonged in patients with myasthenia gravis and in hypothermia, and lower doses are required. Non-depolarizing neuromuscular blocking Medicines should be used with great care in those with other neuromuscular disorders and those with fluid and electrolyte disturbances, as response is unpredictable. Resistance can develop in patients with burns, who may require increased doses, low plasma cholinesterase activity in these patients requires dose titration for Mivacurium.The rate of administration of neuromuscular blocking Medicines should be reduced in patients with cardiovascular disease.

Side-effects: Benzyl Isoquinolinium non-depolarizing neuromuscular blocking Medicines (except is Atracurium) are associated with histamine release, which can cause skin flushing, hypotension, tachycardia, bronchospasm, and very rarely anaphylactoid reactions. Most amino steroid neuromuscular blocking Medicines produce minimal histamine release. Medicines with vagolytic activity can counteract any bradycardia that occurs during surgery. Acute myopathy has also been reported after prolonged use in intensive care.

Dose: Adult and children over 1 month, initially 100micrograms/kg then 20micrograms/kg as required. Intensive care, by intravenous injection, initially 100micrograms/kg (optional) then 60 micrograms/kg every 60–90 minutes.

Pancuronium bromide 2mg/1ml for I.V inj, 2ml. amp, NMSF net price of Neon Lab India = 3.00 SDG

Pancuronium bromide 2mg/1ml for I.V inj, 2ml. amp, NMSF net price of Troikaa Pharmaceutical India = 6.50 SDG

Pancuronium bromide2mg/1ml for I.V inj, 2ml. amp, NMSF net price of Beromed GmbH Hospital = 11 SDG

1.3.1.3 Suxamethonium Chloride

Indications: Neuromuscular blockade (short duration).

Cautions: Hypersensitivity to other neuromuscular blocking Medicines, patients with cardiac, respiratory, or neuromuscular disease, raised intraocular pressure (avoid in penetrating eye injury), severe sepsis (risk of hyperkalaemia).

Contra-indications: Family history of malignant hyperthermia, hyperkalaemia, major trauma, severe burns, neurological disease involving acute wasting of major muscle, prolonged immobilisation risk of hyperkalaemia, personal or family history of congenital myotonic disease, Duchenne muscular dystrophy, low plasma-cholinesterase activity (including severe liver disease, see Hepatic Impairment).

Side-effects: Increased gastric pressure, hyperkalaemia, postoperative muscle pain, myoglobinuria, myoglobinaemia, increased intra-ocular pressure, flushing, rash, rarely arrhythmias, cardiac arrest, bronchospasm, apnoea, prolonged respiratory depression, limited jaw mobility, very rarely anaphylactic reactions, malignant hyperthermia, also reported hypertension, hypotension, rhabdomyolysis.

Dose: By intravenous injection, adult,1-1.5mg/kg, child under 1 year, 2mg/kg, child 1-18 years, 1mg/kg, by intramuscular injection (onset in 2-3 minutes), child 1 month-1 year, up to 4-5mg/kg, child 1-12 years, up to 4mg/kg, max.150mg.

Suxamethonium chloride100mg/2ml, NMSF net price 2ml amp of Neon Laborotories Limited India = 2.5 SDG

Suxamethonium chloride100mg/2ml, NMSF net price 2ml amp of Panpharma (Rotex- Medica) = 3 SDG

1.3.1.4 Rocuronium Bromide

Indications: Neuromuscular blockade (intermediate duration) for surgery or during intensive care.

Cautions: Allergic cross-reactivity between neuromuscular blocking Medicines has been reported, caution is advised in cases of hypersensitivity to these medicines. Their activity is prolonged in patients with myasthenia gravis and in hypothermia, and lower doses are required. Non-depolarizing neuromuscular blocking Medicines should

be used with great care in those with other neuromuscular disorders and those with fluid and electrolyte disturbances, as response is unpredictable. Resistance can develop in patients with burns, who may require increased doses, low plasma cholinesterase activity in these patients requires dose titration for Mivacurium.The rate of administration of neuromuscular blocking Medicines should be reduced in patients with cardiovascular disease.

Side-effects: Benzyl Isoquinolinium non-depolarizing neuromuscular blocking Medicines (except is Atracurium) are associated with histamine release, which can cause skin flushing, hypotension, tachycardia, bronchospasm, and very rarely anaphylactoid reactions. Most amino steroid neuromuscular blocking Medicines produce minimal histamine release. Medicines with vagolytic activity can counteract any bradycardia that occurs during surgery. Acute myopathy has also been reported after prolonged use in intensive care.

Dose: Intubation, adult and child over 1 month, by intravenous injection, initially 600micrograms/kg, maintenance by intravenous injection, 150micrograms/kg (elderly 75-100micrograms/kg) or maintenance by intravenous infusion, 300-600micrograms/kg/hour.

Rocuronium bromide10mg/ml, NMSF net price 5ml vial of N.V Organon Holand = 46 SDG

1.3.1.5 Vecuronium Bromide

Indications: Neuromuscular blockade (intermediate duration) for surgery.

Cautions: Allergic cross-reactivity between neuromuscular blocking Medicines has been reported, caution is advised in cases of hypersensitivity to these medicines. Their activity is prolonged in patients with myasthenia gravis and in hypothermia, and lower doses are required. Non-depolarizing neuromuscular blocking Medicines should be used with great care in those with other neuromuscular disorders and those with fluid and electrolyte disturbances, as response is unpredictable. Resistance can develop in patients with burns, who may require increased doses, low plasma cholinesterase activity in these patients requires dose titration for Mivacurium. The rate of administration of neuromuscular blocking medicines should be reduced in patients with cardiovascular disease.

Side-effects: Benzyl Isoquinolinium non-depolarizing neuromuscular blocking Medicines (except is Atracurium) are associated with histamine release, which can cause skin flushing, hypotension, tachycardia, bronchospasm, and very rarely anaphylactoid reactions. Most amino steroid neuromuscular blocking Medicines produce minimal histamine release. Medicines with vagolytic activity can counteract any bradycardia that occurs during surgery. Acute myopathy has also been reported after prolonged use in intensive care.

Dose: Adult and child over 1 month, by intravenous injection, 80-100micrograms/kg, then maintenance, by intravenous injection either 20-30micrograms/kg, adjusted according to response (max. 100micrograms/kg in caesarian section), or by intravenous infusion, 0.8-1.4micrograms/kg/minute, adjusted according to response.

Vecuronium Bromide10mg inj for i.v., NMSF net price of Neon Laborotories Limited India = 32.00 SDG

2 Musculoskeletal and joint diseases

2.1 Analgesics, Antipyretics, Nonsteroidal Anti-Inflammatory Medicines(NSAIMs)

2.1.1 Paracetamol

Indications: Mild to moderate pain, pyrexia.

Side-effects: Rare, but rashes, blood disorders (including thrombocytopenia, leucopenia, and neutropenia) are reported, hypotension, flushing, and tachycardia also reported on infusion, important: liver damage (and less frequently renal damage).

Dose: by mouth, 0.5-1g every 4-6 hours to a max. of 4g daily, child 2 months 60 mg for post-immunisation pyrexia, repeated once after 6 hours if necessary, otherwise under 3 months, 3 months–1 year 60-120mg, 1-6 years 120-250mg, 6-12years 250–500mg , these doses may be repeated every 4-6 hours when necessary (max .of 4 doses in 24 hours).

By intravenous infusion over 15 minutes, adult and child over 50kg, 1g every 4–6 hours, max. 4g daily, adult and child 10–50kg15mg /kg every 4–6 hours, max. 60mg/kg daily, neonates and children less than 10 kg,7.5mg/kg every 4–6 hours, max. 30mg/kg daily.

Paracetamol 500mg tablet, NMSF Net price of Blue Nile= 0.070SDG,
Paracetamol 120mg /5ml suspension, 60ml Bottle, NMSF Net price of Amipharma = 3.69 SDG
Paracetamol 10mg/ml infusion 100ml/pack, NMSF Net price of Unique Pharmaceutical = 16 SDG
Paracetamol 10mg/ml infusion 100ml/pack, NMSF Net price OF Claris Lifesciences Ltd. = 23 SDG
Paracetamol 10mg/ml infusion 100ml/pack, NMSF Net price OF Star Medicines & Research Labs.Ltd. = 24 SDG
Paracetamol supp 125mg, NMSF Net price of Misr Pharmaceutical Company= 0.81 SDG
Paracetamol supp 125mg, NMSF Net price of Remedica = 1.20 SDG
Paracetamol supp 250mg, NMSF Net price of YSP Industries = 0.5 SDG
Paracetamol supp 250mg, NMSF Net price of Remedica = 1.20 SDG

2.1.2 Acetylsalicylic Acid

Indications: Mild to moderate pain, pyrexia, antiplatelet.

Caution: Asthma, allergic disease, dehydration, preferably avoid during fever or viral infection in children (risk of Reye's syndrome) elderly, G6PD-deficiency, concomitant use of Medicines that increase risk of bleeding, anaemia, thyrotoxicosis.

Contra-indications: Children under 16 years (Reye's syndrome), previous or active peptic ulceration, hemophilia. Hypersensitivity aspirin and other NSAIMs are contra-indicated in patients with a history of hypersensitivity to aspirin or any other NSAIM which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAIM.

Side-effects: Generally mild and in frequent but high incidence of gastro-intestinal irritation with slight asymptomatic blood loss, increased bleeding time, bronchospasm and skin reactions in hypersensitive patients prolonged administration.

Dose: By mouth, 300–900 mg every 4–6 hours when necessary.

By rectum, 450–900 mg every 4 hours (max. 3.6 g daily), child under 16 years not recommended.

Acetylsalicylic acid 100 mg, NMSF net price of Cima=0.08SDG,
Acetylsalicylic acid 100 mg, NMSF net price of Salah Medical=0.06SDG
Acetylsalicylic acid 300mg, NMSF net price of Cima= 0.08SDG
Acetylsalicylic acid 300mg, NMSF net price of City pharm = 0.3SDG

2.1.3 Diclofenac Sodium

Indications: Pain and inflammation in rheumatic disease (including juvenile idiopathic arthritis) and other musculoskeletal disorders, acute gout, post operative pain.

Cautions: Should be used with caution in the elderly (risk of serious side-effects and fatalities), in allergic disorders (they are contra-indicated in patients with a history of hypersensitivity to aspirin or any other NSAIM which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAIM), and in coagulation defects. Long-term use of some NSAIMs is associated with reduced female fertility, which is reversible on stopping treatment. Caution is also required in patients with connective-tissue disorders, in patients with cardiac impairment, caution is required since NSAIMs may impair renal function. Also epilepsy, Parkinsonism, psychiatric disturbances, during prolonged therapy ophthalmic and blood examinations particularly advisable, avoid rectal administration in proctitis and hemorrhoids.

Contra-indications: Avoid injections containing benzyl alcohol in neonates.

Dose: By mouth, 75–150mg daily in 2–3 divided doses by rectum in suppositories, 75–150mg dai-

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ly in divided doses Juvenile idiopathic arthritis, child 6 months–18 years, by mouth. Post-operative pain, child 6–12 years, by rectum, 1–2mg/kg (max.150mg) daily in divided doses (12.5mg and 25mg suppositories only) for max. 4 days.

Diclofenac sodium 25mg/ml, 3ml injection, NMSF net price of Greenfield = 1.00 SDG
Diclofenac sodium 25mg/ml, 3ml injection, NMSF net price of Mepha = 5.00 SDG
Diclofenac sodium 25mg/ml, 3ml injection, NMSF net price of Troikaa Pharmaceutical India = 0.44 SDG
Diclofenac sodium 25mg tab., NMSF net price of Cima = 0.09 SDG
Diclofenac sodium 25mg tab., NMSF net price of Shanghai = 0.09 SDG
Diclofenac sodium 25mg tab., NMSF net price of Azal pharmaceutical = 0.12 SDG
Diclofenac sodium 25mg tab., NMSF net price of Novartis pharma= 0.30 SDG
Diclofenac sodium 50mg tab., NMSF net price of Azal pharmaceutical = 0.23 SDG
Diclofenac sodium 50mg tab., NMSF net price of Tabuk = 1.12 SDG
Diclofenac potassium 50mg tab., NMSF net price of Pharmaland Pharmaceuticals = 0.52 SDG
Diclofenac sodium 100mg SR capsule of Amipharma =0.42 SDG
Diclofenac sodium 100mg SR capsule of Tabuk =0.40 SDG
Diclofenac gel 20g Tube, NMSF Net price of Gulf Pharmaceutical Industries = 3.50 SDG

2.1.4 Ibuprofen

Indications: Pain and inflammation in rheumatic disease and other musculoskeletal disorders including juvenile arthritis, mild to moderate pain including dysmenorrhoea and headache, pain in children, acute migraine attack.

Contra-indications: Hypersensitivity (including asthma, angioedema, urticaria, or rhinitis) to Acetylsalicylic acid or any other NSAIMs, active peptic ulceration.

Side-effects: Gastrointestinal disturbances including nausea, diarrhoea, dyspepsia, ulceration, and haemorrhage, hypersensitivity reactions including rash, angioedema and bronchospasm, headache, dizziness, nervousness, depression, drowsiness, insomnia, vertigo, tinnitus, photosensitivity.

Dose: Adult and child over 12 years, initially 300-400mg 3-4 times daily, increased if necessary to max. 2.4g daily, maintenance dose of 0.6-1.2g daily may be adequate.

Pain and fever in children, child 1-3 months, child 3-6 months (body-weight over 5kg), 50mg-3times daily (max.30mg/kg daily in 3-4 divided doses), child 6 months-1 year, 50mg 3-4 times daily (max. 30mg/kg daily in 3-4 divided doses), child 1-4 years,100mg 3 times daily (max.30mg/kg daily in 3-4 divided doses),child 4-7years, 150mg 3 times daily (max. 30mg/kg daily in 3-4 divided doses), child 7-10years, 200mg 3 times daily (up to 30mg/kg daily (max.2.4g) in 3-4 divided doses), child 10-12 years, 300mg 3 times daily (up to 30mg/kg daily «max. 2.4g» in 3-4 divided doses).

Rheumatic disease in children (including juvenile idiopathic arthritis), child 3 months-18 years (body-weight over 5kg), 30-40mg/kg (max.2.4g) daily in 3-4 divided doses, in systemic juvenile idiopathic arthritis up to 60mg/kg (max.2.4g) daily [unlicensed] in 4-6 divided doses.

Ibuprofen 200mg tablet, NMSF net price of Amipharma = 0.14 SDG
Ibuprofen 200mg tablet, NMSF net price of Blue Nile = 0.14 SDG
Ibuprofen 400mg tablet, NMSF net price of Amipharma = 0.22 SDG
Ibuprofen 400mg tablet, NMSF net price of Blue Nile = 0.22 SDG
Ibuprofen 600mg tablet, NMSF net price of SPIMACO = 0.45 SDG
Ibuprofen 100mg/5ml suspension (100ml), NMSF net price of Atco Laboratories = 4.00 SDG
Ibuprofen 100mg/5ml suspension (100ml), NMSF net price of Saudi pharmaceutical = 12.58 SDG

2.1.5 Ketoprofen

Indications: Pain and mild inflammation in rheumatic disease and other musculoskeletal disorders, and after orthopaedic surgery, acute gout, dysmenorrhea.

Cautions: NSAIMs should be used with caution in the elderly in patients with cardiac impairment, caution is required since NSAIMs may impair renal function in uncontrolled hypertension, heart failure, ischaemic heart disease, peripheral arterial disease, cerebrovascular disease, and when used long term in patients with risk factors for cardiovascular events and in patients with connective-tissue disorders. NSAIMs should also be used with caution in Crohn's disease or ulcerative colitis, as these conditions may be exacerbated.

Contra-indications: In patients with a history of hypersensitivity to aspirin or any other NSAIMs which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAIMs), and in coagulation defects. Long-term use of some NSAIMs is associated with reduced female fertility, which is reversible on stopping treatment All NSAIMs (including cyclo-oxygenase-2 selective inhibitors) are contra-indicated in patients with active. All NSAIMs are contra-indicated in patients with active gastro-intestinal ulceration or bleeding who need NSAIMs treatment should receive gastroprotective treatment.

Side-effects: Gastro-intestinal disturbances including discomfort, nausea, diarrhoea, and occasionally bleeding and ulceration occur. Systemic as well as local effects of NSAIMs contribute to gastro-intestinal damage, taking oral formulations with milk or food, or using enteric-coated formulations, or changing the route of administration may only partially reduce symptoms such as dyspepsia. Other side-effects include hypersensitivity reactions (particularly rashes, angioedema, and bronchospasm), headache, dizziness, nervousness, depression, drowsiness, insomnia, vertigo, hearing disturbances such as tinnitus, photosensitivity, and haematuria. Blood disorders have also occurred. Fluid retention may occur (rarely precipitating congestive heart failure), blood pressure may be raised.

Dose: By mouth, rheumatic disease, 100–200mg daily in 2–4 divided doses, child not recommended, Pain and dysmenorrhea, 50mg up to 3 times daily, child not recommended.

Ketoprofen 2.5%, 50 g gel tube, NMSF net price of Amriya = 8.00 SDG

2.1.6 Indomethacin

Indications: Pain and moderate to severe inflammation in rheumatic disease and other acute musculoskeletal disorders, acute gout, dysmenorrhea, premature labor, exacerbation of osteoarthritis (short-term), ankylosing spondylitis.

Cautions: Should be used with caution in the elderly, in allergic disorders (in patients with a history of hypersensitivity to Aspirin or any other NSAIM which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by Aspirin or any other NSAIM), and in coagulation defects. Long-term use of some NSAIMs is associated with reduced female fertility, which is reversible on stopping treatment. Caution is also required in patients with connective-tissue disorders. In patients with cardiac impairment, caution is required since NSAIMs may impair renal function. Also epilepsy, Parkinsonism, psychiatric disturbances, during prolonged therapy ophthalmic and blood examinations particularly advisable, avoid rectal administration in proctitis and hemorrhoids. Dizziness may affect performance of skilled tasks (e.g. driving).

Contra-indications: All NSAIMs are contra-indicated in severe heart failure. **Diclofenac** and the selective inhibitors of cyclo-oxygenase-2 (**Celecoxib**, **Etoricoxib**, and **Parecoxib**) are contra-indicated in ischaemic heart disease, cerebrovascular disease, peripheral arterial disease, and mild to severe heart failure. They should be used with caution in patients with a history of cardiac failure, left ventricular dysfunction, hypertension, in patients with oedema for any other reason, and in patients with other risk factors for cardiovascular events.

Side-effects: Gastro-intestinal disturbances including discomfort, nausea, diarrhoea, and occasionally bleeding and ulceration occur. Systemic as well as local effects of NSAIMs contribute to gastro-intestinal damage, taking oral formulations with milk or food, or using enteric-coated formulations, or changing the route of administration may only partially reduce symptoms such as dyspepsia., rarely confusion, convulsions, psychiatric disturbances, syncope, blood disorders (particularly thrombocytopenia), hyperglycaemia, peripheral neuropathy, intestinal strictures, also reported hyperkalaemia, suppositories may cause rectal irritation and occasional bleeding.

Dose:

- By mouth, rheumatic disease, 50-200mg daily in divided doses.

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- Acute gout, 150-200mg daily in divided doses
- Dysmenorrhea, up to 75mg daily
- By rectum in suppositories, 100mg at night and in the morning if required, child not recommended.
- Combined oral and rectal treatment, max. total daily dose 150-200mg.

Indomethacin 25mg capsule, NMSF net price of Gulf Pharmaceutical Industries = 0.20 SDG
Indomethacine 25mg capsule, NMSF net price of Amipharma Laboratories Ltd. = 0.21SDG

2.1.7 Naproxen

Indications: Pain and inflammation in rheumatic disease (including juvenile idiopathic arthritis) and other musculoskeletal disorders, dysmenorrhoea, acute gout, exacerbation of osteoarthritis (short-term), ankylosing spondylitis.

Cautions: NSAIMs should be used with caution in the elderly in patients with cardiac impairment, caution is required since NSAIMs may impair renal function in uncontrolled hypertension, heart failure, ischaemic heart disease, peripheral arterial disease, cerebrovascular disease, and when used long term in patients with risk factors for cardiovascular events and in patients with connective-tissue disorders. NSAIMs should also be used with caution in Crohn's disease or ulcerative colitis, as these conditions may be exacerbated.

Contra-indicated: In patients with a history of hypersensitivity to aspirin or any other NSAIMs which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by Aspirin or any other NSAIMs, and in coagulation defects. Long-term use of some NSAIMs is associated with reduced female fertility, which is reversible on stopping treatment All NSAIMs (including cyclo-oxygenase-2 selective inhibitors) are contra-indicated in patients with active gastro-intestinal ulceration or bleeding who need NSAIM treatment should receive gastroprotective treatment.

Side-effects: Gastro-intestinal disturbances including discomfort, nausea, diarrhoea, and occasionally bleeding and ulceration occur. Systemic as well as local effects of NSAIMs contribute to gastro-intestinal damage, taking oral formulations with milk or food, or using enteric-coated formulations, or changing the route of administration may only partially reduce symptoms such as dyspepsia. Other side-effects include hypersensitivity reactions (particularly rashes, angioedema, and bronchospasm), headache, dizziness, nervousness, depression, drowsiness, insomnia, vertigo, hearing disturbances such as tinnitus, photosensitivity, and haematuria. Blood disorders have also occurred. Fluid retention may occur (rarely precipitating congestive heart failure), blood pressure may be raised.

Dose:

- Rheumatic disease, 0.5-1 g daily in 1-2 divided doses, child 2-8 years, juvenile idiopathic arthritis.
- Acute musculoskeletal disorders and dysmenorrhoea, 500mg initially, then 250mg every 6–8 hours as required, max. dose after first day 1.25g daily, child under 18 years.
- Acute gout, 750mg initially, then 250mg every 8 hours until attack has passed, child under 16 years not recommended.

New Item

2.1.8 Nefopam

Indication: Moderate pain.

Cautions: Elderly, urinary retention.

Contra-indications: Convulsive disorders not indicated for myocardial infarction.

Side-effects: Nausea, nervousness, urinary retention, dry mouth, light headedness, less commonly vomiting, blurred vision, drowsiness, sweating, insomnia, tachycardia, headache, confusion and hallucinations also reported, may colour urine (pink).

Dose: By mouth, initially 60mg (elderly 30mg) 3 times daily, adjusted according to response, usual range 30-90mg 3 times daily, child not recommended.

Nefopam HCl 20mg /ml, 1ml solution for injection, NMSF net price of Medical Union Pharmaceuticals Co. = 1.50 SDG

2.1.9 Mefenamic Acid

Indications: Pain and inflammation in rheumatoid arthritis and osteoarthritis, Postoperative pain, mild to moderate pain, dysmenorrhoea and menorrhagia.

Side-effects: Diarrhoea or rashes (withdraw treatment), stomatitis, less commonly paraesthesia and fatigue, rarely hypotension, palpitation, glucose intolerance, thrombocytopenia, anaemia (positive Coombs'test), and aplastic anaemia.

Dose: Adult over 18 years, 500mg 3 times daily child12–18 years, acute pain including dysmenorrhoea, menorrhagia, 500mg 3 times daily.

Mefenamicacid 250mg tablet, NMSF net price of Wafrapharama = 0.13 SDG,
Mefenamicacid 250mg tablet, NMSF net price of GMC = 0.12 SDG
Mefenamicacid 500mg tablet, NMSF net price of Palpharma = 0.20 SDG
Mefenamicacid 500mg tablet, NMSF net price of GMC = 0.24 SDG
Mefenamic acid 50mg/5ml suspension (100ml bottle), NMSF net price of Wafrapharma = 6.8 SDG
Mefenamic acid 50mg/5ml suspension (100ml bottle), NMSF net price of Hikma = 13.00 SDG

2.1.10 Meloxicam

Indications: Pain and inflammation in rheumatic disease, exacerbation of osteoarthritis (short term), ankylosing spondylitis.

Cautions: NSAIMs should be used with caution in the elderly In patients with cardiac impairment, caution is required since NSAIMs may impair renal function in uncontrolled hypertension, heart failure, ischaemic heart disease, peripheral arterial disease, cerebrovascular disease, and when used long term in patients with risk factors for cardiovascular events and in patients with connective-tissue disorders.NSAIMs should also be used with caution in Crohn's disease or ulcerative colitis, as these conditions may be exacerbated.

Contra-indications: In patients with a history of hypersensitivity to aspirin or any other NSAIMs which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by Aspirin or any other NSAIMs), and in coagulation defects. Long-term use of some NSAIMs is associated with reduced female fertility, which is reversible on stopping treatment All NSAIMs (including cyclo-oxygenase-2 selective inhibitors) are contra-indicated in patients with active. All NSAIMs are contra-indicated in patients with active gastro-intestinal ulceration or bleeding who need NSAIMs treatment should receive gastroprotective treatment.

Side-effects: Gastro-intestinal disturbances including discomfort, nausea, diarrhoea, and occasionally bleeding and ulceration occur. Systemic as well as local effects of NSAIMs contribute to gastro-intestinal damage, taking oral formulations with milk or food, or using enteric-coated formulations, or changing the route of administration may only partially reduce symptoms such as dyspepsia. Other side-effects include hypersensitivity reactions (particularly rashes, angioedema, and bronchospasm), headache, dizziness, nervousness, depression, drowsiness, insomnia, vertigo, hearing disturbances such as tinnitus, photosensitivity, and haematuria. Blood disorders have also occurred. Fluid retention may occur (rarely precipitating congestive heart failure), blood pressure may be raised.

Dose: By mouth, osteoarthritis, adult and child over 16 years, 7.5mg once daily, increased if necessary to max. 15mg once daily.

Rheumatoid arthritis, ankylosing spondylitis, adult and child over 16 years, 15mg once daily, may be reduced to 7.5mg once daily.

Meloxicam 7.5mg tablets, NMSF net price of Azal Pharmaceutical = 0.25 SDG
Meloxicam 15mg tablets, NMSF net price of Azal Pharmaceutical = 0.45 SDG

2.1.11 Piroxicam

Indications: Rheumatoid arthritis, osteoarthritis, and ankylosing spondylitis.

Cautions: NSAIMs should be used with caution in the elderly in patients with cardiac impairment, caution is required since NSAIMs may impair renal function in uncontrolled hypertension, heart failure, ischaemic heart disease, peripheral arterial disease, cerebrovascular disease, and when used long term in patients with risk factors for cardiovascular events and in patients with connective-tissue disorders. NSAIMs should also be used with caution in Crohn's disease or ulcerative colitis, as these conditions may be exacerbated.

Contra-indications: Inflammatory bowel disease,

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in patients with a history of hypersensitivity to Aspirin or any other NSAIM which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by Aspirin or any other NSAIM), and in coagulation defects. Long-term use of some NSAIMs is associated with reduced female fertility, which is reversible on stopping treatment All NSAIMs (including cyclo-oxygenase-2 selective inhibitors) are contra-indicated in patients with active. All NSAIMs are contra-indicated in patients with active gastro-intestinal ulceration or bleeding who need NSAIMs treatment should receive gastroprotective treatment.

Side-effects: Gastro-intestinal disturbances including discomfort, nausea, diarrhoea, and occasionally bleeding and ulceration occur. Systemic as well as local effects of NSAIMs contribute to gastro-intestinal damage, taking oral formulations with milk or food, or using enteric-coated formulations, or changing the route of administration may only partially reduce symptoms such as dyspepsia.Other side-effects include hypersensitivity reactions (particularly rashes, angioedema, and bronchospasm), headache, dizziness, nervousness, depression, drowsiness, insomnia, vertigo, hearing disturbances such as tinnitus, photosensitivity, and haematuria. Blood disorders have also occurred. Fluid retention may occur (rarely precipitating congestive heart failure), blood pressure may be raised.

Dose: By mouth, max. 20mg once daily, child 6-18 years, juvenile idiopathic arthritis.

Piroxicam 10mg capsules, NMSF net price of Cadilla Healthcare Ltd. = 0.35 SDG

2.1.12 Etodolac

Indications: Pain and inflammation in rheumatoid arthritis and osteoarthritis.

Cautions: NSAIMs should be used with caution in the elderly in patients with cardiac impairment, caution is required since NSAIMs may impair renal function in uncontrolled hypertension, heart failure, ischaemic heart disease, peripheral arterial disease, cerebrovascular disease, and when used long term in patients with risk factors for cardiovascular events and in patients with connective-tissue disorders. NSAIMs should also be used with caution in Crohn's disease or ulcerative colitis, as these conditions may be exacerbated.

Contra-indications: In patients with a history of hypersensitivity to Aspirin or any other NSAIMs-which includes those in whom attacks of asthma, angioedema, urticaria or rhinitis have been precipitated by aspirin or any other NSAIMs), and in coagulation defects. Long-term use of some NSAIMs is associated with reduced female fertility, which is reversible on stopping treatment All NSAIMs (including cyclo-oxygenase-2 selective inhibitors) are contra-indicated in patients with active. All NSAIMs are contra-indicated in patients with active gastro-intestinal ulceration or bleeding who need NSAIMs treatment should receive gastroprotective treatment.

Side-effects: Gastro-intestinal disturbances including discomfort, nausea, diarrhoea, and occasionally bleeding and ulceration occur. Systemic as well as local effects of NSAIMs contribute to gastro-intestinal damage, taking oral formulations with milk or food, or using enteric-coated formulations, or changing the route of administration may only partially reduce symptoms such as dyspepsia, also stomatitis, vasculitis, palpitation, dysponea, confusion, fatigue, paraesthesia, tremor, urinary frequency, dysuria, pyrexia, and pruritis.

Dose: Adults over 18 years, 300-600mg daily in 1-2 divided doses.

Etodolac 200mg Capsules, NMSF net price of Global napi pharmaceuticals = 0.71 SDG

2.1.13 Hydroxychloroquine Sulfate

Indications: Active rheumatoid arthritis (including juvenile idiopathic arthritis), systemic and discoid lupus erythematosus, dermatological conditions caused or aggravated by sunlight.

Cautions: Manufacturers recommend regular ophthalmological examination but the evidence of practical value is unsatisfactory, should be used with caution in neurological disorders, in severe gastro-intestinal disorders, in G6PD deficiency, in acute porphyria, and in the elderly. Hydroxychloroquine may exacerbate psoriasis and aggravate mythenia gravis. Concurrent use of hepatotoxic medicines should be avoided.

Side-effects: Gastrointestinal disturbances, headache and skin reactions (rashes, pruritis), those occurring less frequently include ECG changes, convulsions, visual change, retinal damage, keratopathy, ototoxicity, hair depigmentation, hair loss, and discoloration of skin, nails, and mucous membranes, side effects that occur rarely include blood disorders (including thrombocytopenia, agranulocytosis, and a plastic anaemia), mental changes (including emotional disturbances and psychosis), myopathy (including cardiomyopathy and neuromyopathy), angioedema, acute generalized exanthematous pustulosis, exfoliative dermatitis, Stevens-Johnson syndrome, photosensitivity, and hepatic damage, diffuse parenchymal lung disease, and drug rash with eosinophilia and systemic symptoms have also been reported, and bronchospasm.

Dose: Administered on expert advice, 200-400mg daily (but not exceeding 6.5mg/kg daily based on ideal body weight.

Hydroxychloroquine sulfate 200mg tablet, NMSF net price of Getz pharma = 0.60 SDG

2.1.14 Glucosamine + Chondroitin + Vitamin C

Indications: Osteoarthritis, dystrophy of joint associated with aging, poor work posture, heavy lifting, generally during aging.

Contra-indications: Known hypersensitivity to any of the product's components.

Side-effects: Rarely, gastrointestinal disturbances, mild headache and skin rash.

Dose: 1-2 Tablets per day with food.

Glucosamine sulphate 500mg + Chondroition sulphate 400mg + Ascorbic acid 100mg capsules, NMSF net price of Eva pharma = 1.00 SDG

2.1.15 Orphenadrine with Paracetamol

Indications: Muscle spasm, relief of discomfort associated with acute painful musculoskeletal conditions.

Contra-indications: Hypersensitivity to any of its ingredients, narrow-angle glaucoma, pyloric/duodenal obstruction, BPH, stenosing peptic ulcers, cardiospasm (mega-esophagus), Myasthenia gravis, obstructive uropathy, paralytic ileus, ulcerative colitis, toxic megacolon, achalasia.

Cautions: Diarrhoea, partial obstructive uropathy, open-angle glaucoma, cardiovascular disease, hepatic/renal impairment, cardiac conduction disorder, thyrotoxicosis, history of drug abuse or acute alcoholism.

Side-effects: Dry mouth, urinary retention, blurred vision, mydriasis, drowsiness, headache, weakness, increased IOP, palpitation, tachycardia, GI disturbances, CNS stimulation (restlessness, agitation, insomnia, mental confusion), lightheadedness, dizziness, syncope, pruritus, urticarial rash, tremor, anaphylactic reactions, aplastic anaemia.

Dose: Muscle spasm, relief of discomfort associated with acute painful musculoskeletal conditions 100mg by mouth every 12 hours, 60mg IV/IM every 12 hours.

Orphenadrine citrate 35mg + Paracetamol 450mg tablets, NMSF net price of Dar Aldawa = 0.42 SDG

2.2 Opioid Analgesics.

Cautions: Opioids should be used with caution in patients with impaired respiratory function (avoid in chronic obstructive pulmonary disease) and asthma (avoid during an acute attack), hypotension, urethral stenosis, shock, myasthenia gravis, prostatic hypertrophy, obstructive or inflammatory bowel disorders, diseases of the biliary tract, and convulsive disorders. Reduced dose is recommended in elderly or debilitated patients, in hypothyroidism, and in adrenocortical insufficiency. Repeated use of opioid analgesics is associated with the development of psychological and physical dependence, although this is rarely a problem with therapeutic use, caution is advised if prescribing for patients with a history of drug dependence. Avoid abrupt withdrawal after long-term treatment. Transdermal preparations (Fentanyl or Buprenorphine patches) are not suitable for acute pain or in those patients whose analgesic requirements are changing rapidly because the long time to steady state prevents rapid titration of the dose.

2.2.1 Morphine

Indications: Severe pain (acute and chronic) myocardial infarction, acute pulmonary oedema, adjunct during major surgery and postoperative analgesia.

Contra-indications: Avoid in acute respiratory depression, acute alcoholism, and where risk of

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paralytic ileus, also avoid in raised intracranial pressure or head injury (affects papillary responses vital for neurological assessment), avoid injection in phaeochromocytoma.

Third trimester: Depresses neonatal respiration, withdrawal effects in neonates of dependent mothers, gastrictasis and risk of inhalation pneumonia in mother during labour.

Side-effect: Nausea,vomiting (particularly in initial stages), constipation, drowsiness, also dry mouth, anorexia, spasm of urinary and biliary tract, bradycardia, tachycardia, palpitation, euphoria, decreased libido, rash, urticaria, pruritus, sweating, headache, facial flushing, vertigo, postural hypotension, hypothermia, hallucinations, confusion, dependence, miosis, larger doses produce respiratory depression, hypotension, and muscle rigidity.

Dose: Acute pain, by subcutaneous injection (not suitable for oedematous patients) or by intramuscular injection, adult, 1mg every 4 hours if necessary (15mg for heavier well-muscled patients), Infant up to 1month, 150micrograms/kg, 1-12 months, 200micrograms/kg, child 1-5 years, 2.5-5mg, 6-12 years, 5-10mg.

Chronic pain, by mouth (immediate-release tablets) or by subcutaneous injection (not suitable for oedematous patients) or by intramuscular injection, adult, 5-20mg regularly every 4 hours, dose may be increased according to need oral dose should be approximately double corresponding intramuscular. By mouth (sustained-release tablets), titrate dose first using immediate release preparation, then every 12 hours according to daily Morphine requirement. Myocardial infarction, by slow intravenous injection (2mg/minute), adult, 10mg followed by a further 5-10mg if necessary, elderly or debilitated patients, reduce dose by half. Acute pulmonary oedema, by slow intravenous injection (2mg/minute), adult, 5-10mg.

Morphine sulphate 5mg tablet, NMSF net price of Sweco S.A = 1.94 SDG
Morphine sulphate 15mg, NMSF net price of Sweco S.A = 2.09 SDG
Morphine sulphate 15mg, NMSF net price of Martindale =3.50 SDG
Morphine sulphate 15mg/ ml in 1ml injection, NMSF net price of Sweco S.A = 6.50 SDG
Morphine sulphate 0.05%, 200ml solution, NMSF net price of Sweco S.A =108.00 SDG
Morphine Sulphate 10mg/5ml 100ml solution, NMSF net price of Martindale Pharma = 20.00 SDG
Morphine Sulphate 10mg/5ml 300ml solution, NMSF net price of Martindale Pharma = 45.00 SDG

2.2.2 Pethidine Hydrochloride:

Indications: Moderate to severe pain, obstetric analgesia, peri-operative analgesia.

Contra-indications: Should be avoided in patients with acute respiratory depression and when there is a risk of paralytic ileus comatose patients and in conditions associated with raised intracranial pressure and in head injury.

Side-effect: Nausea, vomiting (particularly initial stages), constipation, drowsiness, alsodry mouth, anorexia, spasm of urinary and biliary tract, bradycardia, tachycardia, palpitation, euphoria, decreased libido, rash, urticaria, pruritus, sweating, headache, facial flushing, vertigo, postural hypotension, hypothermia, hallucinations, confusion, dependence, miosis, larger doses produce respiratory depression, hypotension, and muscle rigidity.

Dose: Acute pain, by mouth, 50-150mg every 4 hours, child 0.5-2mg/kg. By subcutaneous or intramuscular injection, 25-100mg initially 25mg, repeated after 4 hours. By intramuscular injection, 0.5-2mg/kg. By slow intravenous injection, 25-50mg initially 25mg), repeated after 4 hours. Obstetric analgesia, by subcutaneous or intramuscular injection, 50-100mg, repeated 1-3 hours later if necessary, max. 400mg in 24 hours. Pre-medication, by intramuscular injection, 25-100mg 1 hour before operation elderly or debilitated, 25mg), child 0.5-2mg/kg. Postoperative pain, by subcutaneous or intramuscular injection, 25-100mg elderly or debilitated, initially 25mg), every 2-3 hours if necessary, child, by intramuscular injection, 0.5-2mg/kg.

Pethidine HCl 50mg/ml for inj, NMSF net price of Fresenius Kabi for Boden South Africa = 3.0 SDG
Pethidine HCl 50mg/ml for inj, NMSF net price of Neo = 3.50 SDG
Pethidine HCl 50mg/ml for inj, NMSF net price of Laboratories Renaudin = 4.0 SDG

2.2.3 Fentanyl

Indication: Severe chronic pain, break through pain, parenteral indications.

Contra-indications: Should be avoided in patients with acute respiratory depression and when there is a risk of paralytic ileus comatose patients and in conditions associated with raised intracranial pressure and in head injury.

Side-effect: Nausea, vomiting (particularly in initial stages), constipation, drowsiness, also dry mouth, anorexia, spasm of urinary and biliary tract, bradycardia, tachycardia, palpitation, euphoria, decreased libido, rash, urticaria, pruritus, sweating, headache, facial flushing, vertigo, postural hypotension, hypothermia, hallucinations, confusion, dependence, miosis, larger doses produce respiratory depression, hypotension, and muscle rigidity. Also abdominal pain, dyspepsia, diarrhoea, gastro-oesophageal reflux disease, stomatitis, anorexia, hypertension, vasodilation, dyspnoea, aesthenia, myoclonus, anxiety, tremor, appetite changes, rhinitis, pharyngitis, paraesthesia, application-site reactions, flatulence, hypoventilation, impaired concentration, impaired coordination, amnesia, speech disorder, malaise, seizures, pyrexia, thirst, blood disorders (including thrombocytopenia), chills, apnoea, haemoptysis, ataxia, delusions, bladder pain.

Dose: Consult physician specialist in Anesthesia.

Fentanyl 50mcg/1ml 10ml ampoules, NMSF net price of Laboratories Renaudin =15.91 SDG
Fentanyl 50mcg/1ml 2ml ampoules, NMSF net price of Laboratories Renaudin =7.86 SDG

2.2.4 Tramadol Hydrochloride

Indications: Moderate to severe pain.

Contra-indications: Should be avoided in patients with acute respiratory depression and when there is a risk of paralytic ileus Comatose patients and in conditions associated with raised intracranial pressure and in head injury.

Side-effect: Nausea, vomiting (particularly in initial stages), constipation, drowsiness, also dry mouth, anorexia, spasm of urinary and biliary tract, bradycardia, tachycardia, palpitation, euphoria, decreased libido, rash, urticaria, pruritus, sweating, headache, facial flushing, vertigo, postural hypotension, hypothermia, hallucinations, confusion, dependence, miosis, larger doses produce respiratory depression, hypotension and muscle rigidity.

Dose: Adult and child over 12 years, by mouth, 50-100mg not more often than every 4 hours, total of more than 400mg daily not usually required. adult and child over 12 years, by intramuscular injection or by intravenous injection (over 2-3 minutes)or by intravenous infusion, 50-100mg every 4-6 hours Post operative pain, 100mg initially then 50mg every 10-20 minutes if necessary during first hour to total max. 250mg (including initial dose) in first hour, then 50-100mg every 4-6 hours, max. 600mg daily.

Tramadol HCl 50mg caps, NMSF net price of Duopharma= 0.25 SDG
Tramadol HCl 50mg caps, NMSF net price of the Arab Pharmaceutical Manufacturing = 0.64 SDG
Tramadol HCl 50mg caps, NMSF net price of Sigma Pharmaceutical Industries = 0.82 SDG
Tramadol HCl 50mg/ml in 2ml amp, NMSF net price of Cadilla Healthcare Ltd. = 1.80 SDG
Tramadol HCl 50mg/ml in 2ml amp, NMSF net price of The Alexandria=4.60 SDG
Tramadol HCl 50mg/ml in 2ml amp, NMSF net price of Imres =15.00 SDG
Tramadol HCl 50mg/ml in 2ml amp, NMSF net price of Martindale Pharma=15.00 SDG
Tramadol HCl 50mg/ml in 2ml amp, NMSF net price of Panpharma (Rotex- Medica) =15.00 SDG

2.3 Medicines Used to Treat Gout.

2.3.1 Allopurinol

Indications: Prophylaxis of gout and of uric acid and calcium oxalate renal stones, prophylaxis of hyperuricaemia associated with cancer chemotherapy.

Contra-indications: Acute gout (if an acute attack occurs while receiving Allopurinol, continue prophylaxis and treat attack separately).

Side-effect: Hypersensitivity reactions occur rarely and include fever, lymph adenopathy, arthralgia, eosinophilia, erythema multiforme (Stevens-Johnson syndrome), or toxic epidermal necrolysis, vasculitis, hepatitis, renal impairment and, very rarely, seizures, gastrointestinal disorders, rarely malaise, headache, vertigo, drowsiness, visual and taste disturbances, hypertension, alopecia, hepatotoxicity, paraesthesia, neuropa-

thy, gynaecomastia, and blood disorders (including leukopenia, thrombocytopenia, haemolytic anaemia, and aplastic anaemia.

Dose: Prophylaxis of gout, by mouth, adult ,initially 100mg daily as a single dose, preferably after food, then adjusted according to plasma or urinary uric acid concentration (usual maintenance dose in mild conditions, 100-200mg daily, in moderately severe conditions, 300-600mg daily, in severe conditions, 700-900mg daily, doses over 300mg daily given in divided doses).

Allopuainol 300mg tablet, NMSF net price of Citypharm Pharmaceutical Industries = 0.440 SDG
Allopuainol 100mg tablet, NMSF net price of Citypharm Pharmaceutical Industries = 0.220 SDG
Allopuainol 100mg tablet, NMSF, net price of Blue Nile Pharmaceutical Factory = 0.220 SDG

2.3.2 Colchicine

Indications: Acute gout, short-term prophylaxis during initial therapy with Allopurinol and uricosuric medicines, prophylaxis of familial Mediterranean fever (recurrent polyserositis).

Contra-indications: Blood disorders.

Side-effects: Nausea, vomiting, and abdominal pain, excessive doses may cause profuse diarrhoea, gastro-intestinal haemorrhage, rash, renal and hepatic damage, rarely peripheral neuritis, inhibition of spermatogenesis, myopathy, alopecia, and with prolonged treatment blood disorders.

Dose: Acute gout, 500micrograms 2-4 times daily until symptoms relieved, max .6mg per course, course not to be repeated within 3 days. Prevention of gout attacks during initial treatment with allopurinol or uricosuric medicines, 500micrograms twice daily Prophylaxis of familial Mediterranean fever [unlicensed], 0.5-2mg once daily.

Colchicine 500mg tablet, NMSF net price of kahira pharma=0.15 SDG

2.4 Disease-Modifying Agents used in Rheumatoid Disorders (DMARDs)

2.4.1 Sulfasalazine

Indications: Severe rheumatoid arthritis, ulcerative colitis and Crohn disease.

Cautions: Monitor blood counts and liver function during first 3 months of treatment, monitor renal function regularly, pregnancy, history of allergy, G6PD deficiency, slow acetylator status. Patients should be warned to report immediately any signs or symptoms of bone marrow suppression, for example, unexplained bruising or bleeding, purpura, infection, or sore throat.

Contra-indications: Hypersensitivity to Salicylates and Sulfonamides, severe renal impairment, child under 2 years, porphyria.

Side-effects: Nausea, diarrhoea, headache, loss of appetite, fever, blood disorders (including Heinz body anaemia , megaloblastic anaemia, leukopenia, neutropenia, and thrombocytopenia), hypersensitivity reactions including rash, urticaria, erythema multiforme (Stevens-Johnson syndrome), exfoliative dermatitis, epidermal necrolysis, pruritus, photosensitization, anaphylaxis, serum sickness, interstitial nephritis, and lupus erythematosus like syndrome), lung complications (including eosinophilia and fibrosing alveolitis), ocular complications (including periorbital oedema), stomatitis, parotitis, ataxia, aseptic meningitis, vertigo, tinnitus, alopecia, peripheral neuropathy, insomnia, depression, hallucinations, renal effects (including proteinuria, crystalluria, and haematuria), oligospermia, rarely acute pancreatitis, hepatitis, urine may be coloured orange, some soft contact lenses may be stained.

Dose: Rheumatoid arthritis, by mouth (as gastro-resistant tablets), adult, initially 500mg daily, increased by 500mg at intervals of 1week to a maximum of 2-3g daily in divided doses.

Sulfasalazine 500mg tablet, NMSF net price of Strides Arcolab Ltd=1.00 SDG

2.4.2 Glucosamine

Indications: Symptomatic relief of mild to moderate osteoarthritis of the knee.

Cautions: impaired glucose tolerance (monitor blood glucose concentration before treatment and periodically thereafter), predisposition to cardiovascular disease (monitor cholesterol), asthma.

Contra-indications: shellfish allergy.

Side effects: nausea, abdominal pain, dyspepsia, flatulence, diarrhoea, constipation, drowsiness, headache, fatigue, less commonly flushing, rash, pruritus, also reported visual disturbances, hair loss.

Dose: Adult over 18 years of 625mg, 2 tablets once daily, review treatment if no benefit after 2-3 months.

Adult over18 years of 1.5g, 1 tablet once daily review treatment if no benefit after 2-3 months.

Oral powder dose for adult over 18 years, 1 sachet (dissolved in at least 250ml of water) once daily review treatment if no benefit after 2-3 months.

Glucosamine 500mg tablet, NMSF net price of Eva Pharma = 0.35 SDG

3 Antiallergics and Medicines Used in Anaphylaxis

3.1 Chlorphenamine

Indications: Symptomatic relief of allergy, allergic rhinitis (hay fever) and conjunctivitis, urticaria, insect stings, and pruritus of allergic origin, adjunct in the emergency treatment of anaphylactic shock and severe angioedema.

Cautions: Prostate enlargement, urinary retention, ileus or pyloroduodenal obstruction, glaucoma, child under 1 year, epilepsy.

Side-effects: Drowsiness (rarely paradoxical stimulation with high doses, or in children or the elderly), hypotension, headache, dizziness, palpitations, psychomotor impairment, urinary retention, dry mouth, blurred vision, gastrointestinal disturbances, liver dysfunction, blood disorders, also rash and photosensitivity reactions, sweating and tremor, hypersensitivity reactions including bronchospasm, angioedema and anaphylaxis,injections may be irritant.

Dose: Allergy, by mouth, adult, 4mg every 4-6 hours (maximum, 24mg daily), children under 1 year, not recommended, child 1-2 years, 1mg twice daily, child 2-5 years, 1mg every 4-6 hours (maximum 6mg daily), child 6-12 years, 2mg every 4-6 hours(maximum 12mg daily).

Allergic reactions, anaphylaxis (adjunct), by subcutaneous, intramuscular, or intravenous injection, adult, 10-20mg (maximum 40mg in 24 hours), child 1 month-1 year, 250micrograms/kg (maximum 2.5mg), child 1-5 years, 2.5-5mg, child 6-12 years, 5-10mg.

Chlorpheniramine maleate 4mg tablet, NMSF net price of Cima = 0.10 SDG,
Chlorpheniramine maleate 4mg tablet, NMSF net price of Salah Medical Preparation Factory = 0.03 SDG
Chlorpheniramine maleate 2mg/5ml syrup 100ml, NMSF net price of Amipharma = 4.65 SDG
Chlorpheniramine maleate 2mg/5ml syrup 100ml, NMSF net price of Wafrapharma = 4.00 SDG
Chlorpheniramine maleate 10mg/ml injection in 1ml, NMSF net price of Greenfield Pharmaceutical = 1.500 SDG

3.2 Epinephrine (Adrenaline)

Indications: Severe anaphylactic reaction, severe angioedema, cardiac arrest.

Cautions: Hyperthyroidism, hypertension, diabetes mellitus, heart disease, arrhythmias, cerebrovascular disease, second stage of labour, elderly.

Side-effects: Tachycardia and arrhythmias, hypertension, tremor, anxiety, sweating, nausea, vomiting, weakness, hyperglycaemia, dizziness and pulmonary oedema have all been reported, headache common.

Dose: Anaphylaxis, by intramuscularor subcutaneous injection of 1:1000 Epinephrine injection, see Steps in the Management of Anaphylaxis for doses. Anaphylaxis, by slow intravenous injection of 1:10 000 Epinephrine injection.

Ephedrine HCl 1mg/1ml, NMSF net price of Laboratories Renaudin = 4.00 SDG

3.3 Dexamethasone

Indications: Adjunct in the emergency treatment of anaphylaxis, short-term suppression of inflammation in allergic disorders.

Cautions: Increased susceptibility to, and severity of, infection, activation or exacerbation of Tuberculosis, amoebiasis and strongyloidiasis, risk of severe chickenpox in non-immune patients (varicella-zoster immunoglobulin required if exposed to chickenpox), avoid exposure to measles (normal immunoglobulin possibly required if exposed), diabetes mellitus, peptic ulcer, hypertension, corneal perforation,for further precautions relating to long-term use of corticosteroids.

Contra-indications: Untreated systemic infection (unless the condition is life threatening), administration of live virus vaccines.

Side-effects: Nausea, dyspepsia, malaise, hiccups, hypersensitivity reactions including anaphylaxis, perineal irritation after intravenous administration.

Dose: Allergy (short-term use), by mouth, adult usual range 0.5-10mg daily as a single dose in the morning, child,10-100micrograms/kg daily. Anaphylaxis (adjunct), by slow intravenous injection or infusion (as Dexamethasone phosphate), adult, 0.5-24mg child, 200-400micrograms/kg.

Dexamethasone 0.1% eye drops (5ml/bottle), Apply eye drops every 30-60 minutes until controlled then reduce frequency to 4-6 times daily.

Dexamethasone sodium phosphate 4mg/ml inj, NMSF net price of Merck KGa = 3.00 SDG
Dexamethasone sodium phosphate1.5mg tab., NMSF net price of Geofman Pharmaceuticals = 1.50 SDG
Dexamethason 0.5mg/5ml Syrup (100ml/Bottle), NMSF net price of Arab Drug Co = 7.00 SDG
Dexamethasone 1.5mg tab., NMSF net price of Salah Medical Preparation Factory = 0.74 SDG

3.4 Hydrocortisone

Indication: Adjunct in the emergency treatment of anaphylaxis, inflammatory skin conditions, inflammatory bowel disease and adrenocortical insufficiency.

Side-effects: For adverse effects associated with long-term corticosteroid treatment.

Dose: Anaphylaxis (adjunct), by slow intravenous injection as a single dose.
Hydrocortisone Sodium Succinate 100mg injection, NMSF net price of Troikaa Pharmaceutical = 4 SDG
Hydrocortisone 10mg tablet, NMSF net price of Alfares Pharmaceuticals Co = 0.37 SDG
Hydrocortisone 1% cream, NMSF net price of Gulf Pharmaceutical Industries =6.00 SDG
Hydrocortisone 1% oint, NMSF net price of Gulf Pharmaceutical Industries = 6.00 SDG
Hydrocortisone 1% cream, NMSF net price of Alpharonia pharmaceutical = 3.50 SDG
Hydrocortisone 1% oint, NMSF net price of Alpharonia pharmaceutical = 3.50 SDG

3.5 Fluocinolone Acetonide

Indications: Inflammatory skin disorders such as eczemas, psoriasis.

Cautions: Avoid prolonged use of a topical corticosteroid on the face (and keep away from eyes). In children avoid prolonged use and use potent or very potent corticosteroids under specialist supervision, extreme caution is required in dermatoses of infancy including nappy rash- treatment should be limited to 5- 7 days.

Contra-indications: Topical corticosteroids are contra-indicated in untreated bacterial, fungal, or viral skin lesions, in acne, rosacea, and in perioral dermatitis, potent corticosteroids are contra-indicated in wide spread plaque psoriasis.

Side-effects: Mild and moderately potent topical corticosteroids are associated with few side effects but care is required in the use of potent and very potent corticosteroids. Absorption through the skin can rarely cause adrenal suppression and even Cushing's syndrome, depending on the area of the body being treated and the duration of treatment. Absorption is greatest where the skin is thin ar raw, and form intertriginous areas, it is increased by occlusion. Local side effects include spread and worsening of untreated infection, thinning of the skin which may be restored over a period after stopping treatment but the original structure may never return, irreversible striae atrophicae and telangiectasia, contact dermatitis, perioral dermatitis, acne, or worsening of acne or rosacea, mild depigmentation which may be reversible, hypertrichosis.

Dose: Apply thinly 1-2 times daily, reducing strength as condition responds.

Fluocinolone acetonide 0.025%w/w, 15gm cream, NMSF net price of Glenmark = 6.00 SDG

3.6 Prednisolone

Indications: Short-term suppression of inflammation in allergic disorders, longer term suppression, malignant disease, inflammation of the eye.

Contra-indications: Untreated systemic infection, administration of live virus vaccines.

Cautions: Increased susceptibility to, and severity of, infection, activation or exacerbation of Tuberculosis, amoebiasis, and strongyloidiasis, risk of severe chickenpox in non-immune patients (varicella-zoster immunoglobulin required if exposed to chickenpox), avoid exposure to measles (normal immunoglobulin possibly required if exposed),diabetes mellitus, peptic ulcer, hypertension, corneal perforation, for further precautions, in particular, those relating to low dose long- term use of corticosteroids.

Side-effects: Nausea, dyspepsia, malaise, hiccups, hypersensitivity reactions including anaphylaxis, for adverse effects as sociated with long-term corticosteroid treatment.

Dose: Allergy (short-term use), by mouth, adult and child, initially up to 10-20mg daily as a single dose in the morning (in severe allergy, up to 60 mg daily as a short course of 5 -10 days).
Prednisolone 5mg tablet,, NMSF net price of Cima = 0.13 SDG
MethylPrednisolone succinate 500mg injection, NMSF net price of Troikaa Pharmaceutical India = 40.92 SDG
MethylPrednisolone sodium succsinate 1g injection, NMSF net price of Troikaa Pharmaceutical India = 75.00 SDG
MethylPrednisolone succinate 1g injection, NMSF net price of Troikaa Pharmaceutical India = 58.16 SDG
MethylPrednisolone sodium succsinate 500mg injection, NMSF net price of Troikaa Pharmaceutical India = 55.00 SDG
MethylPrednisolone succinate 500mg injection, NMSF net price of Troikaa Pharmaceutical India = 40.92 SDG

3.7 Mometasone Furoate

Indications: Severe inflammatory skin disorders such as eczemas unresponsive to less potent corticosteroids, psoriasis, contact dermatitis, insect stings, and eczema of scabies. Corticosteroids suppress the inflammatory reaction during use, they are not curative and on discontinuation a rebound exacerbation of the condition may occur. They are generally used to relieve symptoms and suppress signs of the disorder when other measures such as emollients are ineffective.

In general, the most potent topical corticosteroids should be reserved for recalcitrant dermatoses such as chronic discoid lupus erythematosus, lichen simplex chronicus, hypertrophic lichen planus, and palmoplantar pustulosis. Potent corticosteroids should generally be avoided on the face and skin flexures, but specialists occasionally prescribe them for use on these areas in certain circumstances.

Cautions: Avoid prolonged use of a topical corticosteroid on the face (and keep away from eyes). In children avoid prolonged use and use potent or very potent corticosteroids under specialist supervision, extreme caution is required in dermatoses of infancy including nappy rash.

Treatment should be limited to 5–7 days.

The use of potent or very potent corticosteroids in psoriasis can result in rebound relapse, development of generalised pustular psoriasis, and local and systemic toxicity.

Contra-indications: Topical corticosteroids are contra-indicated in untreated bacterial, fungal, or viral skin lesions, in acne, in rosacea, and in perioral dermatitis, potent corticosteroids are contra-indicated in widespread plaque psoriasis.

Side-effects: Mild and moderately potent topical corticosteroids are associated with few side-effects but care is required in the use of potent and very potent corticosteroids. Absorption through the skin can rarely cause adrenal suppression and even Cushing's syndrome, depending on the area of the body being treated and the duration of treatment. Absorption is greatest where the skin is thin or raw, and from intertriginous areas, it is increased by occlusion. Local side-effects include, spread and worsening of untreated infection, thinning of the skin which may be restored over a period after stopping treatment but the original structure may never return, irreversible striae atrophicae and telangiectasia, contact dermatitis, perioral dermatitis, acne, or worsening of acne or rosacea, mild depigmentation which may be reversible, Hypertrichosis also reported.

Dose: Apply thinly once daily (to scalp in case of lotion)

Mometasone fumarate ointment 0.1%, 30g, NMSF price net of Spimaco = 17.00 SDG
Mometasone fumarate cream 0.1%, 30g, NMSF price net of Spimaco = 15.00 SDG

Antiallergics and Medicines Used in Anaphylaxis

4 Central Nervous System

4.1 Hypnotics and anxiolytics

Benzodiazepines are the most commonly used anxiolytics and hypnotics, they act at benzodiazepine receptors which are associated with gamma-amino butyric acid (GABA) receptors.

4.1.1 Diazepam

Indications: Short-term use in anxiety or insomnia, adjunct in acute alcohol withdrawal, status epilepticus, febrile convulsions, muscle spasm, peri-operative use.

Cautions: Respiratory disease, muscle weakness and myasthenia gravis, history of drug or alcohol abuse, marked personality disorder, reduce dose in elderly and debilitated, avoid prolonged use, special precautions for intravenous injection, acute porphyria, when given parenterally, close observation required until full recovery from sedation.

Contra-indications: Respiratory depression, marked neuromuscular respiratory weakness including unstable myasthenia gravis, acute pulmonary insufficiency, sleep apnoea syndrome, not for chronic psychosis, should not be used alone in depression or in anxiety with depression, avoid injections containing benzyl alcohol in neonates.

Side-effects: Drowsiness and light headedness the next day, confusion and ataxia (especially in the elderly), amnesia, dependence, paradoxical increase in aggression, muscle weakness, occasionally: headache, vertigo, hypotension, salivation changes, gastro-intestinal disturbances, visual disturbances, dysarthria, tremor, changes in libido, incontinence, urinary retention, blood disorders and jaundice reported, skin reactions, on intravenous injection, pain, thrombophlebitis, and rarely apnoea.

Dose: By mouth, anxiety, 2mg 3 times daily increased if necessary to 15-30mg daily in divided doses, elderly (or debilitated) half adult dose. Insomnia associated with anxiety, 5-15mg at bed time.

By intramuscular injection or slow intravenous injection (into a large vein, at a rate of not more than 5mg/minute), for severe acute anxiety, control of acute panic attacks, and acute alcohol withdrawal, 10mg, repeated if necessary after not less than 4 hour's.

Diazepam 5mg tablet, NMSF net price of Blue Nile = 0.150 SDG
Diazepam 5mg/ml, 2ml amp, NMSF net price of F.Hoffmann-La Roche Ltd = 4.25 SDG
Diazepam 5mg/ml, 2ml amp, NMSF net price of L.B.S labrotery Ltd. = 2.30 SDG

4.1.2 Lorazepam

Indications: Short-term useing anxiety or insomnia status epilepticus), peri-operative.

Cautions: See under Diazepam, shortacting, when given parenterally, facilities for managing respiratory depression with mechanical ventilation must be available.

Contra-indications: See under Diazepam.

Side-effects: See under Diazepam.

Dose: By mouth, anxiety, 1-4mg daily in divided doses, elderly (or debilitated) half adult do, insomnia associated with anxiety, 1-2mg at bedtime, child not recommended.

By intramuscular or slow intravenous injection (into a large vein), acute panic attacks, 25-30micrograms/kg (usual range 1.5-2.5mg), repeated every 6 hours if necessary, child not recommended.

Lorazepam 1mg tablet, NMSF net price of Medochemie = 0.20 SDG
Lorazepam 2mg tablet, NMSF net price of Medochemie = 0.25 SDG

4.2 Medicines used in Psychoses and Related Disorders

4.2.1 Antipsychotic Medicines

Cautions: Antipsychotic medicines should be used with caution in patients with cardiovascular disease, an ECG may be required (see individual drug monographs), particularly if physical examination identifies cardiovascular risk factors, if there is a personal history of cardiovascular disease, or if the patient is being admitted as an inpatient. Antipsychotic medicines should also be used with caution in Parkinson's disease (may be exacerbated by antipsychotics), epilepsy (and conditions predisposing to epilepsy), depression, Myasthenia gravis, prostatic hypertrophy, or a susceptibility to angle-closure glaucoma. Caution is also required in severe respiratory disease and in patients with a history of jaundice or who have blood dyscrasias (perform blood counts if unexplained infection or fever develops). As photosensitization may occur with higher dosages, patients should avoid direct sunlight. Patients with Schizophrenia should have physical health monitoring (including cardiovascular disease risk assessment) at least once per year.

Contra-indications: Antipsychotic medicines may be contra-indicated in comatose states, CNS depression, and phaeochromocytoma.

Driving drowsiness may affect performance of skilled tasks (e.g. driving or operating machinery), especially at start of treatment, effects of alcohol are enhanced.

Side-effects: Caused by antipsychotic medicines are common and contribute significantly to non-adherence to therapy. Extrapyramidal symptoms occur most frequently with the Piperazine, Phenothiazines (Fluphenazine, Perphenazine, Prochlorperazine, and Trifluoperazine), the Butyrophenones (Benperidol and Haloperidol), and the first-generation depot preparations. They are easy to recognize but cannot be predicted accurately because they depend on the dose, the type of drug, and on individual susceptibility. Sexual dysfunction is one of the main causes of non-adherence to antipsychotic medication, physical illness, psychiatric illness, and substance misuse are contributing factors. Antipsychotic medicines have been associated with cardiovascular side-effects such as tachycardia, arrhythmias, and hypotension. QT-interval prolongation is a particular concern with Pimozide and Haloperidol. There is also a higher probability of QT-interval prolongation in patients using any intravenous antipsychotic drug, or any antipsychotic drug or combination of antipsychotic medicines with doses exceeding the recommended maximum. Cases of sudden death have occurred. Hyperglycaemia and sometimes diabetes can occur with antipsychotic medicines, particularly Clozapine, Olanzapine, Quetiapine and Risperidone. All antipsychotic medicines may cause weight gain, but the risk and extent varies. Clozapine and Olanzapine commonly cause weight gain. Neuroleptic malignant syndrome (hyperthermia, fluctuating level of consciousness, muscle rigidity, and autonomic dysfunction with pallor, tachycardia, labile blood pressure, sweating, and urinary incontinence) is a rare but potentially fatal side-effect of all antipsychotic medicines. Discontinuation of the antipsychotic drug is essential because there is no proven effective treatment, but Bromocriptine and Dantrolene have been used. The syndrome, which usually lasts for 5-7 days after drug discontinuation, may be unduly prolonged if depot preparations have been used. Hypersalivation associated with Clozapine therapy can be treated with Hyoscine Hydrobromide [unlicensed indication], provided that the patient is not at particular risk from the additive antimuscarinic side-effects of Hyoscine and Clozapine.

Other side-effects include: Drowsiness, apathy, agitation, excitement and insomnia, convulsions, dizziness, headache, confusion, gastro-intestinal disturbances, nasal congestion, antimuscarinic symptoms (such as dry mouth, constipation, difficulty with micturition, and blurred vision, very rarely, precipitation of angle-closure glaucoma), venous thromboembolism, blood dyscrasias(such as agranulocytosis and leucopenia), photosensitisation, contact sensitization and rashes, and jaundice (including cholestatic), corneal and lensopacities, and purplish pigmentation of the skin, cornea, conjunctiva, and retina.

4.2.1.1 Chlorpromazine Hydrochloride

Indications: See under Dose.

Cautions: See notes above, also diabetes, patients should remain supine, with blood pressure monitoring for 30 minutes after intramuscular injection, dose adjustment maybe necessary if smokings started or stopped during treatment.

Contra-indications: See notes above, hypothyroidism.

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Side -effects: See notes above, also hyperglycaemia.

Dose: By mouth, Schizophrenia and other psychosis, mania, short-term adjunctive Management of severe anxiety, psychomotor agitation, excitement, and violent or dangerously impulsive behaviour, initially 25mg 3 times daily (or 75mg at night), adjusted according to response, to usual maintenance dose of 75–300mg daily (but up to 1g daily may be required in psychoses) elderly (or debilitated) third to half adult dose, child (childhood Schizophrenia and Autism) 1-6 years 500micrograms/kg every 4-6 hours (max. 40mg daily), 6–12 years 10mg 3 times daily (max. 75mg daily). Intractable hiccup, 25-50mg 3-4 times daily. By deep intramuscular injection, (for relief of acute symptoms but see also Cautions and Side-effects), 25-50mg every 6–8 hours, child 1-6 years 500micrograms/kg every 6-8hours (max. 40mg daily), 6-12 years 500micrograms/kg every 6-8 hours (max.75mg daily).

By rectum in suppositories as chlorpromazine base 100mg every 6-8hours [unlicensed].

Chlorpromazine HCl tablet 25mg, NMSF net price, of Citypharm = 0.27 SDG
Chlorpromazine HCl tablet 50mg, NMSF net price, of Remedica = 0.22 SDG
Chlorpromazine HCl 100mg table, NMSF net price of Shangehai- Sudan = 0.14 SDG
Chlorpromazine HCl 50mg/2ml injection, NMSF net price, of Laboratories Renaudin = 2.50 SDG
Chlorpromazine HCl 50mg/2ml injection, NMSF net price, of Sanofi Aventis (Winthrop) = 4.00 SDG

4.2.1.2 Flupentixol

Indications: Schizophrenia and other psychosis, particularly with apathy and withdrawal but not mania or psychomotor hyperactivity, depression.

Cautions: See notes above, diabetes, avoid in acute porphyria.

Contraindications: See notes above, also excitable and over active patients.

Side-effects: See notes above, less sedating but extrapyramidal symptoms frequent, hyperglycaemia.

Dose: Psychosis, initially 3–9 mg twice daily adjusted according to the response, max. 18mg daily, elderly (or debilitated) initially quarter to half adult dose, child not recommended.

Flupentixol decanoate 20mg/ml inj. 2ml amp, NMSF net price of Lundbech = 51.70 SDG
Flupenthixol +Melitracen (0.5mg + 10mg) Tab., NMSF net price of Lundbech = 0.45SDG

4.2.1.3. Haloperidol

Indications: See under Dose, motor tics.

Cautions: See notes above, also subarachnoid haemorrhage, metabolic disturbances such as hypokalaemia, hypocalcaemia, or hypomagnesaemia, thyrotoxicosis, arteriosclerosis, dose adjustment may be necessary if smoking started or stopped during treatment.

Contra-indications: See notes above, and also QT-interval prolongation (avoid concomitant administration of Medicines that prolong QT interval), bradycardia.

Side-effects: See notes above, but less sedating and fewer antimuscarinic or hypotensive symptoms, pigmentation and photosensitivity reactions are rare, depression, weight loss, less commonly dyspnoea, oedema, rarely bronchospasm, hypoglycaemia, and inappropriate antidiuretic hormone secretion, hypertension, sweating , Stevens-Johnson syndrome, and toxic epidermal necrolysis also reported.

Dose: Schizophrenia and other psychoses, mania, short-term adjunctive management of psychomotor agitation, excitement, and violent or dangerously impulsive behavior, adult and child over 12 years, by mouth, initially 0.5-3mg 2-3 times daily or 3-5mg 2-3 times daily in severely affected or resistant patients, in resistant schizophrenia up to 30mg daily may be needed, adjusted according to response to lowest effective maintenance dose (also was 5-10mg daily), elderly (or debilitated) initially half adult dose.

By intramuscular or by intravenous injection, adult over 18 years, initially 2-1mg, then every 4-8 hours according to response to total max. 18mg daily, severely disturbed patients may require initial dose of up to 18mg, elderly (or debilitated) initially half adult dose. Agitation and restlessness in the elderly, by mouth, initially 0.5-1.5mg once or twice daily, short-term adjunctive management of severe anxiety, by mouth, adult over 18 years, 500micrograms twice daily. Motortics, adjunctive treatment in choreas and Tourette syndrome, by mouth, 0.5-1.5mg 3 times daily adjusted according to response, 10mg daily or more may occasionally be necessary in Tourette syndrome, child 5-12 years, Tourette syndrome, 12.5-25microgram/kg twice daily, adjusted according to response up to max.10mg daily, Intractable hiccup, by mouth, adult over 18 years, 1.5mg 3 times daily adjusted according to response. Nausea and vomiting. By intramuscular or intravenous injection, 1-2mg.

Haloperidol 5mg tab, NMSF net price of Remedica = 0.28 SDG
Haloperidol 5mg tab, NMSF net price of Lusomedicamenta = 0.87 SDG
Haloperido l5mg/ml amp, NMSF net price of Laboratories Renaudin = 2 SDG

4.2.1.4 Zuclopenthixol

Indications: Short-term management of acute psychosis, mania, or exacerbations of chronic psychosis.

Cautions: See notes above, avoid in acute porphyria.

Contra-indications: See notes above.

Side-effects: See notes above.

Dose: By deep intramuscular injection into the gluteal muscle or lateral thigh, 50-150mg elderly 50-100mg), if necessary repeated after 2-3 days (1 additional dose may be needed 1-2 days after the first injection), max. Cumulative dose 400mg per course and max. 4 injections, maximum duration of treatment 2 weeks if maintenance treatment necessary change to an oral antipsychotic 2-3 days after last injection, or to a longer acting antipsychotic depot injection given concomitantly with last injection of Zuclopenthixol acetate, child not recommended.

Zulcopenthixol acetate 50mg/ml, NMSF net price of Lundbech = 26 SDG
Zuclopenthixol decanoate 200mg/ml, NMSF net price of Lundbech = 40.00 SDG

4.2.1.5 Fluphenazine decanoate

Indications: Maintenance in Schizophrenia and/or other psychoses.

Cautions: See notes above, dose adjustment may be necessary if smoking started or stopped during treatment, QT-interval prolongation (avoid concomitant medicines that prolong QT interval).

Contra-indications: See notes above, also marked cerebral atherosclerosis.

Side-effects: See notes above, less sedating and fewer antimuscarinic and/or hypotensive symptoms, but extrapyramidal symptoms, particularly dystonic reactions and akathisia, more frequent, systemic lupus erythematosus, inappropriate antidiuretic hormone secretion, and oedema also reported, extrapyramidal symptoms usually appear a few hours after injection and continue for about 2days but may be delayed.

Dose: By deep intramuscular injection into the gluteal muscle, test dose 12.5mg (6.25mg in elderly), then after 4-7 days 12.5-100mg repeated at intervals of 14- 35 days, adjusted according to response, child not recommended.

Fluphenazine decanoate 25mg/ml, NMSF net price of Duopharma (M) Sdn Bhd = 7.5 SDG
Fluphenazine decanoate 25mg/ml, NMSF net price of Panpharma Laboratories (Rotex- Medica) = 6 SDG

4.2.1.6 Prochlorperazine

Indications: Schizophrenia and other psychoses, mania, short term adjunctive management of severe anxiety and antiemetic.

Cautions: Hypotension more likely after intramuscular injection.

Contra-indications: Children.

Side-effects: Less sedating, extrapyramidal symptoms, particularly dystonias, more frequent, respiratory depression may occur in susceptible patients.

Dose: By mouth, Schizophrenia and other psychoses, mania, Prochlorperazine maleate or mesilate, 12.5mg twice daily for 7 days adjusted at intervals of 4-7 days to usual dose of 75- 100mg daily according to response, child not recommended.

Short term adjunctive management of severe anxiety, 15- 20mg daily in divided doses, max. 40mg daily, child not recommended.

By deep intramuscular injection, psychoses, ma-

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nia, Prochlorperazine mesilate 12.5- 2.5mg 1-3 times daily, child not recommended.

Nausea and vomiting, acute attack, 20mg initially then 10mg after 2 hours, prevention 5- 10mg 2-3 times daily, child (over 10 kg only) 250micrograms/kg 2-3 times daily.

Laburinthine disorders, 5mg 3 times daily, gradually increased if necessary to 30mg daily in divided doses, then reduced after several weeks to 5-10mg daily, child not recommended By deep intramuscular injection, nausea and vomiting, 12.5mg when required followed if necessary after 6 hours by an oral dose, as above.

Prochlorperazine maleate 5mg tab., NMSF net price of Ferozsons = 0.17 SDG

4.2.1.7 Trifluoperazine

Indications: Schizophrenia and other psychosis, short term adjunctive management of psychomotor agitation, excitement, and violent or dangerously impulsive behavior, short term adjunctive management of severe anxiety, and also used as antiemetic.

Cautions: See notes above.

Contra-indications: See notes above.

Side-effects: See notes above, extrapyramidal symptoms more frequent, especially at doses exceeding 6mg daily, anorexia, muscle weakness.

Dose: Schizophrenia and other psychoses, short term adjunctive management of psychomotor agitation, excitement, and violent or dangerously impulsive behavior, adult and child over 12 years, initially 5mg twice daily, increased by 5mg daily after 1 week, then at intervals of 3 days, according to the response, elderly reduce initial dose by at least half.

Short term adjunctive management of severe anxiety, adult and child over 12 years, 2-4mg daily in divided doses, increased if necessary to 6mg daily, elderly reduce initial dose by at least half.

Trifluoperazine, NMSF net price = New Item

4.2.2 Atypical Antipsychotic Medicines

Cautions and Contra-indications: While atypical antipsychotic medicines have not generally been associated with clinically significant prolongation of the QT interval, they should be used with care if prescribed with other medicines that increase the QT interval. Atypical antipsychotic medicines should be used with caution in patients with cardiovascular disease, or a history of epilepsy, they should be used with great caution in the elderly. Driving atypical antipsychotic medicines may affect performance of skilled tasks (e.g. driving), effects of alcohol are enhanced.

Side-effects: The atypical antipsychotic Medicines include weight gain, dizziness, postural hypotension (especially during initial dose titration) which may be associated with syncope or reflex tachycardia in some patients, extrapyramidal symptoms (usually mild and transient and which respond to dose reduction or to an antimuscarinic drug), and occasionally tardive dyskinesia on long-term administration (discontinue drug on appearance of early signs), venous thromboembolism has been reported. Hyperglycaemia and sometimes diabetes can occur, particularly with Clozapine, Olanzapine, and Risperidone, monitoring weight and plasma-glucose concentration may identify the development of hyperglycaemia. Neuroleptic malignant syndrome has been reported rarely. Hypersalivation associated with Clozapine therapy can be treated with Hyoscine hydrobromide [unlicensed indication], provided that the patient is not at particular risk from the additive antimuscarinic side-effects of Hyoscine and Clozapine.

4.2.2.1 Clozapine

Indications: Schizophrenia (including psychosis in Parkinson's disease) in patients unresponsive to, or intolerant of, conventional antipsychotic medicines.

Cautions: See notes above, elderly, monitor leucocyte and differential blood counts (see Agranulocytosis, below), prostatic hypertrophy, susceptibility to angle-closure glaucoma, taper off other antipsychotics before starting, close medical supervision during initiation (risk of collapse because of hypotension), dose adjustment may be necessary if smoking started or stopped during treatment.

Contra-indications: Severe cardiac disorders (e.g. myocarditis, see Cautions), history of neutropenia or agranulocytosis (see Cautions), bone-marrow disorders, paralytic ileus (see Cautions), alcoholic and toxic psychoses, history of circulatory collapse, drug intoxication, coma or severe CNS depression, uncontrolled epilepsy.

Side-effects: See notes above, also constipation (see Cautions), hypersalivation, dry mouth, nausea, vomiting, anorexia, tachycardia, ECG changes, hypertension, drowsiness, dizziness, headache, tremor, seizures, fatigue, impaired temperature regulation, urinary incontinence and retention, leucopenia, eosinophilia, leucocytosis, blurred vision, sweating, less commonly agranulocytosis (important: see Cautions), rarely dysphagia, hepatitis, cholestatic jaundice, pancreatitis, circulatory collapse, arrhythmia, myocarditis (important: see Cautions), pericarditis, thromboembolism, agitation, confusion, delirium, anaemia, very rarely parotid gland enlargement, intestinal obstruction (see Cautions), cardiomyopathy, myocardial infarction, respiratory depression, priapism, interstitial nephritis, thrombocytopenia, thrombocythaemia, hypertriglyceridaemia, hypercholesterolaemia, hyperlipidaemia, angle-closure glaucoma, fulminant hepatic necrosis, and skin reactions.

Dose: Schizophrenia, adult over 16 years, 12.5mg once or twice elderly 12.5mg once) on first day then 25-50mg elderly 25-37.5mg) on second day then increased gradually (if well tolerated) in steps of 25-50mg daily elderly max. increment 25mg daily) over 14-21 days up to 300mg daily in divided doses (larger dose at night, up to 200mg daily may be taken as a single dose at bed time), if necessary may be further increased in steps of 50-100mg once (preferably) or twice weekly, usual dose 200-450mg daily (max. 900mg daily).

Clozapine 100mg scored tablet, 25mg tablet, NMSF net price = New item

4.2.2.2 Olanzapine

Indications: Schizophrenia, combination therapy for mania, preventing recurrence in bipolar disorder, monotherapy for mania.

Cautions: paralytic illeus, diabetes mellitus, low leucocyte or neutrophil count, bone marrow depression, hypereosinophilic disorders, myeloproliferative disease, dose adjustment may be necessary if smoking started or stopped during treatment.

Side-effects: Transient antimuscarinc effects, drowsiness, speech difficulty, exacerbation of parkinson's disease, abnormal gait, hallucinations, akathisia, asthenia, fatigue, increased appetite, increased body temperature, raised triglyceride concentration, oedema, hyperprolactinaemia, eosinophilia.

Dose: Schizophrenia, combination therapy for mania, preventing recurrence in bipolar disorder, by mouth, adult over 18 years, 10mg daily adjusted to usual range of 5-20mg daily, doses greater than 10mg daily only after reassessment, max. 20mg daily.

Monotherapy for mania, by mouth, adult over 18 years, 15mg daily adjusted to usual range of 5-20mg daily, doses greater than 15mg only after reassessment max. 20mg daily.

Olanzapine 5mg tablet, NMSF net price of Micro Labs Limited = 0.13 SDG
Olanzapine 5mg tablet, NMSF net price of Intas Pharmaceuticals = 0.20 SDG
Olanzapine 5mg tablet, NMSF net price of Sun Pharma Ltd India= 1.14 SDG
Olanzapine 10mg tablet, NMSF net price of Micro Labs Limited = 0.24SDG
Olanzapine 10mg tablet, NMSF net price of Sun Pharma Ltd India = 1.24 SDG
Olanzapine 10mg tablet, NMSF net price of Zydus Cadila Healthcare = 0.39 SDG

4.2.2.3. Risperidone

Indications: Acute and chronic psychoses, mania, short-term treatment (up to 6 weeks) of persistent aggression in patients with moderate to severe Alzheimer's dementia unresponsive to non-pharmacological interventions and when there is a risk of harm to self or others, short-term treatment (up to 6 weeks) of persistent aggression in conduct disorder (under specialist supervision).

Cautions: See notes above, Parkinson's disease, dementia with Lewy bodies, dehydration, avoid in acute porphyria.

Side-effects: See notes above, and/or also gastrointestinal disturbances (including diarrhoea, constipation, nausea and vomiting, dyspepsia, abdominal pain), dry mouth, dyspnoea, drowsiness, asthenia, tremor, sleep disturbances, agitation, anxiety, headache, urinary incontinence,

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arthralgia, myalgia, abnormal vision, epistaxis, rash, less commonly anorexia, ECG changes, hypoaesthesia, impaired concentration, hyperprolactinaemia, sexual dysfunction, blood disorders, tinnitus, angioedema, rarely intestinal obstruction, pancreatitis, jaundice, seizures, hyponatraemia, abnormal temperature regulation, oedema and priapism also reported.

Dose: Psychoses, 2mg in 1-2 divided doses on first day then 4mg in 1-2 divided doses on second day (slower titration appropriate in some patients),usual dose range 4-6mg daily, doses above 10mg daily only if benefit considered to outweigh risk (max.16mg daily), elderly initially 500micrograms twice daily increased in steps of 500micrograms twice daily to 1-2mg twice daily.

Mania, initially 2mg once daily, increased if necessary in steps of 1mg daily, usual dose range 1-6mg daily, elderly initially 500micrograms twice daily increased in steps of 500micrograms twice daily to 1-2mg twice daily.

Persistent aggression in Alzheimer's dementia, initially 250micrograms twice daily, increased according to response in steps of 250micrograms twice daily on alternate days, usual dose 500micrograms twice daily (up to 1mg twice daily has been required).

Persistent aggression in conduct disorder, children over 5 years, body-weight under 50kg, initially 250micrograms once daily, increased according to response in steps of 250micrograms on alternate days, usual dose 500micrograms daily (up to 750micrograms once daily has been required), children over 5 years, body-weight over 50kg, initially 500micrograms once daily, increased according to response in steps of 500micrograms on alternate days, usual dose1mg daily (up to 1.5mg once daily has been required)

Risperidone 2mg scored tablet, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 0.58 SDG
Risperidone 2mg scored tablet, NMSF net price of Cipla Ltd = 0.26 SDG
Risperidone 2mg scored tablet, NMSF net price of Delta for Pharmaceutical and Chemical Industries = 2.32 SDG
Risperidone 3mg scored tablet, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 0.92 SDG
Risperidone 3mg scored tablet, NMSF net price of Cipla Ltd = 0.30 SDG
Risperidone 4mg scored tablet, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 1.15 SDG

4.3 Antidepressant Medicines

Antidepressant medicines are effective for treating moderate to severe depression associated with psychomotor and physiological changes such as loss of appetite and sleep disturbance, improvement in sleep is usually the first benefit of therapy.

Ideally, patients with moderate to severe depression should be treated with psychological therapy in addition to drug therapy. Antidepressant Medicines are also effective for dysthymia (lower grade chronic depression (typically of at least 2 years duration).

Antidepressant medicines should not be used routinely in mild depression, and psychological therapy should be considered initially, however, a trial of antidepressant therapy may be considered in cases refractory to psychological treatments or those associated with psychosocial or medical problems. Drug treatment of mild depression may also be considered in patients with a history of moderate or severe depression.

4.3.1 Tricyclic and related Antidepressant Medicines

Cautions: Tricyclic and related antidepressant medicines should be used with caution in patients with cardiovascular disease (see also Contra-indications, below), because of the risk of arrhythmias, patients with concomitant conditions such as hyperthyroidism and phaeochromocytoma should be treated with care. Care is also needed in patients with epilepsy and diabetes. Tricyclic antidepressant medicines have antimuscarinic activity, and therefore caution is needed in patients with prostatic hypertrophy, chronic constipation, increased intra-ocular pressure, urinary retention, or those with a susceptibility to angle-closure glaucoma. Tricyclic and related antidepressant medicines should be used with caution in patients with a significant risk of suicide, or a history of psychosis or bipolar disorder, because antidepressant therapy may aggravate these conditions, treatment should be stopped if the patient enters a manic phase. Elderly patients are particularly susceptible to many of the side-effects of tricyclic antidepressants. Low initial doses should be used, with close monitoring, particularly for psychiatric and cardiac side-effects.

Contra-indications: Tricyclic and related antidepressants are contra-indicated in the immediate recovery period after myocardial infarction, in arrhythmias (particularly heart block), and in the manic phase of bipolar disorder. Avoid treatment with tricyclic antidepressant medicines in acute porphyria.

Side-effects: Arrhythmias and heart block occasionally follow the use of Tricyclic antidepressants, particularly Amitriptyline, and may be a factor in the sudden death of patients with cardiac disease, other cardiovascular side-effects include postural hypotension, tachycardia, and ECG changes.The tricyclic-related antidepressant medicines may be associated with a lower risk of cardiotoxicity in over dosage.

Central nervous system side-effects are common, particularly in the elderly, and include anxiety, dizziness, agitation, confusion, sleep disturbances, irritability, and paraesthesia, drowsiness is associated with some of the Tricyclic antidepressants (see under Choice, below). Convulsions, hallucinations, delusions, mania, and hypomania may occur (see also under Cautions, above), and, rarely, extrapyramidal symptoms including tremor and dysarthria. Antimuscarinic side-effects include dry mouth, blurred vision (very rarely precipitation of angle-closure glaucoma), constipation (rarely leading to paralytic ileus,particularly in the elderly), and urinary retention. Tricyclic-related antidepressant medicines have a lower incidence of antimuscarinic side-effects than older Tricyclics.

Endocrine effects include breast enlargement, galactorrhoea, and gynaecomastia. Sexual dysfunction may occur. Changes in blood sugar, increased appetite, and weight gain can accompany treatment with Tricyclic antidepressant medicines, but anorexia and weight loss are also seen. Hepatic and haematological reactions may occur and have been particularly associated with Mianserin. Another side-effect to which the elderly are particularly susceptible is hyponatremia (see Hyponatremia and Antidepressant Therapy), Other class side-effects include nausea, vomiting, taste disturbance, tinnitus, rash, urticaria, pruritus, photosensitivity, alopecia, and sweating.

The patient should been couraged to persist with treatment as some tolerance to these side-effects seems to develop. They are reduced if low doses are given initially and then gradually increased, but this must be balanced against the need to obtain a full therapeutic effect as soon as possible .Neuroleptic malignant syndrome may, very rarely occur in the course of antidepressant drug treatment. Suicidal behavior has been linked with antidepressants.

Dose: About 10 to 20% of patients fail to respond to Tricyclic and related antidepressant medicines and inadequate dosage may account for some of these failures. It is important to use doses that are sufficiently high for effective treatment but not so high as to cause toxic effects. Low doses should be used for initial treatment in the elderly (see under Side-effects, below). In most patients the long half-life of Tricyclic antidepressant medicines allows once-daily administration, usually at night, the use of modified-release.

4.3.1.1 Amitriptyline Hydrochloride

Indications: Depressive illness (but not recommended, see notes above), neuropathic pain [unlicensed], migraine prophylaxis [unlicensed].

Cautions: See notes above.

Contra-indications: See notes above.

Side-effects: See notes above, also abdominal pain, stomatitis, palpitation, oedema, hypertension, restlessness, fatigue, mydriasis, and increased intra-ocular pressure, high rate of fatality in over dose.

Dose: Depression (but not recommended, see notes above), adult and child over 16 years, initially 75mg elderly and adolescents 30-75mg daily in divided doses or as a single dose at bed time increased gradually as necessary to 150-200mg.

Neuropathic pain [unlicensed indication], initially 10mg daily at night, gradually increased if necessary to 75mg daily, higher doses under specialist supervision.

Migraine prophylaxis [unlicensed indication], initially 10mg at night, increased if necessary to maintenance of 50-75mg at night, max.150mg at night.

Amitriptyline HCl 25mg tablet, NMSF net price of Pharmascience = 1.22 SDG
Amitriptyline HCl 25mg tablet, NMSF net price of Citypharma = 0.24 SDG

4.3.1.2 Clomipramine Hydrochloride

Indications: Depressive illness, phobic and obsessional states, adjunctive treatment of cataplexy associated with narcolepsy.

Cautions: See notes above.

Contra-indications: See notes above.

Side-effects: See notes above, also abdominal pain, diarrhoea, hypertension, flushing, restlessness, fatigue, aggression, impaired memory, muscle weakness, muscle hypertonia, myoclonus, mydriasis, and yawning, very rarely allergic alveolitis.

Dose: Depressive illness, adult over 18 years, initially 10mg daily, increased gradually as necessary to 30-150mg daily in divided doses or as a single dose at bed time, max. 250mg daily, elderly initial 10mg daily increased carefully over approx. 10 days to 30-75mg daily. Phobic and obsessional states, adult over 18 years, initially 25mg daily elderly 10mg daily increased over 2 weeks to 100 -150mg daily, max. 250mg daily. Adjunctive treatment of cataplexy associated with narcolepsy, adult over 18 years, initially 10mg daily, gradually increased until satisfactory response (range 10-75mg daily).

Clomipramine HCl 25mg tablet, NMSF net price of RAM = 0.46 SDG
Clomipramine HCl 25mg tablet, NMSF net price of Novartis Pharma Services Incorporation = 2.21 SDG
Clomipramine HCl 25mg tablet, NMSF net price of Remedica = 1.01 SDG
Clomipramine HCL 25mg/2ml inj, NMSF net price of Novartis Pharma Services Incorporation = 8.00 SDG

4.3.1.3 Imipramine Hydrochloride

Indications: Depressive illness, nocturnal enuresis in children.

Cautions: See notes above.

Contra-indications: See notes above.

Side-effects: See notes above, also palpitation, flushing, restlessness, headache, fatigue, very rarely abdominal pain, stomatitis, hypertension, oedema, cardiac decompensation, allergic alveolitis, aggression, myoclonus, peripheral vasospasm, and mydriasis.

Dose: Depression, initially up to 75mg daily in divided doses increased gradually to 150-200mg (up to 300mg in hospital patients), up to 150mg may be given as a single dose at bed time, elderly initially 10mg daily, increased gradually to 30-50mg daily, child not recommended for depression.

Nocturnal enuresis, child 7-8 years 25mg, 8-11 years 25-50mg, over 11 years 50-75mg at bed time, max. Period of treatment (including gradual withdrawal) 3 months full physical examination before further course.

Imipramine Hydrochloride 25mg film coated tablet, NMSF net price of Remedica = 0.24SDG

4.3.1.4 Maprotilline HCL

Indications: depression.

Cautions: in BPH, urinary/GI retention increased IOP, hyperthyroidism, open-angle glaucoma, seizure disorder, brain tumor, respiratory impairment. Clinical worsening & suicide ideation may occur despite medication in adolescents & young adults (18-24 years), risk of anti-cholinergic side-effects, may cause sedation (may impair physical and mental abilities), orthostatic hypotension, and anti-cholinergic effects.

Contra-indications: Severe cardiovascular disorders, narrow angle glaucoma, within 14 days of MAO inhibitors may cause Serotonin syndrome, also contraindicated with any medicines or conditions that prolong QT interval, and in acute recovery post-MI.

Side-effects: Commonly fatigue, sedation, lethargy, weakness, constipation, dry mouth, blurred vission, less commonly agitation, anxiety, headache, insomnia, nausea, vomiting, sweating occur, infrequently orthostatic hypotension, ECG changes, tachycardia, confusion, EPS, dizziness, paresthesia, tinnitus, rash, increase LFTs, and sexual dysfunction occur. Rarely seizure, agranulocytosis, thrombocytopenia, eosinophilia, and leucopenia.

Doses: In mild to moderate depression initially 75mg daily for 2 weeks, increases by 25mg increments to effective dosage, and not to exceed 150mg/day. Maintenance by decrease the dose to 75-150mg by mouth daily once symptoms are controlled, in severe depression initially 100-150mg daily for 2 weeks, the increase the dosage cautiously to effective dosage, not to exceed 225mg/day.

Maprotilline HCL 10mg/25mg tabs, New Item

4.3.2 Selective Serotonin Re-Uptake Inhibitors

Cautions: SSRIs should be used with caution in patients with epilepsy (avoid if poorly controlled, discontinue if convulsions develop), cardiac disease, diabetes mellitus, susceptibility to angle-closure glaucoma, a history of mania or bleeding disorders (especially gastro-intestinal bleeding), and if used with other medicines that increase the risk of bleeding. They should also be used with caution in those receiving concurrent electroconvulsive therapy (prolonged seizures reported with fluoxetine). SSRIs may also impair performance of skilled tasks (e.g.driving).

Contra-indications: SSRIs should not be used if the patient enters a manic phase.

Side-effects: SSRIs are less sedating and have fewer antimuscarinic and cardiotoxic effects than tricyclic antidepressants side-effects of the SSRIs include gastro-intestinal effects (dose-related and fairly common include nausea, vomiting, dyspepsia, abdominal pain, diarrhoea, constipation), anorexia with weight loss (increased appetite and weight gain also reported) and hypersensitivity reactions including rash (consider discontinuation may be sign of impending serious systemic reaction, possibly associated with vasculitis), urticaria, angioedema, anaphylaxis, arthralgia, myalgia and photosensitivity, other side-effects include dry mouth, nervousness, anxiety, headache, insomnia, tremor, dizziness, asthenia, hallucinations, drowsiness, convulsions (see Cautions above), galactorrhoea, sexual dysfunction, urinary retention, sweating, hypomania or mania (see Cautions above), movement disorders and dyskinesias, visual disturbances, hyponatraemia and bleeding disorders including ecchymoses and purpura. Suicidal behavior has been linked with antidepressants. Angle-closure glaucoma may very rarely be precipitated by treatment with SSRIs.

4.3.2.1 Citalopram

Indications: Depressive illness, panic disorder.

Cautions: See notes above, susceptibility to QT-interval prolongation.

Contra-indications: See notes above.

Side-effects: See notes above, also hepatitis, palpitation, tachycardia, oedema, bradycardia, postural hypotension, coughing, yawning, confusion, impaired concentration, aggression, malaise, amnesia, migraine, paraesthesia, abnormal dreams,euphoria, mydriasis, taste disturbance, increased salivation, rhinitis, tinnitus, polyuria, micturition disorders, pruritus, paradoxical increased anxiety during initial treatment of panic disorder (reduce dose).

Dose: By mouth as tablets, depressive illness, 20mg once daily increased if necessary in steps of 20mg daily at intervals of 3-4 weeks, max. 60mg daily elderly over 65 years, max. 40mg daily).

Panic disorder, adult over 18 years, initially 10mg daily increased gradually if necessary in steps of 10mg daily, usual dose 20–30mg daily, max. 60mg daily elderly over 65 years, max. 40mg daily).

By mouth as oral drops, depressive illness, 16mg daily as a single dose increased if necessary in steps of 16mg daily at intervals of 3-4 weeks, max. 48mg daily elderly over 65 years, max. 32mg daily.

Panic disorder, adult over 18 years, initially 8mg daily as a single dose increased gradually if necessary in steps of 8mg, usual dose 16–24mg daily ,max. 48mg daily elderly over 65 years, max. 32mg daily.

Citalopram (as HCl) 20mg scored tablet, NMSF net price of Zydus Cadila Healthcare = 0.60 SDG
Citalopram (as HCl) 20mg scored tablet, NMSF net price of Lundbech = 3.00 SDG

4.3.2.2 Fluoxetine Hydrochloride

Indications: See under Dose.

Cautions: See notes above.

Contra-indications: See notes above.

Side-effects: See notes above, also vasodilatation, postural hypotension, pharyngitis, dyspnoea, chills, taste disturbance, sleep disturbances, euphoria, confusion, yawning, impaired concentration, changes in blood sugar, alopecia, urinary

frequency,rarely pulmonary inflammation and fibrosis, very rarely hepatitis, toxic epidermal necrolysis, and neuroleptic malignant syndrome-like event.

Dose: Major depression, 20mg daily increased after 3–4 weeks if necessary and at appropriate intervals thereafter, max. 60mg daily elderly usual max. 40mg daily but 60mg can be used), child 8–18 years, 10mg daily increased after 1–2 weeks if necessary, max. 20mg daily.

Fluoxetine.HCl 20mg capsule, NMSF net price of Remedica = 0.50 SDG

4.3.2.3 Serteraline

Indications: See under Dose.

Cautions: See notes above.

Contra-indications: See notes above.

Side-effects: See notes above, pancreatitis, hepatitis, jaundice, liver failure, stomatitis, palpitation, hypertension, hypercholesterolemia, tachycardia, postural hypotension, bronchospasm, amnesia, paraesthesia, aggression, hypoglycaemia, hypothyroidism, hyperprolactinaemia, urinary incontinence, menstrual irregularities, leucopenia, and tinnitus also reported.

Dose: Depressive illness, initially 50mg daily, increased if necessary by increments of 50mg at intervals of at least 1 week to max. 200mg daily, usual maintenance dose 50mg daily.

Obsessive-compulsive disorder, adult and child over 12 years initially 50mg daily, increased if necessary in steps of 50mg at intervals of at least 1 week, max. 200mg daily, child 6-12 years initially 25mg daily, increased to 50mg daily after 1 week, further increased if necessary in steps of 50mg at intervals of at least1week, max. 200mg daily. Panic disorder, post-traumatic stress disorder, or social anxiety disorder , adult over 18 years, initially 25mg daily, increased after 1week to 50mg daily, if response is partial and if drug tolerated, dose increased in steps of 50mg at intervals of at least 1week to max. 200mg daily.

Serteraline 50mg tab, NMSF net price of Micro Labs Limited = 0.20 SDG
Serteraline 50mg tab, NMSF net price of Zydus Cadila Healthcare = 0.40 SDG
Serteraline100mg tab, NMSF net price of Micro Labs Limited = 0.40 SDG

4.3.2.4 Fluvoxamine

Indications: Depressive illness, obsessive-compulsive disorder.

Cautions: SSRIs should be used with caution in patients with epilepsy (avoid if poorly controlled, discontinue if convulsions develop), cardiac disease, diabetes mellitus, susceptibility to angle-closure glaucoma, a history of mania or bleeding disorders (especially gastro-intestinal bleeding), and if used with other medicines that increase the risk of bleeding They should also be used with caution in those receiving concurrent electroconvulsive therapy (prolonged seizures reported with Fluoxetine). SSRIs may also impair performance of skilled tasks (e.g. driving, operating machinery).

Contra-indications: SSRIs should not be used if the patient enters a manic phase

Side-effects: SSRIs are less sedating and have fewer antimuscarinic and cardiotoxic effects than Tricyclic antidepressants .Side-effects of the SSRIs include gastro-intestinal effects (dose-related and fairly common, include nausea, vomiting, dyspepsia, abdominal pain, diarrhoea, constipation), anorexia with weight loss (increased appetite and weight gain also reported) and hypersensitivity reactions including rash (consider discontinuation may be sign of impending serious systemic reaction, possibly associated with vasculitis), urticaria, angioedema, anaphylaxis, arthralgia, myalgia and photosensitivity, other side-effects include dry mouth, nervousness, anxiety, headache, insomnia, tremor, dizziness, asthenia, hallucinations, drowsiness, convulsions, galactorrhoea, sexual dysfunction, urinary retention, sweating, hypomania or mania , movement disorders and dyskinesias, visual disturbances, hyponatraemia , and bleeding disorders including ecchymoses and purpura. Suicidal behaviour has been linked with antidepressants Angle-closure glaucoma may very rarely be precipitated by treatment with SSRIs. Palpitation, tachycardia, malaise, less commonly postural hypotension, confusion, ataxia, rarely abnormal liver function, usually symptomatic (discontinue treatment), also reported paraesthesia, taste disturbance, neuroleptic malignant syndrome-like event.

Dose: Depression, adult over 18 years, initially 50-100mg daily in the evening, increased gradually if necessary to max. 300 mg daily (over 150mg in divided doses), usual maintenance dose 100mg daily. Obsessive-compulsive disorder, initially 50mg in the evening increased gradually if necessary after some weeks to max. 300 mg daily (over 150mg in divided doses), usual maintenance dose 100–300mg daily, child over 8 years initially 25mg daily increased if necessary in steps of 25mg every 4–7 days to max. 200mg daily (over 50mg in 2 divided doses).

New item

4.3.3 Other antidepressant Medicines

4.3.3.1 Mirtazapine

Indications: Major depression.

Cautions: Elderly, cardiac disorders, hypotension, history of urinary retention, susceptibility to angle-closure glaucoma, diabetes mellitus, psychoses (may aggravate psychotic symptoms), history of seizures or bipolar depression.

Side-effects: Increased appetite, weight gain, dry mouth, postural hypotension, peripheral oedema, drowsiness, fatigue, tremor, dizziness, abnormal dreams, confusion, anxiety, insomnia, arthralgia, myalgia, less commonly syncope, hypotension, mania, hallucinations, movement disorders, rarely myoclonus, very rarely blood disorders, convulsions, hyponatraemia.

Dose: Initially 15-30mg daily at bed time increased within 2-4 weeks according to response, max. 45mg daily as a single dose at bed time or in 2 divided doses, child under 18 years not recommended.

Mirtazapine 15mg tablet, NMSF net price of Pharmascience = 1.12 SDG

4.3.3.2 Venlafaxine HCl

Indications: Major depression, generalized anxiety disorder.

Cautions: Heart disease (monitor blood pressure), diabetes, history of epilepsy, history or family history of mania, susceptibility to angle-closure glaucoma, concomitant use of Medicines that increase risk of bleeding, history of bleeding disorders.

Contra-indications: Conditions associated with high risk of cardiac arrhythmia, uncontrolled hypertension.

Side-effects: Constipation, nausea, anorexia, weight changes, vomiting, hypertension, palpitation, vasodilatation, changes in serum cholesterol, chills, yawning, dizziness, dry mouth, insomnia, nervousness, drowsiness, asthenia, headache, abnormal dreams, anxiety, confusion, hypertonia, sensory disturbances, tremor, difficulty with micturition, sexual dysfunction, menstrual disturbances, visual disturbances, mydriasis (very rarely angle-closure glaucoma), sweating, less commonly bruxism, diarrhoea, taste disturbance, postural hypotension, arrhythmias, agitation, apathy, in co-ordination, hallucinations, myoclonus, angioedema, urinary retention, bleeding disorders (including ecchymosis and gastro-intestinal haemorrhage), tinnitus, alopecia, photosensitivity, and rash, rarely mania, hypomania, seizures, extrapyramidal symptoms including akathisia, urinary incontinence, also reported hepatitis, pancreatitis, hypotension, QT-interval prolongation, aggression, neuroleptic malignant syndrome, delirium, vertigo, syndrome of inappropriate anti-diuretic hormone secretion (hyperprolactinemia, blood dyscrasias, rhabdomyolysis, pruritus, urticaria, Stevens-Johnson syndrome, suicidal behaviour).

Dose: Depression, adult over 18 years, initially 75mg daily in 2 divided doses increased if necessary at intervals of at least 2 weeks, max. 375mg daily, child under 18 years not recommended

Venlafaxine HCl 37.5mg cap, NMSF net price, 75mg modified release tab = New Item

4.3.3.3 Escitalopram

Indications: Depressive illness, generalized anxiety disorder, panic disorder, social anxiety disorder.

Cautions: Used with caution in patients with epilepsy, cardiac disease, diabetes mellitus, susceptibility to angel closure glaucoma, history of mania and bleeding disorder, and if it used with any drug that increase the risk of bleeding, also should be used with caution in patients receiving electroconvulsive therapy.

Contra-indications: Should not be used if the patient enters a manic phase.

Side-effects: Gastrointestinal side effects (dose related and fairly common include nausea, vomiting, dyspepsia, abdominal pain, diarrhoea, constipation). Anorexia with weight loss and hypersensitivity reactions including rash, urticaria, angioedema, anaphylaxis, arthralgia, mylasia and photosensitivity, other side effects include dry mouth, nervousness, anxiety, headache, insomnia, tremor, dizziness, asthenia, hallucinations, drowsiness, convulsions, galactorrhoea, sexual dysfunction, urinary retention, sweating, hypomania or mania, movement disorder and dyskinesias, visual disturbances, hyponatraemia, and bleeding disorders including ecchymoses and purpura, also sinusitis,yawning, fatigue, restlessness, abnormal dreams, paraesthesia, pyrexia, less commonly taste disturbance, bruxism, syncope, tachycardia, oedema, confusion, menstrual disturbances, epistaxis, mydriasis, tinnitus, pruritus, and alopecia, rarly bradycardia, aggression, and depersonalization, hepatitis, postural hypotension, QT interval prolongation, and thrombocytopenia also reported, paradoxical increased anxiety during initial treatment of panic disorder.

Dose: Adult over 18 years, depressive illness, generalized anxiety disorder, and obsessive compulsive disorder, 10mg once daily increased if necessary to max. 20mg daily, elderly initially half adult dose, lower maintenance dose may be sufficient, child not recommended.

Adult over 18 years, panic disorder, initially 5mg once daily increased to 10mg daily after 7 days, max. 20mg daily, elderly initially half adult dose, lower maintenance dose may be sufficient.

Adult over 18 years, social anxiety disorder, initially 10mg once daily adjusted after 2-4 weeks, usual dose 5-20mg daily.

Escitalopram oxalate 10mg tablets, NMSF net price of Lundbech = 3.29 SDG

4.4 CNS Stimulants and Medicines used for Attention Deficit Hyperactivity disorder

Central Nervous System stimulants include the amphetamines (notably Dexamfetamine) and related medicines (e.g. Methylphenidate). They have very few indications and in particular, should not be used to treat depression, obesity, senility, debility, or for relief of fatigue.

CNS stimulants should be prescribed for children with severe and persistent symptoms of attention deficit hyperactivity disorder (ADHD), when the diagnosis has been confirmed by a specialist, children with moderate symptoms of ADHD can be treated with CNS stimulants when psychological interventions have been unsuccessful or are unavailable. Prescribing of CNS stimulants may be continued by general practitioners, under a shared-care arrangement. Treatment of ADHD often needs to be continued into adolescence, and may need to be continued into adulthood. Initiating treatment in adulthood is unlicensed.

Drug treatment of ADHD should be part of a comprehensive treatment programme.

The choice of medication should take into consideration co-morbid conditions (such as tic disorders, Tourette syndrome, and epilepsy), the adverse effect profile, potential for drug misuse, and preferences of the patient and carers. Methylphenidate and Atomoxetine are used for the management of ADHD, Dexamfetamine is an alternative in children who do not respond to these medicines. Before initiation of drug therapy, and every 6 months thereafter, pulse, blood pressure, weight, and height should be measured. The need to continue drug treatment for ADHD should be reviewed at least annually. This may involve suspending treatment.

Modafinil is used for the treatment of day time sleepiness associated with narcolepsy or obstructive sleep apnoea syndrome, dependence with long-term use cannot be excluded and it should therefore be used with caution. Dexamfetamine and methylphenidate [unlicensed indication] are also used to treat narcolepsy.

4.4.1 Methylphenidate Hydrochloride

Indications: Attention deficit hyperactivity disorder (under specialist supervision), narcolepsy [unlicensed indication].

Cautions: Also monitor for psychiatric disorders, anxiety or agitation, tics or a family history of Tourette syndrome, drug or alcohol dependence, epilepsy (discontinue if increased seizure frequency), susceptibility to angle-closure glaucoma, avoid abrupt withdrawal.

Contra-indications: Severe depression, suicidal ideation, anorexia nervosa, psychosis, uncontrolled bipolar disorder, hyperthyroidism, cardiovascular disease (including heart failure, cardiomyopathy, severe hypertension, and arrhythmias), structural cardiac abnormalities, phaeochromocytoma, vasculitis, cerebrovascular disorders.

Side-effects: Abdominal pain, nausea, vomiting, diarrhoea, dyspepsia, dry mouth, anorexia, reduced weight gain, tachycardia, palpitation, arrhythmias, changes in blood pressure, cough, nasopharyngitis, tics (very rarely Tourette syndrome), insomnia, nervousness, asthenia, depression, irritability, aggression, headache, drowsiness, dizziness, movement disorders, fever, arthralgia, rash, pruritus, alopecia, growth restriction, less commonly constipation, dyspnoea, abnormal dreams, confusion, suicidal ideation, urinary frequency, hematuria, muscle cramps, epistaxis, rarely angina, sweating, and visual disturbances, very rarely hepatic dysfunction, myocardial infarction, cerebral arteritis, psychosis, neuroleptic malignant syndrome, tolerance and dependence, blood disorders including leucopenia and thrombocytopenia, angle-closure glaucoma, exfoliative dermatitis, and erythema multiforme, supraventricular tachycardia, bradycardia, and convulsions also reported.

Dose: Attention deficit hyperactivity disorder, adult over 18 years [unlicensed use], 5mg 2-3 times daily increased if necessary at weekly intervals according to response, max.100mg daily in 2-3 divided doses, child 6-18 years, initially 5mg 1-2 times daily, increased if necessary at weekly intervals by 5-10mg daily, usual max. 60mg daily in 2-3 divided doses but may be increased to 2.1mg /kg daily in 2-3 divided doses (max. 90mg daily) under the direction of a specialist, discontinue if no response after 1 month.

Methylphenidate HCl 10mg scored tablet, NMSF net price of Novartis Pharma Services Incorporation =1.00 SDG

4.5 Antiepileptic Medicines

4.5.1 Carbamazepine

Indications: Focal and secondary generalized tonic-clonic seizures, primary generalized tonic-clonic seizures, trigeminal neuralgia, prophylaxis of bipolar disorder. Unresponsive to lithium, adjunct in acute alcohol withdrawal [unlicensed], diabetic neuropathy [unlicensed].

Cautions: Cardiac disease, history of haematological reactions to other medicines, manufacturer recommends blood counts and hepatic and renal function tests (but evidence of practical value uncertain), may exacerbate absence and myoclonic seizures, consider Vitamin D supplementation in patients who are immobilized for long periods or who have inadequate sun exposure or dietary intake of calcium, susceptibility to angle-closure glaucoma, cross-sensitivity reported with Oxcarbazepine and with Phenytoin, avoid abrupt withdrawal.

Contra-indications: AV conduction abnormalities (unless paced), history of bone marrow depression, acute porphyria.

Side-effects: Dry mouth, nausea, vomiting, oedema, ataxia, dizziness, drowsiness, fatigue, headache, hyponatraemia (leading in rare cases to water intoxication), blood disorders (including eosinophilia, leucopenia, thrombocytopenia, haemolytic anaemia, and aplastic anaemia), dermatitis, urticaria, less commonly diarrhoea, constipation, involuntary movements (including nystagmus), visual disturbances, rarely abdominal pain, anorexia, hepatitis, jaundice, vanishing bile duct syndrome, cardiac conduction disorders, hypertension, hypotension, peripheral neuropathy, dysarthria, aggression, agitation, confusion, depression, hallucinations, restlessness, paraesthesia, lymph node enlargement, muscle weakness, systemic lupus erythematosus, delayed multi-organ hypersensitivity disorder, very rarely pancreatitis, stomatitis, hepatic failure, taste disturbance, exacerbation of coronary artery disease, AV block with syncope, circulatory collapse, hypercholesterolemia, thrombophlebitis, thromboembolism, pulmonary hypersensitivity (with dyspnoea, pneumonitis, or pneumonia), psychosis, neuroleptic malignant syndrome, osteomalacia (see Cautions), osteoporosis, galactorrhoea, gynaecomastia, impaired male fertility, interstitial nephritis, renal failure, sexual dysfunction, urinary frequency ,urinary retention, arthralgia, muscle pain, muscle spasm, conjunctivitis, angle-closure glaucoma, hearing disorders, acne, alterations in skin pigmentation, alopecia, hirsutism,

sweating, photosensitivity, purpura, Stevens-Johnson syndrome, toxic epidermal necrolysis, a septic meningitis, suicidal ideation.

Dose: Epilepsy, by mouth, initially 100-200mg 1-2 times daily, increased slowly to usual dose of 0.8-1.2g daily in divided doses, in some cases 1.6 -2 g daily in divided doses may be needed, elderly reduce initial dose, child daily in divided doses, up to 1year 100-200mg, 1-5 years 200-400mg ,5-10 years 400-600mg, 10-15 years 0.6-1g.

Trigeminal neuralgia, by mouth, initially 100mg 1-2 times daily (but some patients may require higher initial dose), increased gradually according to response, usual dose 200mg 3-4 times daily, up to 1.6 g daily in some patients.

Prophylaxis of bipolar disorder unresponsive to lithium by mouth, initially 400mg daily in divided doses increased until symptoms controlled, usual range 400-600mg daily, max. 1.6g daily.

Treatment of alcohol withdrawal [unlicensed indication], by mouth, initially 800 mg daily in divided doses, reduced gradually over 5 days to 200mg daily, usual treatment duration 7-10 days.

Diabetic neuropathy [unlicensed indication], by mouth, initially 100mg 1-2 times daily, increased gradually according to response, usual dose 200mg 3-4 times daily, up to 1.6 g daily in some patients.

Carbamazepine 200mg tablet, NMSF net price Citypharm Pharmaceutical Industries = 0.18 SDG
Carbamazepine 200mg tablet, NMSF net price General Medicine Co. = 0.21 SDG
Carbamazepine 200mg tablet, NMSF net price Shangahi Sudan Pharmaceutical Company Ltd. = 0.21 SDG
Carbamazepine 200mg CR tablet, NMSF net price Novartis Pharma = 1.00 SDG
Carbamazepine 200mg CR tablet, NMSF net price of Sun Pharma Ltd India = 0.30 SDG
Carbamezapine 400mg Controlled Release Tablet, NMSF net price of Novartis Pharma Services Incorporation = 1.50 SDG
Carbamezapine 400mg Controlled Release Tablet, NMSF net price of Sun Pharma Ltd India = 0.25 SDG
Carbamazepine 100mg/5ml suspension 100ml Bottle, NMSF net price of Delpharm = 30.SDG

4.5.2 Lamotrigine

Indications: Mono therapy and adjunctive treatment of focal seizures and generalised seizures including tonic-clonic seizures, seizures associated with Lennox-Gastaut syndrome, monotherapy of typical absence seizures in children, prevention of depressive episodes associated with bipolar disorder.

Cautions: Closely monitor and consider withdrawal if rash, fever, or other signs of hypersensitivity syndrome develop, avoid abrupt withdrawal (taper off over 2 weeks or longer) unless serious skin reaction occurs, myoclonic seizures (may be exacerbated), Parkinson's disease (may be exacerbated.

Side-effects: Nausea, vomiting, diarrhoea, dry mouth, aggression, agitation, headache, drowsiness, dizziness, tremor, insomnia, ataxia, back pain, arthralgia, nystagmus, diplopia, blurred vision, rash (see skin reactions, below), movement disorders, unsteadiness, increase in seizure frequency, exacerbation of Parkinson's disease, confusion, hallucination, blood disorders (including anaemia, leucopenia, thrombocytopenia, pancytopenia see **Blood Disorders**, above), hypersensitivity syndrome (possibly including rash, fever, facial oedema, lymph adenopathy, hepatic dysfunction, blood disorders, disseminated intravascular coagulation, and multi- organ dysfunction), lupusery thematosus-like reactions, also reported suicidal ideation, aseptic meningitis Skin reactions.

Serious skin reactions including Stevens-Johnson syndrome and toxic epidermal necrolysis have developed (especially in children), most rashes occur in the first 8 weeks. Rash is sometimes associated with hypersensitivity syndrome (see Side- effects, above) and is more common in patients with history of allergy or rash from other antiepileptic Medicines. Consider withdrawal if rash or signs of hypersensitivity syndrome develop. Factors associated with increased risk of serious skin reactions include concomitant use of valproate, initial Lamotrigine dosing higher than recommended and more rapid dose escalation than recommended.

Dose: Monotherapy of seizures, adult and child over 12 years, initially 25mg once daily for 14 days, increased to 50mg once daily for further 14 days, then increased by max.100mg every 7-14 days, usual maintenance 100-200mg daily in 1-2 divided doses (up to 500mg daily has been required).

Lamotrigine 25mg tab., NMSF net price of Torrent Pharmaceuticals Ltd = 0.42 SDG
Lamotrigine 100mg tab., NMSF net price of Torrent Pharmaceuticals Ltd =1.10 SDG
Lamotrigine 100mg tab., NMSF net price of Delta for Pharmaceutical and Chemical Industries =2.32 SDG

4.5.3 Phenobarbitone

Indications: All forms of epilepsy except typical absence seizures, status epilepticus.

Cautions: Elderly debilitated, children, respiratory depression (avoid if severe), avoid abrupt withdrawal (dependence with prolonged use), history of drug or alcohol abuse, consider Vitamin D supplementation in patients who are immobilised for long periods or who have in adequates unexposure ordietary intake of calcium, avoid in acute porphyria.

Side-effects: Hepatitis, cholestasis, hypotension, respiratory depression, behavioural disturbances, nystagmus, irritability, drowsiness, lethargy, depression, ataxia, paradoxical excitement, hallucinations, impaired memory and cognition, hyperactivity particularly in the elderly and in children, osteomalacia (see Cautions), megaloblastic anaemia (may be treated with Folic acid), agranulocytosis, thrombocytopenia, allergic skin reactions, very rarely Stevens-Johnson syndrome and toxic epidermal necrolysis, suicidal ideation.

Dose: By mouth, 60-180mg at night, child 5-8mg/kg daily.

Phenobarbitone 30mg tablet, NMSF net price of Shangahai Sudan pharmaceutical company Ltd = 0.14 SDG
Phenobarbitone sodium IV injection, 200mg/ml in 1ml ampoule, NMSF net price of Laboratories Renaudin = 4.00 SDG
Phenobarbitone sodium 60mg/ml, 1 ml solution for injection, NMSF net price of Martindale pharama = 18.73 SDG

4.5.4 Phenytoin Sodium

Indications: All forms of epilepsy except absence seizures, status epilepticus, trigeminal neuralgia if Carbamazepine in appropriate.

Cautions: Cross-sensitivity reported with Carbamazepine, avoid abrupt withdrawal, HLA-B1502 allele in individuals of Han Chinese or Thai origin avoid unless essential (increased risk of Stevens-Johnson syndrome), manufacturer recommends blood counts (but evidence of practical value uncertain), consider Vitamin D supplementation in patients who are immobilized for long periods or who have inadequate unexposure ordietary in take of calcium, enteral feeding (interrupt feeding for 2 hours before and after dose, more frequent monitoring may be necessary), avoid in acute porphyria.

Side-effects: Nausea, vomiting, constipation, drowsiness, insomnia, transient nervousness, tremor, paraesthesia, dizziness, headache, anorexia, gingival hypertrophy and tenderness (maintain good oral hygiene), rash (discontinue, if mild re-introduce cautiously but discontinue immediately if recurrence), acne, hirsutism, coarsening of facial appearance, rarely hepatotoxicity (discontinue immediately and do not re-administer), peripheral neuropathy, dyskinesia, lymphadenopathy, osteomalacia (see Cautions), blood disorders (including megaloblastic anaemia, leucopenia, thrombocytopenia, and aplastic anaemia), polyarteritis nodosa, lupus erythematosus, Stevens-Johnson syndrome, and toxic epidermal necrolysis, also reported polyarthropathy, pneumonitis, and interstitial nephritis, suicidal ideation.

Dose: By mouth, initially 3-4 mg/kg daily or150-300mg daily (as a single dose or in 2 divided doses) increased gradually as necessary (with plasma-Phenytoin concentration monitoring), usual dose 200-500mg daily (exceptionally, higher doses may be used), child initially 5mg/kg daily in 2 divided doses, usual dose range 4-8mg/kg daily (max. 300mg daily).

Phenytoin Sodium 100mg tablet, NMSF net price of Shangehai - Sudan Pharmaceutical Co. Ltd. = 0.20 SDG
Phenytoin Sodium 100mg, tablet, NMSF net price of Shanghai Medicines & Health & Exp. Corp = 0.15 SDG
Phenytoin sodium 50mg/ml (5ml) injection, NMSF net price of Labesfal – Frese = 4.10 SDG

Phenytoin sodium 50mg/ml (5ml) injection, NMSF net price of Medical Union Pharmaceuticals Co. = 3.00 SDG
Phenytoin sodium 50mg/ml (5ml) injection, NMSF net price of Nile Co. = 3.00 SDG

4.5.5 Sodium Valproate

Indications: All forms of epilepsy, migraine prophylaxis.

Cautions: Monitor liver function before therapy and during first 6 months especially in patients most at risk (see also below), measure full blood count and ensure noun due potential for bleeding before starting and before surgery, systemic lupus erythematosus, false-positive urine tests for ketones, avoid abrupt withdrawal, consider Vitamin D supplementation in patients that are immobilised for long periods or who have in adequates unexposure ordietary intake of calcium.

Contra-indications: Family history of severe hepatic dysfunction, acute porphyria.

Side-effects: Nausea, gastric irritation, diarrhoea, weight gain, hyperammonemia, thrombocytopenia, transient hairloss (regrowth may be curly), less frequently increased alertness, aggression, hyperactivity, behavioural disturbances, ataxia, tremor, and vasculitis, rarely hepatic dysfunction (see under Cautions, withdraw treatment immediately if persistent vomiting and abdominal pain, anorexia, jaundice, oedema, malaise, drowsiness, or loss of seizure control), lethargy, drowsiness, confusion, stupor, hallucinations, blood disorders (including anaemia, leucopenia, pancytopenia), hearingloss, and rash, very rarely pancreatitis (see under Cautions), peripheral oedema, increase in bleeding time, extrapyramidal symptoms, dementia, encephalopathy, coma, gynaecomastia, Fanconi's syndrome, hirsutism, acne, enuresis, hyponatraemia, toxic epidermal necrolysis, and Stevens- Johnson syndrome, suicidal ideation, reduced bone mineral density (seeCautions), also reported menstrual disturbances.

Dose: Epilepsy, by mouth, initially 600mg daily in 1-2 divided doses, increased gradually (in steps of 150-300mg) every 3 days, usual maintenance dose 1-2g daily (20-30mg/kg daily), max. 2.5g daily, child 1 month 12 years, initially10-15mg/kg daily in 1-2 divided doses, usual maintenance dose 25-30 mg/kg daily in 2 divided doses.

Initiation of Valproate treatment by intravenous administration, adult and child over 12 years, initially 10mg/kg (usually 400-800mg) by intravenous injection (over 3-5 minutes) followed by intravenous infusion or intravenous injection (over 3-5 minutes) in 2-4 divided doses or by continuous intravenous infusion up to max. 2.5 g daily, usual range 1-2g daily (20-30mg/kg daily), child 1 month-12 years, 10mg/kg by intravenous injection (over 3-5minutes) followed by intravenous infusion or intravenous injection (over3-5minutes) in 2-4 divided doses or by continuous intravenous infusion up to usual range 20-40mg/kg daily (doses above 40mg/kg daily monitor clinical chemistry and haematological parameters).

Continuation of Valproate treatment by intravenous injection (over 3-5 minutes) or intravenous infusion in 2-4 divided doses, or by continuous intravenous infusion, same as established oral daily dose.

Migraine prophylaxis [unlicensed], by mouth, initially 200mg twice daily, increased if necessary to1.2-1.5g daily in divided doses.

Sodium valproate 200mg table, NMSF net price of Sanofi Aventis = 1.02 SDG
Sodium valproate 200mg tablet, NMSF net price of Sun Pharma Ltd India = 0.72 SDG
Sodium valproate 500mg tablet, NMSF net price of Sanofi Aventis = 2.24 SDG
Sodium valproate 500mg tablet, NMSF net price of Sun Pharma Ltd India = 0.98 SDG
Sodium valproate 500mg SR tablet, NMSF net price of Sanofi Aventis = 0.15 SDG
Sodium valproate 200mg/5ml 100ml bottle oral suspension, NMSF net price of Sanofi Aventis= 50.00 SDG
Sodium valproate 200mg/5ml 300ml bottle oral suspension, NMSF net price of Sanofi Aventis (Winthrop) = 74.75 SDG

4.5.6 Gabapentin

Indications: Monotherapy and adjunctive treatment of focal seizures with or without secondary generalisation, peripheral neuropathic pain, migraine prophylaxis.

Cautions: Avoid abrupt withdrawal, elderly, diabetes mellitus, mixed seizures (including absences), false positive readings with some urinary protein tests, history of psychotic illness, high doses of oral solution in adolescents and adults with low body-weight.

Side-effects: Nausea, vomiting, gingivitis, diarrhoea, abdominal pain, dyspepsia, constipation, dry mouth or throat, flatulence, weight gain, increased appetite, anorexia, hypertension, vasodilation, oedema, dyspnoea, cough, pharyngitis, hostility, confusion, emotional lability, depression, vertigo, anxiety, nervousness, abnormal thoughts, drowsiness, dizziness, malaise, ataxia, convulsions, movement disorders, speech disorder, amnesia, tremor, insomnia, headache, paraesthesia, nystagmus, abnormal reflexes, fever, flu syndrome, impotence, leucopenia, arthralgia, mylasia, twitching, visual disturbances, rhinitis, rash, pruritis, acne, less commonly palpitation, also reported pancreatitis, hepatitis, hallucinations, blood glucose fluctuations in patients with diabetes, breast hypertrophy, gynaecomastia, acute renal failure, incontinence, thrombocytopenia, tinnitus, Stevens Johnson syndrome, alopecia, hypersensitivity syndrome, suicidal ideation.

Dose: Epilepsy, 300mg once daily on day 1, then 300mg twice daily on day 2, then 300mg 3 times daily on day 3 or initially 300mg 3 times daily on day 1, then increased according to response in steps of 300mg (in 3 divided doses) every 2-3 days, usual dose 0.9-3.6g daily in 3 divided doses (max. 4.8g daily in 3 divided doses), child 6-12 years (adjunctive therapy only) initially 10mg/kg (max. 300mg) once daily on day 1, then 10mg/kg (max. 300mg) twice daily on day 2, then 10mg/kg (max. 300mg) 3 times daily on day 3, usual dose 25- 35mg/kg daily in 3 divided doses, max. 70mg/kg daily in 3 divided doses.

Neuropathic pain, adult over 18 years, 300mg once daily on day 1, then 300mg twice daily on day 2, then 300mg 3 times daily on day 3 or initially 300mg 3 times daily on day 1, then increased according to response in steps of 300mg (in 3 divided doses) every 2-3 days up to max. 3.6g daily.

Migraine prophylaxis, initially 300mg daily, increased according to response up to 2.4g daily in divided doses.

Gabapentin 100mg capsules, NMSF net price of Getz Pharma = 0.17 SDG
Gabapentin 100mg capsules, NMSF net price of Eva Pharma = 0.79 SDG
Gabapentin 300mg capsules, NMSF net price of Getz Pharma = 1.20 SDG
Gabapentin 300mg capsules, NMSF net price of National Company = 1.47 SDG
Gabapentin 400mg capsules, NMSF net price of Getz Pharma = 0.60 SDG
Gabapentin 400mg capsules, NMSF net price ofTabuk = 1.84 SDG

4.5.7 Topiramate

Indications: Can be given alone or with adjunctive treatment in generalized tonic-clonic seizures or focal seizures with or without secondary generalization. It can be used as adjunctive treatment for seizures associated with Lennox-gastaut syndrome, also it is liscenced for prophylaxis of migraine.

Cautions: Avoid abrupt withdrawal, risk of metabolic acidosis, risk of nephrolithiasis- ensure adequate hydration (especially in strenuous activity or warm environment), avoid in acute porphyria.

Side-effects: Nausea, diarrhoea, vomiting, constipation, dyspepsia, abdominal pain, dry mouth, taste disturbances, gastritis, appetite changes, dyspnoea, impaired attention, cognitive impairment, movement disorders, seizures, tremor, malaise, impaired co-ordination, speech disorder, drowsiness, dizziness, sleep disturbance, anxiety, confusion, parasthesia, aggression, mood changes, depression, agitation, irritability, nephrolithiasis, urinary disorders, anaemia, arthralagia, muscle spasm, mylasia, muscular weakness, visual disturbances, nystagmus, tinnitus, epistaxis, alopecia, rash, pururitis, less commonly pancreatitis, flatulence, abdominal destention, gingival bleeding, salivation, halitosis, thirst, glossodynia, bradycardia, palpitation, hypotension, postural hypotension, flushing, altered sense of smell, peripheral neuropathy, suicidal ideation, psychosis, panic attack, influenza-like symptoms, sexual dysfunction, urinary calculus, haematuria, blood disorders, hypokalaemia, metabolic acidosis, dry eye, photophobia, blepharospasm, increased lacrimation, mydriasis, hearing loss, reduced sweating and skin discoloration.

Topiramate 25mg tablets, NMSF net price of Hilton Pharma (Pvt.) Ltd. = 1.83 SDG

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Topiramate 25mg tablets, NMSF net price of Cilag = 1.64 SDG
Topiramate 50mg tablets, NMSF net price of Hilton Pharma (Pvt.) Ltd. = 2.88 SDG
Topiramate 100mg tablets, NMSF net price of Hilton Pharma (Pvt.) Ltd = 4.86 SDG
Topiramate 100mg tablets, NMSF net price of Cilag = 3.37 SDG

4.5.8 Piracetam

Indications: Adjunctive treatment of cortical myoclonus.

Cautions: Avoid abrupt withdrawal, increased risk of bleeding, underlying disorders of haemostasis, major surgery.

Contra-indications: Cerebral hemorrahge, Huntington's chorea.

Side-effects: Weight gain, nervousness, hyperkinesias, less commonly drowsiness, depression, asthenia, also, reported abdominal pain, nausea, vomiting, diarrhoea, headache, anxiety, confusion, hallucination, vertigo, ataxia, insomnia, hemorrhagic disorder, dermatitis, pruritis, urticaria.

Dose: Initially 7.2g daily in 2-3 divide doses, increased according to response by 4.8g every 3-4 days to max. 24g daily, child under 16 years not recommended.

Piracetam 200mg/5ml, 120ml syrup, NMSF net price of RAM pharmaceutical = 15.00 SDG
Piracetam 200mg/5ml, 120ml syrup, NMSF net price of Universal Industries Pharmaceutical Co. = 17.00 SDG
Piracetam 400mg capsules, NMSF net price of RAM pharmaceutical = 0.50 SDG
Piracetam 400mg capsules, NMSF net price of Universal Industries Pharmaceutical Co. = 0.63 SDG

4.5.9 Psychotherapeutic medicines
4.5.9.1 Midazolam Hydrochloride

Indications: Conscious sedation for procedures, sedation in intensive care, sedation in anesthesia, premedication, induction of anesthesia, status epilepticus.

Cautions: Cardiac disease, respiratory disease, myasthenia gravis, neonates, children (particularly if cardiovascular impairment), risk of airways obstruction and hypoventilation in children under 6 months (monitor respiratory rate and oxygen saturation), history of drug or alcohol abuse, reduce dose in elderly and debilitated, risk of severe hypotension in hypovolaemia, vasoconstriction, hypothermia, avoid prolonged use (and abrupt withdrawal thereafter), concentration of Midazolam in children under 15kg not to exceed 1mg/ml.

Contra-indications: Marked neuromuscular respiratory weakness including unstable myasthenia gravis, severe respiratory depression, acute pulmonary insufficiency.

Side-effects: Gastro-intestinal disturbances, increased appetite, jaundice, hypotension, cardiacarrest, heart rate changes, anaphylaxis, thrombosis, laryngospasm, bronchospasm, respiratory depression and respiratory arrest (particularly with high doses or on rapid injection), drowsiness, confusion, ataxia, amnesia, headache, euphoria, hallucinations, convulsions (more common in neonates), dizziness, vertigo, involuntary movements, paradoxical excitement and aggression (especially in children and elderly), dysarthria, urinary retention, incontinence, changes in libido, blood disorders, muscle weakness, visual disturbances, salivation changes, skin reactions, injection-site reactions.

Dose: Conscious sedation for procedures, by slow intravenous injection (approx. 2mg/minute) 5-10 minutes before procedure, initially 2-2.5mg elderly 0.5mg), increased if necessary in steps of 1mg elderly 0.5-1mg), usual total dose 3.5-5mg (max.7.5mg), elderly max. 3.5mg.

Sedative in combined anesthesia, by intravenous injection, 30-100micrograms/kg repeated as required or by continuous intravenous infusion, 30-100micrograms/kg/hour elderly lower doses needed, child not recommended.

Premedication, by deep intramuscular injection, adult over 18 years, 70-100micrograms/kg elderly or debilitated 25-50micrograms /kg, 20-60 minutes before induction.

By intravenous injection, adult over 18 years, 1-2mg 5-30 minutes before procedure, repeated as required elderly or debilitated 0.5mg, repeat dose slowly as required).

Induction (but rarely used), by slow intravenous injection, 150-200micrograms/kg elderly or debilitated 50-15micrograms/kg) given in divided doses (max. 5mg) at intervals of 2 minutes, max. total dose 600 micrograms/kg, child 7-18 years initially 150micrograms/kg (max. 7.5mg) given in steps of 50 micrograms/kg (max. 2.5mg) over 2-5 minutes, wait for 2-5 minutes then give additional doses of 50micrograms/kg (max.2.5mg) every 2 minutes if necessary, max. Total dose 500micrograms/kg (not exceeding 25mg).

Sedation of patients receiving intensive care, by slow intravenous injection, initially 30-300micrograms/kg given in steps of 1-2.5mg every 2 minutes, then by slow intravenous injection or by continuous intravenous infusion, 30-200micrograms/kg/hour, reduce dose (or reduce or omit initial dose) in hypovolaemia, vasoconstriction, or hypothermia, lower doses may be adequate if opioid analgesic.

Midazolam Hydrochloride 5mg/ml3 ml for inj, NMSF net price of Hikma = 19.00SDG
Midazolam Hydrochloride 5mg/ml 3ml for inj.,NMSF net price of Roche = 10.00SDG

4.6 Medicines used in Parkinsonism
4.6.1 Levodopa + Carbidopa

Indications: All forms of Parkinsonism other than drug-induced.

Contra-indications: Concurrent use of monoamine oxidase inhibitors, angle closure glaucoma, confirmed or suspected malignant melanoma.

Side-effects: Nausea, anorexia, and vomiting, particularly at the start of treatment, postural hypotension at the start of treatment, particularly in the elderly and those receiving antihypertensives, excessive drowsiness and sudden onset of sleep (warn patient of these effects), confusion, vivid dreams, dizziness, tachycardia, arrhythmias, reddish discoloration of body fluids, insomnia, headache, flushing, gastrointestinal bleeding, peripheral neuropathy, taste disturbances, pruritus, rash, liver enzyme changes, psychiatric symptoms including psychosis, depression, and hallucinations, delusions and neurological disturbances including dyskinesias (may be dose limiting) painful dystonic spasms(end-of-dose" effects) and (on-off" effects) after prolonged treatment (see note above), neuroleptic malignant syndrome (on sudden withdrawal), rarely hypersensitivity.

Dose: Parkinsonism, by mouth, adult, expressed in terms of Levodopa, initially 100mg (with Carbidopa 10mg) twice daily, increased by 100mg (with Carbidopa 10mg) every few days as necessary, to a maximum of Levodopa 1.5g.

Levodopa 250mg + Carbidopa 25mg (as monohydrate) mg tablets, NMSF net price of Alpha-Chem Advanced Pharmaceutical Industries = 2.28 SDG
Levodopa 250 + Carbidopa (asanhydrous) 25mg tablets, NMSF net price of Remedica = 1.03 SDG

4.6.2 Trihexyphenidyl Hydrochloride

Indications: Parkinsonism, drug-induced extrapyramidal symptoms (but not tardive dyskinesia).

Cautions: Anti muscarinics should be used with caution in cardiovascular disease, hypertension, psychotic disorders, prostatic hypertrophy, pyrexia, in those susceptible to angle-closure glaucoma, and in the elderly. Antimuscarinics should not be withdrawn abruptly in patients taking long-termtreatment. Antimuscarinics are liable to abuse.

Contra-indications: Antimuscarinics should be avoided in gastro-intestinal obstruction and myasthenia gravis. Use only if potential benefit out weighs risk.

Side-effects: Side-effects of antimuscarinics include constipation, dry mouth, nausea, vomiting, tachycardia, dizziness, confusion, euphoria, hallucinations, impaired memory, anxiety, restlessness, urinary retention, blurred vision, and rash. Angle-closure glaucoma occurs very rarely.

Dose: 1mg daily, increased by 2mg every 3-5 days according to response, usual maintenance dose.

Trihexyphenidyl HCl 2mg Tablet, NMSF net price of RAM Pharmaceuticals = 0.17 SDG
Trihexyphenidyl HCl 2mg Tablet, NMSF net price of Nile Co. = 0.16 SDG

4.7 Antimigraine
4.7.1 Zolmitriptan

Indications: Treatment of acute migraine.

Cautions: 5HT1-receptor agonists should be used with caution in the elderly [unlicensed], and in conditions which predispose to coronary artery

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disease (pre-existing cardiac disease, should not be taken within 24 hours of any other 5HT1-receptor agonist.

Contra-indications: 5HT1-receptor agonists are contra-indicated in ischaemic heart disease, previous myocardial infarction, coronary vasospasm (including Prinzmetal's angina), and uncontrolled or severe hypertension. 5HT1-receptor agonists are not indicated for the treatment of hemiplegic, basilar, or opthalmoplegic migraine, Wolff-Parkinson-White syndrome or arrhythmias associated with accessory cardiac conduction pathways, previous cerebrovascular accident or transient ischaemic attack.

Side-effects: Side-effects of the 5HT1-receptor agonists include sensations of tingling, heat, heaviness, pressure, or tightness of any part of the body (including throat and chest discontinue if intense, may be due to coronary vasoconstriction or to anaphylaxis), flushing, dizziness, feeling of weakness, fatigue, nausea and vomiting also reported. Abdominal pain, dry mouth, palpitation, dysphagia, drowsiness, paraesthesia, headache, myalgia, muscle weakness, less commonly tachycardia, transient increase in blood pressure, polyuria, rarely urticaria, very rarely gastro-intestinal and splenic infarction, ischaemic colitis, angina, myocardial infarction, with nasal spray, taste disturbance, and epistaxis.

Dose: By mouth, migraine, adult over 18 years, 2.5mg repeated after not less than 2 hours if migraine reoccurs (increase to 5mg for subsequent attacks in patients not achieving satisfactory relief with 2.5mg dose) max. 10mg in 24 hours, child 12-18 years

Zolmitriptan 2.5mg tablet, NMSF net price of Pharmasyr = 1.40 SDG
Zolmitriptan 5mg tablet, NMSF net price of Pharmasyr = 1.82 SDG

5 Cardiovascular Medicines

5.1 Antianginal Medicines

5.1.1 Glyceryl Trinitrate

Indications: Prophylaxis and treatment of angina.

Contra-indications: Hypersensitivity to nitrates, hypotension, hypovolaemia, hypertrophic obstructive cardiomyopathy, aorticstenosis, cardiac tamponade, constrictive pericarditis, mitral stenosis, marked anaemia, head trauma, cerebral haemorrhage, angle-closure glaucoma.

Side-effects: Throbbing headache, flushing, dizziness, postural hypotension, tachycardia, paradoxical bradycardia also reported.

Dose: Angina (acute attack) sublingually, adult, 0.5-1mg, repeated as required.

Nitroglycerine 5mg/ml, 5ml for injection, NMSF net price of Troikaa Pharmaceutical India = 5.00SDG

5.1.2 Isosorbide Dinitrate

Indications: Prophylaxis and treatment of angina, left ventricular failure.

Contra-indications: Hypersensitivity to nitrates, hypotension, hypovolaemia, hypertrophic obstructive cardiomyopathy, aorticstenosis, cardiac tamponade, constrictive pericarditis, mitral stenosis, marked anaemia, head trauma, cerebral haemorrhage, angle-closure glaucoma.

Side-effects: Throbbing headache, flushing, dizziness, postural hypotension, tachycardia, paradoxical bradycardia also reported.

Dose: angina (acute attack) sublingually, adult 2.5-10mg, repeated as required.

Anginaprophylaxis, by mouth, adult 20-240mg daily in divided doses.

Isosorbid dinitrate 5mg tablet, NMSF net price of Remedica = 0.23 SDG
Isosorbid dinitrate 10mg tablet, NMSF net price of Remedica = 0.18 SDG
Isosorbid dinitrate 20mg tablet, NMSF net price of October Pharma S.A.E = 0.25 SDG

5.1.3 Isosorbide mononitrate

Indications: Prophylaxis of angina, adjunct in congestive heart failure.

Cautions: Hypothyrodisim, malnutrition, hypothermia, recent history of myocardial infraction, heart failure, hypoxaemia, cardioversion, or dithermy, monitor blood pressure and heart rate during intravenous infusion, tolerance.

Contra-indications: Hypersensitivity to nitrates, hypotension, hypovolaemia, hypertrophic obstructive cardiomyopathy, aorticstenosis, cardiac tamponade, constrictive pericarditis, mitral stenosis, marked anaemia, head trauma, cerebral haemorrhage, angle-closure glaucoma.

Side-effects: Throbbing headache, flushing, dizziness, postural hypotension, tachycardia, paradoxical bradycardia also reported.

Dose: Initially 20mg 2-3 times daily or 40mg twice daily (10mg twice daily in those who have not previously received nitrates), up to 120mg daily in divided doses if required.

Isosorbride 5-mononitrate 20mg tablet, NMSF net price of Cadilla Healthcare Ltd. = 0.30 SDG
Isosorbride 5-mononitrate 20mg tablet, NMSF net price of Zydus Cadila Healthcare = 0.30 SDG
Isosorbride 5-mononitrate 40mg tablet, NMSF net price of October Pharma S.A.E = 0.50 SDG
Isosorbride 5-mononitrate 60mg tablet, NMSF net price of Efroze Chemical Industudries (Pvt) Ltd. = 0.96 SDG

5.1.4 Nifedipine

Indications: Prophylaxis of angina, hypertension, Raynaud's phenomenon, premature labour.

Cautions: With drawal if ischaemic pain occur or existing pain worsens shortly after initiating treatment , poor cardiac reserve, heart failure or significantly impaired left ventricular function.

Contra-indications: Cardiogenic shock, advanced aortic stenosis, with in 1 month of myocardial, unstable or acute attacks of angina.

Side-effects: Gastrointestinal disturbance, hypotension, oedema, vasodilatation, palpitation, headache, dizziness, lethargy, asthenia.

Dose: Angina prophylaxis and Raynaud's phenomenon, initially 5mg 3 times daily, adjusted according to response to 20mg 3 times daily.

Nifedipine 10mg capsules, NMSF net price of Remedica = 0.39 SDG
Nifedipine 20mg capsules, NMSF net price of Acino Pharma = 0.30 SDG
Nifedipine 20mg capsules, NMSF net price of KRKA = 0.40 SDG
Nifedipine 20mg capsules, NMSF net price of Remedica = 0.66 SDG

5.1.5 Felodipine

Indications: Hypertension, prophylaxis of angina.

Cautions: Withdraw if ischaemic pain occurs or existing pain worsens shortly after initiating treatment or if cardiogenic shock develops, severe left ventricular dysfunction, predisposition to tachycardia.

Contra-indications: Unstable angina, uncontrolled heart failure, significant cardiac valvular obstruction, cardiac outflow obstruction, with 1 month of myocardial infarction.

Side-effects: Flushing, peripheral oedema, headache, less commonly nausea, abdominal pain, palpitation, tachycardia, dizziness, paraesthesia, malaise, rash, pruritis, rarely vomiting, syncope, impotence, arthralgia, myalgia, very rarely gum hyperplasia, urinary frequency, leucocytoclastic vasculitis, photosensitivity.

Dose: Hypertension, initially 5mg (elderly 2.5mg) daily in the morning, usual maintenance 5-10mg once daily, dose above 20mg daily rarely needed.

Angina, initially 5mg (elderly 2.5mg) daily in the morning, increased if necessary to 10mg once daily.

Felodipine 5mg tablet, NMSF net price of Astera-zenca = 1.75 SGD

5.1.6 Verapamil

Indications: Angina, including stable, unstable, and Prinzmetal, arrhythmias, migraine prophylaxis.

Contra-indications: Hypotension, bradycardia, second and third degree atrioventricular block, sinoatrial block, sick sinus syndrome, cardiogenic shock, history of heart failure or significantly impaired left ventricular function (even if

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controlled by therapy), atrial flutter or fibrillation complicating Wolff-Parkinson- White syndrome, porphyria.

Side-effects: Constipation, less commonly nausea, vomiting, flushing, headache, dizziness, fatigue, and ankle oedema, rarely allergic reactions including pruritus, urticaria, angioedema, and erythema multiforme (Stevens-Johnson syndrome), myalgia, arthralgia, paraesthesia, erythromelalgia, increased prolactin concentration, gynaecomastia and gingival hyperplasia on long-term treatment, hypotension, heart failure, bradycardia, heart block, and a systole(due to negative inotropic effect) with high doses.

Dose: Angina, by mouth, adult, 80-120mg 3 times daily (120mg 3 times daily usually required in Prinzmetal angina).

Verapamil HCL2.5mg forinjection, NMSF net price of Arab Drug Co = 7.000 SDG
Verapamil HCl 40 mg tablet, NMSF net price of Remedica = 0.65 SDG

5.1.7 Diltiazem Hydrochloride

Indications: Prophylaxis and treatment of angina, hypertension.

Cautions: Heart failure or significantly impaired left ventricular function, bradycardia (avoid if severe), first degree AV block, or prolonged PR interval.

Contra-indications: Severe bradycardia, left ventricular failure with pulmonary congestion, second or third degree AV block (unless pacemaker fitted), sick sinus syndrome, acute porphyria.

Side-effects: Bradycardia, sino-atrial block, AV block, palpitation, dizziness, hypotension, malaise, asthenia, headache, hot flushes, gastro-intestinal disturbances, oedema (notably of ankles), rarely rashes (including erythema multiforme and exfoliative dermatitis), photosensitivity, hepatitis, gynaecomastia, gum hyperplasia, extrapyramidal symptoms, depression.

Dose: Angina, 60mg 3 times daily (elderly initially twice daily), increased if necessary to 360 mg daily.

Diltiazem HCl 60 mg tablets, NMSF net price of Remedica = 0.34 SDG

5.2 Antiarrhythmic Medicines

5.2.1 Atenolol

Indication: Arrhythmias, angina and mycocardial infarction, hypertension migraine prophylaxis.

Contra-indications: History of asthma or bronchospasm (unless no alternative, in which case, use with extreme caution and under specialist supervision), uncontrolled heart failure, Prinzmetal angina, marked bradycardia, hypotension, sick sinus syndrome, second and third degree atrioventricular block, cardiogenic shock, metabolic acidosis, severe peripheral arterial disease, phaeochromocytoma (unless used with an alpha-blocker).

Side-effects: Gastrointestinal disturbances including nausea, vomiting, diarrhoea, constipation, and abdominal cramp, fatigue, cold hands and feet, exacerbation of intermittent claudication and Raynaud phenomenon, bronchospasm, bradycardia, heart failure, conduction disorders, hypotension, sleep disturbances including nightmares, depression, confusion, hypoglycaemia or hyperglycaemia, exacerbation of psoriasis.

Dose: Arrhythmias, by mouth, adult, 50mg once daily, increased if necessary to 50mg twice daily or 100mg once daily.

Atenolol 50mg tablet, NMSF net price of Azal Pharmaceutical = 0.14 SDG
Atenolol 50mg tablet, NMSF net price of Cipla Ltd = 0.16 SDG
Atenolol 100mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 0.20 SDG
Atenolol 100mg tablet, NMSFnet price of Azal Pharmaceutical = 0.18 SDG

5.2.2 Digoxin

Indications: Supraventricular arrhythmias, particularly atrial fibrillation, heart failure.

Contra-indications: Hypertrophic obstructive cardiomyopathy (unless also atrial fibrillation and heart failure), Wolff-Parkinson-White syndrome or other accessory pathway, particularly if accompanied by atrial fibrillation, ventricular tachycardia or fibrillation, intermittent complete heart block, second-degree atrioventricular block.

Side-effects: Usually only associated with high doses, gastrointestinal disturbances including anorexia, nausea, vomiting, diarrhoea, and abdominal pain, visual disturbances, headache, fatigue, drowsiness, confusion, dizziness, delirium, hallucinations, depression, arrhythmias, heart-block, rarely rash, and intestinal ischaemia, gynaecomastia on long-term use, thrombocytopenia reported.

Dose: Atrial fibrillation, by mouth, adult, initially 1-1.5mg in divided doses over 24 hours for rapid digitalization (or 250micrograms once or twice daily if digitalization less urgent) followed by: 62.5–500micrograms daily (higher dose may be divided), according to renal function and heart rate response, usual maintenance dose, 125-250micrograms daily (lower dose more appropriate in the elderly). Emergency control of atrial fibrillation, by intravenous infusion over at least 2hours, adult, 0.75-1 mg.

Digoxin 0.25mg/ml in 2ml Ampoule, NMSF net price of Aspen Bad Oldesloe GmbH = 5.30 SDG
Digoxin 0.25mg tablet, NMSF net price of Aspen Bad Oldesloe GmbH = 0.35 SDG
Digoxin 0.25mg tablet, NMSF net price of Glaxo Welcome = 0.20 SDG
Digoxin 50mcg/ml Elixir, NMSF net price of Aspen Bad Oldesloe GmbH = 39.76 SDG

5.2.3 Adenosine

Indications: Rapid reversion to sinus rhythm of paroxysmal supraventricular tachycardias, including those associated with accessory conducting pathways (e.g. Wolff-Parkinson-White syndrome), aid to diagnosis of broad or narrow complex supraventricular tachycardias.

Contra-indications: Second-or third-degree AV block and sick sinus syndrome (unless pace maker fitted), long QT syndrome, severe hypotension, decompensated heart failure, chronic obstructive lung disease (including asthma).

Side-effects: Nausea, arrhythmia (discontinue if asystole or severe bradycardia occur), sinus pause, AV block, flushing, angina (discontinue), dizziness, dyspnoea, headache, less commonly metallic taste, palpitation, hyperventilation, weakness, blurred vision, sweating, very rarely transient worsening of intracranial hypertension, bronchospasm, injection-site reactions, also reported vomiting, syncope, hypotension (discontinue if severe), cardiac arrest, respiratory failure (discontinue), and convulsions.

Dose: By rapid intravenous injection into central or large peripheral vein, 6mg over 2 seconds with cardiac monitoring, if necessary followed by 12mg after 1-2 minutes, and then by 12mg after a further 1-2 minutes, increments should not be given if high level AV block develops at any particular dose.

Adenosine injection 3 mg/ml in 2 ml vial, NMSF net price of IMRES = 96.00 SDG

5.2.4 Amiodarone

Indications: Arrhythmias, particularly when other Medicines are ineffective or contra-indicated. It can be used for paroxysmal supraventricular, nodal and ventricular tachycardias, atrial fibrillation and flutter, and ventricular fibrillation. Tachyarrhythmias associated with Wolff-Parkinson-White syndrome.

Contra-indications: Sinus bradycardia, sino-atrial heart block, unless pace maker fitted avoid in severe conduction disturbances or sinus node disease, thyroid dysfunction, iodine sensitivity, avoid intravenous use in severe respiratory failure, circulatory collapse, or severe arterial hypotension, avoid bolus injection in congestive heart failure or cardiomyopathy.

Side-effects: Nausea, vomiting, taste disturbances, raised serum transaminases (may require dose reduction or withdrawal if accompanied by acute liver disorders), jaundice, bradycardia (pulmonary toxicity) including pneumonitis and fibrosis), tremor, sleep disorders, hypothyroidism, hyperthyroidism, reversible corneal micro deposits (sometimes with night glare), phototoxicity, persistent slate-grey skin discoloration, injection-site reactions, less commonly onset or worsening of arrhythmia, conduction disturbances, peripheral neuropathy and myopathy (usually reversible on withdrawal), very rarely chronic liver disease including cirrhosis, sinus arrest, bronchospasm (in patients with severe respiratory failure), ataxia, benign intracranial hypertension, headache, vertigo, epididymo-orchitis, impotence, haemolytic or aplastic anaemia, thrombocytopenia, rash (including exfoliative dermatitis), hypersensitivity including vasculitis, alopecia, impaired vision due to optic neuritis or optic neuropathy (including blindness), anaphylaxis on rapid injection, also hypotension, respiratory distress syndrome, sweating, and hot flushes.

Dose: By mouth, 200mg 3 times daily for 1 week reduced to 200mg twice daily for a further week, maintenance, usually 200mg daily or the minimum required to control the arrhythmia.

By intravenous infusion, initially 5mg/kg over 20-120 minutes with ECG monitoring, subsequent infusion given if necessary according to response up to max. 1.2g in 24 hours ventricular fibrillation or pulseless ventricular tachycardia refractory to defibrillation.

Amiodarone Hydrochloride 200mg tablet,, NMSF net price of Sanofi = 1.30 SDG
Amiodarone Hydrochloride 200mg tablet, NMSF net price of Remedica = 0.58 SDG
Amiodarone Hydrochloride 200mg tablet, NMSF net price of Troikaa Pharmaceutical India = 1.26 SDG
Amiodarone Hydrochloride 50mg/ml for injection 3ml ampoules, NMSF net price of Sanofi = 7.00SDG
Amiodarone Hydrochloride 50mg/ml for injection 3ml ampoules, NMSF net price of Troikaa Pharmaceutical India = 3.50 SDG

5.3 Antihypertensive Medicines

5.3.1 Amlodipine

Indications: Hypertension, angina.

Contra-indications: Cardiogenic shock, unstable angina, significant aortic stenosis.

Side-effects: Abdominal pain, nausea, palpitation, flushing, oedema, headache, dizziness, sleep disturbances, fatigue, less commonly gastrointestinal disturbances, dry mouth, taste disturbances, hypotension, syncope, chest pain, dyspnoea, rhinitis, mood changes, tremor, paraesthesia, increased sweating, urinary disturbances, impotence, gynaecomastia, weight changes, myalgia, arthralgia, muscle cramps, visual disturbances, tinnitus, pruritus, rash (including isolated reports of erythema multiforme), alopecia, purpura, and skin discoloration, very rarely gastritis, pancreatitis, hepatitis, jaundice, cholestasis, gingival hyperplasia, myocardial infarction, arrhythmias, vasculitis, coughing, hyperglycaemia, thrombocytopenia, peripheral neuropathy, angioedema, and urticaria.

Dose: Angina, by mouth, adult, initially 5mg once daily, increased if necessary, maximum, 10mg once daily. Hypertension, by mouth, adult, initially 5mg once daily, increased if necessary, maximum10mg once daily.

Amlodipine 5mg tablets, NMSF net price of Cima = 0.17 SDG
Amlodipine 10mg tablets, NMSF net price of Cima = 0.29 SDG
Amlodipine 10mg tablets, NMSF net price of Micro Labs Limited = 0.81 SDG

5.3.2 Sodium Nitroprusside

Indications: Hypertensive crisis (when treatment by mouth is not possible).

Contra-indications: Severe hepatic impairment, compensatory hypertension, severe Vitamin B12 deficiency, Leber optic atrophy.

Side-effects: Severe hypotension, adverse effects associated with over-rapid reduction in blood pressure include headache, dizziness, retching, abdominal pain, perspiration, palpitations, apprehension, retrosternal discomfort, rarely reduced platelet count, and acute transient phlebitis, advers effects associated with excessive concentrations of cyanide metabolite include tachycardia, sweating, hyperventilation, arrhythmias, and marked metabolic acidosis (discontinue infusion and give Sodium Nitrite followed by Sodium Thiosulfate.

Dose: Hypertensive crisis, by intravenous infusion, adult, initially 0.3-1.5 micrograms/kg/minute, increased gradually to 0.5-6 micrograms/kg/minute, (lower doses in patients already being treated with antihypertensives) maximum, 8 micrograms/kg/minute, stop infusion if response is unsatisfactory after 10 minutes at the maximum dose.

Sodium Nitroprusside 10mg/ml for injection 5ml, NMSF net price of Troikaa Pharmaceutical India = 19.50 SDG

5.3.3 Methyldopa

Indications: Hypertension in pregnancy.

Contra-indications: Depression, active liver disease, phaeochromocytoma, porphyria.

Side-effects: Sedation, dizziness, light headedness, postural hypotension, weakness, fatigue, headache, fluid retention and oedema, sexual dysfunction, impaired concentration and memory, depression, mild psychosis, disturbed sleep and nightmares, drug fever, influenza-like syndrome, nausea, vomiting, constipation, diarrhoea, dry mouth, stomatitis, sialadenitis, liver function impairment, hepatitis, jaundice, rarely fatal hepatic necrosis, bone marrow depression, haemolytic anaemia, leukopenia, thrombocytopenia, eosinophilia, parkinsonism, rash including toxic epidermal necrolysis, nasal congestion, black or sore tongue, bradycardia, exacerbation of angina, myalgia, arthralgia, paraesthesia, bell-palsy, pancreatitis, hypersensitivity reactions including lupus erythematosus-like syndrome, myocarditis, pericarditis, gynaecomastia, hyperprolactinaemia, amenorrhoea, urine darkens on standing.

Dose: Hypertension in pregnancy, by mouth, adult, initially 250mg 2-3 times daily, gradually increased at intervals of 2 or more days, if necessary, maximum, 3g daily.

Methyldopa 250mg tablet, NMSF net price of General Medicine Co. = 0.44 SDG

5.3.4 Hydralazine

Indications: In combination therapy in moderate to severe hypertension, hypertensive crises, hypertension associated with pregnancy (including pre-eclampsia or eclampsia) heart failure.

Contra-indications: Idiopathic systemic lupus erythematosus, severe tachycardia, high out put heart failure, myocardial insufficiency due to mechanical obstruction, corpulmonale, dissecting aortic aneurysm, porphyria.

Dose: Hypertension, by mouth, adult 25mg twice daily, increased if necessary to maximum, 50mg twice daily. Hypertensive crisis (including during pregnancy), by slow intravenous injection, adult, 5-10mg diluted with 10ml sodium chloride, 0.9%, if necessary may be repeated after 20-30 minutes (see also Precautions). Hypertensive crisis (including during pregnancy), by intravenous infusion, adult, initially 200-300micrograms /minute, usual maintenance dose 50-150 micrograms/minute. Hypertensive crisis (including during pregnancy), by intramuscular injection, adult, 12.5mg every 2 hours, repeated as necessary.

Side-effects: Tachycardia, palpitations, postural hypotension, fluid retention, gastrointestinal disturbances including anorexia, nausea, vomiting, diarrhoea, and rarely constipation, dizziness, flushing, headache, abnormal liver function, jaundice, systemic lupus erythematosus-like syndrome, particularly in women and slow acetylators, nasal congestion, agitation, anxiety, polyneuritis, peripheral neuritis, rash, fever, paraesthesia, arthralgia, myalgia, increased lacrimation, dyspnoea, raised plasma creatinine, proteinuria, haematuria, blood disorders including haemolytic anaemia, leukopenia, and thrombocytopenia.

Hydralazine Hydrochloride 20mg/ml for injection, NMSF net price of Amdipharm Plc-United Kingdom = 30.00 SDG
Hydralazine Hydrochloride 20mg/ml for injection, NMSFnet price of IMRES = 38.00 SDG

5.3.5 Propranolol Hydrochloride

Indications: Hypertension, arrhythmias and thyrotoxic crisis, Prophylaxis after myocardial infarction, Prophylaxis of variceal bleeding in portal hypertension and Migraine prophylaxis.

Contra-indications: Asthma, uncontrolled heart failure, Prinzmetal's angina, marked bradycardia, hypotension, sick sinus syndrome, second-or third degree AV block, cardiogenic shock, metabolic acidosis, severe peripheral arterial disease, phaeochromocytoma (apart from specific use with alpha-blockers) Bronchospasm Beta-blockers, including those considered to be cardioselective, should usually be avoided in patients with a history of asthma or bronchospasm. However, when there is no alternative, a cardioselective Beta-blocker can be given to these patients with caution and under specialist supervision.

Side-effects: Gastro-intestinal disturbances, bradycardia, heart failure, hypotension, conduction disorders, peripheral vasoconstriction (including exacerbation of intermittent claudication and Raynaud's phenomenon) bronchospasm (see above), dyspnoea, headache, fatigue, sleep disturbances, paraesthesia, dizziness, vertigo, psychoses, sexual dysfunction, purpura, thrombocytopenia, visual disturbances, exacerbation of psoriasis, alopecia, rarely rashes and dry eyes (reversible on withdrawal).

Dose: By mouth, hypertension, initially 80mg twice daily, increased at weekly intervals as required, maintenance 160-320mg daily.

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Prophylaxis of variceal bleeding in portal hypertension, initially 40mg twice daily, increased to 80mg twice daily according to heart rate, max.160mg twice daily.

Phaeochromocytoma (only with an alpha-blocker), 60mg daily for 3 days before surgery or 30mg daily in patients unsuitable for surgery.

Angina, initially 40mg 2-3 times daily, maintenance 120-240mg daily.

Arrhythmias, hypertrophic cardiomyopathy, anxiety tachycardia, and thyrotoxicosis (adjunct), 10-40mg 3-4 times daily.

Anxiety with symptoms such as palpitation, sweating, tremor, 40mg once daily, increased to 40mg 3 times daily if necessary.

Prophylaxis after myocardial infarction, 40mg 4 times daily for 2-3 days, then 80mg twice daily, beginning 5 to 21 days after infarction.

Essential tremor, initially 40mg 2–3 times daily, maintenance 80–160mg daily.

Migraine prophylaxis, 80–240mg daily in divided doses.

By intravenous injection, arrhythmias and thyrotoxic crisis, 1mg over 1 minute, if necessary repeatat 2-minute intervals, max. Total dose 10mg (5mg in anesthesia).

Propranolol Hydrochloride 10mg tablet, NMSF net price of Cima= 0.144 SDG
Propranolol Hydrochloride 10mg tablet, NMSF net price of Asterazenca = 0.42 SDG
Propranolol Hydrochloride 40mg tablet, NMSF net price of Cima = 0.21 SDG
Propranolol Hydrochloride 10mg tablet, NMSF net price of Asterazenca = 0.50 SDG
Propranolol Hydrochloride for inj 1mg/ml (1ml) IMRES, NMSF net price of IMRES = 4.00 SDG

5.3.6 Carvedilol

Indications: Hypertension, angina, adjunct to diuretics, Digoxin, or ACE inhibitors in symptomatic chronic heart failure.

Cautions: Monitor renal fuction during dose titration in patients with heart failure who also have renal impairement, low blood pressure, ischaemic hear disease, or diffuse vascular disease.

Contra-indications: Acute or decompensated heart failure requiring intravenous inotropes.

Side-effects: Postural hypotension, dizziness, headache, fatigue, gastrointestinal disturbances, bradycardia, occasionally diminished peripheral circulation, peripheral oedema and painful extremities, dry mouth, dry eyes, eye irritation or disturbed vision, impotence, disturbance micturation, influenza like symptoms, angina, AV block, exacerbation of intermittent claudication, allergic skin reactions, exacerbation of psoriasis, nasal stuffiness, wheezing, depressed mood, sleep disturbances, paraesthesia, heart failure, changes in liver enzymes, thrombocytopenia, leucopenia also reported.

Dose: Hypertension, initially 12.5mg once daily, increased after 2 days to usual dose of 25mg once daily, if necessary may be further increased at intervals of at least 2 weeks to max. 50mg daily in single or divided doses, elderly initial dose of 12.5mg daily may provide satisfactory control.

Angina, initially 12.5mg twice daily, increased after 2 days to 25mg twice daily

Adjunct in heart failure, initially 3.125mg twice daily (with food), dose increased at intervals of at least 2 weeks to 6.25mg twice daily, then to 12.5mg twice daily, then to 25mg twice daily increase to highest dose tolerated, max. 25mg twice daily in patients with severe heart failure or body weight less than 85kg and 50mg twice daily in patients over 85kg.

Carvedilol 12.5mg film coated tablets, NMSF net price of Pharmascience = 0.91 SDG
Carvedilol 6.25mg film coated tablets, NMSF net price of Pharmascience = 0.61 SDG

5.3.7 Metoprolol Tartrate

Indications: Hypertension, Angina, Arrhythmias and Migraine prophylaxis.

Cautions: Avoid abrupt withdrawal especially in ischaemic heart disease, first degree AV block, portal hypertension (risk of deterioration in liver function), diabetes, history of obstructive airways disease, myasthenia gravis, symptoms of hypoglycaemia and thyrotoxicosis may be masked, psoriasis, history of hypersensitivity-may increase sensitivity to allergens and result in more serious hypersensitivity response, also may reduce the response to Adrenaline.

Contra-indications: Asthma, uncontrolled heart failure, Prinzmetal's angina, marked bradycardia, hypotension, sick sinus syndrome, second-or third-degree AV block, cardiogenic shock, metabolic acidosis, severe peripheral arterial disease, phaeochromocytoma (apart from specific use with alpha-blockers) Bronchospasm Beta-blockers, including those considered to be cardio-selective, should usually be avoided in patients with a history of asthma or bronchospasm. However, when there is no alternative, a cardio-selective Beta-blocker can be given to these patients with caution and under specialist supervision.

Side-effects: Gastro-intestinal disturbances, bradycardia, heart failure, hypotension, conduction disorders, peripheral vasoconstriction (including exacerbation of intermittent claudication and Raynaud's phenomenon), bronchospasm (see above), dyspnoea, headache, fatigue, sleep disturbances, paraesthesia, dizziness, vertigo, psychoses, sexual dysfunction, purpura, thrombocytopenia, visual disturbances, exacerbation of psoriasis, alopecia, rarely rashes and dry eyes (reversibl on withdrawal).

Dose: By mouth, hypertension, initially 100mg daily, increased if necessary to 200mg daily in1–2 divided doses, max. 400mg daily (but high doses rarely necessary) Angina, 50–100mg 2–3 times daily.

Arrhythmias, usually 50mg 2–3 times daily, up to 300mg daily in divided doses if necessary, Migraine prophylaxis, 100–200mg daily in divided doses, Hyperthyroidism (adjunct), 50mg 4 times daily.

By intravenous injection, arrhythmias, up to 5mg at rate 1–2mg/minute, repeated after 5 minutes if necessary, total dose 10–15mg. 2.4mg in divided doses of 600micrograms.

In surgery, by slow intravenous injection 2–4mg at induction or to control arrhythmias developing during anesthesia, 2mg doses may be repeated to a max. Of 10mg early intervention within 12 hours of infarction, by intravenous injection 5mg every 2 minutes to a max. Of 15mg, followed after 15minutes by 50mg by mouth every 6 hours for 48 hours, maintenance 200mg daily in divided doses.

Metoprolol tartrate 1 mg/ml, 5 ml solution for injection, NMSF net price of Cenexi = 15.40 SDG

5.3.8 Labetalol Hydrochloride

Indications: Hypertension (including hypertension in pregnancy, hypertension with angina, and hypertension following acute myocardial infarction), hypertensive crises, controlled hypotension in anesthesia.

Contra-indications: Asthma, uncontrolled heart failure, Prinzmetal's angina, marked bradycardia, hypotension, sick sinus syndrome, second- or third-degree AV block, cardiogenic shock, metabolic acidosis, severe peripheral arterial disease, phaeochromocytoma (apart from specific use with alpha-blockers) Bronchospasm Beta-blockers, including those considered to be cardio-selective, should usually be avoided in patients with a history of asthma or bronchospasm. However, when there is no alternative, a cardio-selective Beta-blocker can be given to these patients with caution and under specialist supervision.

Side-effects: Postural hypotension (avoid up right position during and for 3 hours after intravenous administration), tiredness, weakness, headache, rashes, scalp tingling, difficulty in micturition, epigastric pain, nausea, vomiting, liver damage, rarely lichenoid rash.

Dose: By mouth, initially 100mg (50mg in elderly) twice daily with food, increased at intervals of 14 days to usual dose of 200mg twice daily, up to 800mg daily in 2 divided doses (3–4 divided doses if higher), max. 2.4g daily.

By intravenous injection, 50mg over at least 1minute, repeated after 5 minutes if necessary, max. total dose 200mg.

Labetalol Hcl 5mg/ml, 20 ml solution for injection, NMSF net price of Sandersson = 4.36 SDG

5.3.9 Lisinopril

Indications: Hypertension, symptomatic heart failure, short-term treatment following myocardial infarction in haemodynamically stable patients, renal complications of diabetes mellitus.

Contra-indications: ACE inhibitors are contra-indicated in patients with hypersensitivity to ACE inhibitors (including angioedema).

Side-effects: less commonly tachycardia, palpitation, cerebrovascular accident, myocardial infarction, Raynaud's syndrome, confusion, mood changes, vertigo, sleep disturbances, asthenia,

impotence, rarely dry mouth, gynaecomastia, alopecia, psoriasis, very rarely allergical veolitis, pulmonary infiltrates, profuse sweating, pemphigus, Stevens-Johnson syndrome, and toxic epidermal necrolysis.

Dose: Hypertension, initially 10mg once daily, if-used in addition to diuretic (see notes above) or in cardiac decompensation or in volume depletion, initially 2.5–5mg once daily, usual maintenance dose 20mg once daily, max. 80mg once daily.

Heart failure (adjunct), initially 2.5mg once daily under close medical supervision (see notes above), increased in steps no greater than 10mg at intervals of at least 2 weeks up to max. 35mg once daily if tolerated.Prophylaxis after myocardial infarction, systolic blood pressure over 120 mmHg, 5mg within 24 hours, followed by further 5mg 24 hours later, then 10mg after a further 24 hours, and continuing with 10mg once daily for 6 weeks (or continued if heart failure), systolic blood pressure100-120mmHg, initially 2.5mg once daily, increased to maintenance dose of 5mg once daily.

Lisinopril 2.5mg tablet, NMSF net price of Azal Pharmaceutical = 0.13 SDG
Lisinopril 2.5mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.13 SDG
Lisinopril 5mg tablet, NMSF net price of Azal Pharmaceutical = 0.14 SDG
Lisinopril 5mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.14 SDG
Lisinopril 5mg tablet, NMSF net price of Astera-zenca = 1.00 SDG
Lisinopril 10mg tablet, NMSF net price of Azal Pharmaceutical = 0.21 SDG
Lisinopril 10mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.28 SDG
Lisinopril 10mg tablet, NMSF net price of Astera-zenca = 1.60 SDG
Lisinopril 20mg tablet, NMSF net price of Jazeera Pharmaceuticals Industries = 0.50 SDG
Lisinopril 20mg tablet, NMSF net price of Azal Pharmaceutical = 0.50 SDG
Lisinopril 20mg tablet, NMSF net price of Pharma International Co. Jordan = 0.77 SDG

With diuretic:

For mild to moderate hypertension in patients stabilized on the individual components in the same proportions.

Lisinopril 20mg with hydrochlorothiazide 12.5mg, NMSF net price ofAstra Zeneca = 3.20SDG

5.3.10 Captopril

Indications: Essential hypertension, chronic heart failure, following myocardial infarction, see dose below, diabetic nephropathy in type 1 diabetes.

Cautions: ACE inhibitors need to be initiated with care in patients receiving diuretics, first doses can cause hypotension especially in patients taking high doses of diuretics, on a low-sodium diet, on dialysis, dehydrated, or with heart failure. They should also be used with caution in peripheral vascular disease or generalised atherosclerosis owing to risk of clinically silent renovascular disease, for use in pre-existing renovascular disease. The risk of agranulocytosis is possibly increased in collagen vascular disease (blood counts recommended). ACE inhibitors should be used with care in patients with severe or symptomatic aortic stenosis (risk of hypotension) and in hypertrophic cardiomyopathy. They should also be used with care (or avoided) in those with a history of idiopathic or hereditary angioedema. If jaundice or marked elevations of hepatic enzymes occur during treatment then the ACE inhibitor should be discontinued-risk of hepatic necrosis.

Contra-indications: ACE inhibitors are contra-indicated in patients with hypersensitivity to ACE inhibitors (including angioedema).

Side-effects: Profound hypotension, and renal impairment, and persistent dry cough, dry mouth, dyspnoea, sleep disorder, alopecia, less commonly tachycardia, palpitation, arrhythmia, angina, pallor, flushing, Raynaud's syndrome, rarely stomatitis, anorexia, very rarely glossitis, peptic ulcer, syncope, cerebrovascular events, cardiac arrest, cardiogenic shock, allergic alveolitis, eosinophilic pneumonia, confusion, depression, impotence, gynaecomastia, hyponatraemia, blurred vision, photosensitivity, Stevens-Johnson syndrome.

Captopril 25mg tablets, NMSF net price of Me-dochemie = 0.50 SDG
Captopril 25mg tablets, NMSF net price of Dar Aldawa = 0.49 SDG
Captopril 50mg tablets, NMSF net price of Me-dochemie = 0.71 SDG
Captopril 50mg tablets, NMSF net price of Dar Aldawa = 0.68 SDG

5.3.11 Enalapril Maleate

Indications: Hypertension, symptomatic heart failure, prevention of symptomatic heart failure in patients with asymptomatic left ventricular dysfunction.

Cautions: Initiated with care in patients receiving diuretics, they should also be used with caution in peripheral vascular disease or generalised atherosclerosis owing to risk of clinically silent renovascular disease. Patients with severe or symptomatic aortic stenosis (risk of hypotension) and in hypertrophic cardiomyopathy. They should also be used with care (or avoided) in those with a history of idiopathic or hereditary angioedema. If jaundice or marked elevations of hepatic enzymes occur during treatment. Should be avoided during dialysis with high-flux polyacrylonitrile membranes and during low-density lipoprotein apheresis with dextran sulfate, they should also be withheld before desensitisation with wasp or bee venom.

Contra-indications: ACE inhibitors are contra-indicated in patients with hypersensitivity to ACE inhibitors (including angioedema).

Side-effects: ACE inhibitors can cause profound hypotension and renal impairment, and a persistent dry cough. They can also cause angioedema (onset may be delayed, higher incidence reported in Afro-Caribbean patients), rash (which may be associated with pruritus and urticaria), pancreatitis, and upper respiratory-tract symptoms such as sinusitis, rhinitis, and sore throat. Gastrointestinal effects reported with ACE inhibitors include nausea, vomiting, dyspepsia, diarrhoea, constipation, and abdominal pain. Altered liver function tests, cholestatic jaundice, hepatitis, fulminant hepatic necrosis, and hepatic failure have been reported-discontinue if marked elevation of hepatic enzymes or jaundice. Hyperkalaemia, hypoglycaemia, and blood disorders including thrombocytopenia, leucopenia, neutropenia, and haemolytic anaemia have also been reported. Other reported side-effects include headache, dizziness, fatigue, malaise, taste disturbance, paraesthesia, bronchospasm, fever, serositis, vasculitis, myalgia, arthralgia, positive antinuclear antibody, raised erythrocyte sedimentation rate, eosinophilia, leucocytosis, and photosensitivity.

Dose: Hypertension, used alone, initially 5mg once daily, if used in addition to diuretics, or in renal impairment, lower initial doses may be required, usual maintenance dose 20mg once daily, max. 40mg once daily.

Heart failure (adjunct), asymptomatic left ventricular dysfunction, initially 2.5mg once daily under close medical supervision, increased gradually over 2-4 weeks to 10-20mg twice daily if tolerated.

Enalapril maleate 10mg Tablet, NMSF net price of Zydus Cadila Healthcare = 0.18 SDG
Enalapril 10mg + Hydrochlorothiazide 12.5mg tablet, NMSF net price ofAlpharonia Pharmaceutical= 1.54 SDG
Enalapril 10mg + Hydrochlorothiazide 12.5mg tablet, NMSF net price ofAlpha-Chem Advanced Pharmaceutical Industries= 1.54 SDG

5.3.12. Ramipril

Indications: Hypertension, symptomatic heart failure, following myocardial infarction in patients with clinical evidence of heart failure, prevention of cardiovascular events in patients with astherosclerotic cardiovascular disease or with diabetes mellitus and at least one additional risk factor for cardiovascular disease, neuropathy.

Cautions: ACE inhibitors need to be initiated with care in patients receiving diuretics, first doses can cause hypotension especially in patients taking high doses of diuretics, on a low-sodium diet, on dialysis, dehydrated, or with heart failure. They should also be used with caution in peripheral vascular disease or generalised atherosclerosis owing to risk of clinically silent renovascular disease, for use in pre-existing renovascular disease. The risk of agranulocytosis is possibly increased in collagen vascular disease (blood counts recommended). ACE inhibitors should be used with care in patients with severe or symptomatic aortic stenosis (risk of hypotension) and in hypertrophic cardiomyopathy. They should also be used with care (or avoided) in those with a history of idiopathic or hereditary angioedema. If jaundice or marked elevations of hepatic enzymes occur during treatment then the ACE inhibitor should be discontinued-risk of hepatic necrosis.

Contra-indications: ACE inhibitors are contra-indicated in patients with hypersensitivity to ACE inhibitors (including angioedema).

Side-effects: Stomitis, syncope, dyspnoea, bron-

chitis, muscle cramps, less commonly dry mouth, arrhythmias, tachycardia, palpitations, angina, chest pain, myocardial infarction peripheral oedema, flushing, loss of appetite, nervousness, depression, anxiety, impotence, decreased libido, visual disturbances, sweating, rarely confusion, tremor, conjunctivitis, impaired hearing, tinnitus, onycholysis, also reported cerebrovascular accident, precipitation or exacerbation of Raynaud's syndrome, sleep disturbance, gynaecomastia, hyponatraemia, skin reactions including erythema multiforme, pemphigoid exanthema, Stevens-Johnson syndrome, and toxic epidermal necrolysis, and alopecia.

Dose:

- Hypertension, initially 1.25- 2.5mg once daily, increased at intervals of 2 -4 weeks to max. 10mg once daily
- Heart failure (agjunct), initially 1.25mg one daily under close medical supervision, increase gradually at intervals of 1-2 weeks to max. 10mg daily if tolerated (preferably taken in 2 divided doses).
- Prophylaxis after myocardial infarction (started at least 48 hours after infarction), initially 2.5mg twice daily, increased after 3 days to 5mg twice daily.
- Prophylaxis of cardiovascular events, initially 2.5mg once daily, increased after 1-2 weeks to 5mg once daily, and then increased after a furher 2-3 weeks to 10mg once daily.
- Nephropathy, initially 1.25mg once daily, increased after 2 weeks to 2.5mg once daily, then increased after a further 2 weeks to 5mg once daily if tolerated.

Ramipril 5mg tablets, NMSF net price of Sanofi = 1.74 SDG
Ramipril 10mg tablets, NMSF net price of Sanofi = 2.60 SDG

5.3.13 Angiotensin-II receptor antagonist
5.3.13.1 Losartan

Indications: Hypertension, chronic heart failure when ACE inhibitors are unsuitable or contraindicated, diabetic nephropathy in type 2 diabetes mellitus.

Cautions: Severe heart failure.

Side-effects: Vertigo, less commonly gastrointestinal disturbances, angina, palpitation, oedema, dyspnoea, headache, sleep disorders, malaise, urticaria, pruritis, rash, rarely hepatitis, atrial fibrillation, cerebrovascular accident, syncope, paraesthesia, also pancreatitis, anaphylaxis, cough, depression, erectile dysfunction, anaemia, thrombocytopenia, hyponatraemia, arthralgia, myalagia, renal impairement, rhabdomyolysis, tinnitus, photosensitivity, and vasculitis.

Dose: Hypertension, diabetic nephropathy in type 2 diabetes mellitus, usually 50mg once daily, if necessary increased after several weeks to 100mg once daily, elderly over 75 years initially 25mg daily.

Chronic heart failure, initially 12.5mg once daily increased at weekly intervals to max. 150mg once daily if tolerated.

Losartan potassium 25mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.38 SDG
Losartan potassium 50mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.45 SDG
Losartan potassium 50mg + hydrochlorothiazide 12.5mg tablet,NMSF net price ofMedley Pharmaceutical = 0.34 SDG
Losartan potassium 50mg + hydrochlorothiazide 12.5mg tablet , NMSF net price ofZydus Cadila Healthcare = 0.42 SDG

5.3.13.2 Candesartan Cilexetil

Indications: Hypertension, heart failure with impaired left ventricular systolic function in conjugation with ACE inhibitors.

Cautions: Renal artery stenosis, aortic or mitral valve stenosis and in hypertrophic cardiomyopathy.

Contra-indications: Cholestasis.

Side-effects: Symptomatic hypotension, hyperkalaemia, angioedema, vertigo, headache, nausea, hepatitis, blood disturbance, hyponatraemia, back pain, arthralagia, myalgia, rash, urticaria, and pruritis.

Dose: Hypertension, initially 8mg once daily, increased if necessary at intervals of 4 weeks to max. 32mg once daily, usual maintenance dose 8mg once daily

Heart failure, initially 4mg once daily, increased at intervals of at least 2 weeks to target dose of 32mg once daily or to max. Tolerated dose.

Candesartan Cilexetil 8mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 0.690 SDG
Candesartan Cilexetil 8mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.73 SDG
Candesartan Cilexetil 16mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 0.81 SDG
Candesartan Cilexetil 16mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 1.15 SDG
Candesartan Cilexetil 32mg tablet, NMSF net price ofAmipharma Laboratories Ltd. = 1.04SDG
Candesartan 16mg + hydrochlorothiazide 12.5mg tablet, NMSF net price of Asterazenca = 2.80 SDG

5.3.14 Minoxidil

Indications: Severe hypertension, in addition to a diuretic and a Beta-blocker.

Cautions: Minoxidil should be reserved for the treatment of severe hypertension resistant to other medicines. Vasodilatation is accompanied by increased cardiac output and tachycardia and the patients develop fluid retention. For this reason the addition of a Beta-blocker and a diuretic (usually Furosemide, in high dosage) are mandatory. Hypertrichosis is troublesome and renders this drug unsuitable for women, angina, after myocardial infarction (until stabilised), acute porphyria.

Contra-indications: Phaeochromocytoma.

Side-effects: Sodium and water retention, weight gain, peripheral oedema, tachycardia, hypertrichosis, reversible rise in creatinine and blood urea nitrogen, occasionally, gastro-intestinal disturbances, breast tenderness, rashes.

Dose: Initially 5mg (elderly, 2.5mg) daily, in 1-2 divided doses, increased in steps of 5-10mg at intervals of at least 3 days, max. 100mg daily (seldom necessary to exceed 50mg daily).

New Item

5.3.15 Diuretics
5.3.15.1 Thiazides and related diuretics
5.3.15.1.1 Indapamide

Indications: Essential hypertension.

Cautions: Acute porphyria, monitoring of electrolytes, nephritic syndrome, hyperaldosteronism, and malnourishment.

Contraindications: Hypersensitivity to Sulfonamides, avoid in refractory hypokalaemia, hyponatraemia and hypercalcaemia, hypercalcaemia, symptomatic hyperuricaemia and Addison's disease.

Side-effects: gastrointestinal disturbances, postural hypotension, altered plasma lipid concentrations, metabolic and electrolyte disturbances, blood disturbances. Pancreatitis, intrahepatic cholestasis, cardiac arrhythmias, headache, dizziness, paraesthesia, visual disturbances and hypersensitivity reactions.

Dose: 2.5mg daily in the morning.

Indapamide, 2.5mg tablets, NMSF net price of Remedica = 0.65 SDG

5.3.15.1.2 Chlortalidone (Chlorthalidone)

Indications: Ascites due to cirrhosis in stable patients (under close supervision), oedema due to nephrotic syndrome, hypertension, mild to moderate chronic heart failure, diabetes insipidus.

Cautions: Thiazides and related diuretics can exacerbate diabetes, gout, and systemic lupus erythematosus. Electrolytes should be monitored, particularly with high doses, long-term use, or in renal impairment. Thiazides and related diuretics should also be used with caution in nephrotic syndrome, hyperaldosteronism, and malnourishment.

Contra-indications: Thiazides and related diuretics should be avoided in refractory hypokalaemia, hyponatraemia and hypercalcaemia, symptomatic hyperuricaemia, and Addison's disease.

Side-effects: Side-effects of thiazides and related diuretics include mild gastro-intestinal disturbances, postural hypotension, altered plasma-lipid concentrations, metabolic and electrolyte disturbances including hypokalaemia, hyponatraemia, hypomagnesaemia, hypercalcaemia, hyperglycaemia, hypochloraemic alkalosis, hyperuricaemia, and gout. Less common side-effects include blood disorders such as agranulocytosis, leucopenia, and thrombocytopenia, and impotence. Pancreatitis, intrahepatic cholestasis, cardiac arrhythmias, headache, dizziness, paraesthesia, visual disturbances, and hypersensitivity reactions (including pneumonitis, pulmonary oedema, photosensitivity, and severe skin reactions) have also been reported, also rarely jaundice and allergic interstitial nephritis.

Chlorthalidone Hydrochloride 50mg tablets, NMSF net price = New Item

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5.3.15.1.3 Hydrochlorothiazide with Amiloride

Indications: Hypertension, congestive heart failure, oedema and ascitis in cirrhosis of liver disease.

Cautions: Monitor electrolytes levels to avoid hyperkalaemia.

Contra-indications: Hyperkalaemia.

Dose: Hypertension, initially 1 tablet daily, increased if necessary to max. 2 tablets daily, Congestive heart failure, initially 1 tablet daily, increased if necessary to max. 4 tablets daily reduce for maintenance if possible, Oedema and ascites in cirrhosis of the kiver, initaially 2 tablets daily, increased if necessary to max. 4 tablets daily reduce for maintenance if possible.

Hydrochlorothiazide 50mg + Amiloride Hydrochloride 5mg tablets, NMSF net price THE United Pharmaceutical = 0.73 SDG

5.3.15.2 Furosemide

Indications: Oedema, resistant hypertension.

Cautions: Hypoproteinaemia may reduce diuretic effect and increase risk of side-effects, hepatorenal syndrome, intravenous administration rate should not usually exceed 4mg/minute, however single doses of up to 80mg may be administered more rapidly.

Contra-indications: Hypokalaemia, severe hypokalaemia, severe hyponatraemia, anuria, comatose and percomatose states associated with liver cirrhosis, and in renal failure due to nephrotoxic or hepatotoxic medicines.

Side-effects: Gastrointestinal disturbances, pancreatitis, hepatic encephalopathy, postural hypotension, temporary increase in serum- cholesterol and triglyceride concentration, hyperglycaemia, acute urinary retention, electrolyte disturbances, hypocalcaemia, hypochloraemia, metabolic alkalosis, blood disorders, hyperuricaemia, visual disturbances, tinnitus, deafness, and hypersensitivity reactions, also intrahepatic cholestasis and gout.

Dose: By mouth, odema, initially 40mg in the morning, maintenance 20-40mg daily, resistanat oedema, 80-120mg daily, resistant hypertension, 40-80mg daily.

By intramuscular injection or slow intravenous injection initially 20- 50mg, increased if necessary in steps of 20mg not less than every 2 hours, doses greater than 50mg by intravenous infusion only, max. 1.5g daily.

Furosemide 10mg/ml in 2ml injection, NMSF net price of Sanofi Aventis (Winthrop) = 3.00 SDG
Furosemide 10mg/ml in 2ml injection, NMSF net price of Laboratories Renaudin = 2.50 SDG
Furosemide oral solution sugar-free 20mg/ 5ml, 150ml, NMSF net price of Mission Pharma-Rosemont Pharmacuticals= 310 SDG
Furosemide 40mg tablet, NMSF net price of Cima = 0.12 SDG
Furosemide 40mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.09 SDG

5.3.15.3 Potassium sparing diuretics and aldosterone antagonist
5.3.15.3.1 Spironolactone

Indications: Oedema and ascities in cirrhosis of the liver, malignant ascites, nephritic syndrome, oedema in congestive heart failure, moderate to severe heart failure, resistant hypertension, treatment of primary hyperaldosteronism.

Cautions: Potential metabolic products carcinogenic in rodents, elderly, monitor electrolytes.

Contra-indications: Hyperkalaemia, anuria, Addison's disease.

Side-effects: Gastrointestinal disturbances, hepatotoxicity, malaise, confusion, drowsiness, dizziness, gynaecomastia, benign breast tumour, breast pain, menstrual disturbances, changes in libido, hypertrichosis, electrolyte disturbances including hyperkalaemia and hyponatraemia, acute renal failure, hyperuricaemia, leucopenia, agranulocytosis, thrombocytopenia, leg cramps, alopecia, rash, Steven-Johnson syndrome.

Dose: Odema and ascities in cirrhosis of the liver, 100-400mg daily, adjusted according to response.

Malignant ascites, initially 100-200mg daily, increased to 400mg daily if required, maintenance dose adjusted according to response.

Nephritic syndrome, 100-200mg daily.

Oedema in congestive heart failure, initially 100mg daily in single or divided doses, maintenance dose adjusted according to response.

Moderate to severe heart failure, initially 25mg once daily, increased according to response to max. 50mg once daily.

Resistant hypertension, 25mg once daily.

Primary hyperaldosteronism in patients awaiting surgery, 100-400mg daily, long term maintence if surgery inappropriate, use lowest effective dose.

Spironolactone 25mg tablet, NMSF net price of Azal Pharmaceutical = 2.55 SDG
Spironolactone 25mg tablet, NMSF net price of Medochemie = 0.34 SDG
Spironolactone 50mg tablet, NMSF net price of Azal Pharmaceutical = 5.40 SDG

5.3.15.4 Osmotic diuretic
5.3.15.4.1 Mannitol

Indications: Cerebral oedema, glaucoma and raised intra-ocular pressure.

Cautions: Extravasation causes inflammation and thrombophlebitis, monitor fluid and electrolyte balance, serum osmolality, and pulmonary and renal function, assess cardiac function before and during treatment.

Contra-indications: Severe cardiac failure, severe pulmonary oedema, intracranial bleeding, anuria, severe dehydration.

Side-effects: Less commonly hypotension, thrombophlebitis, fluid and electrolyte imbalance, rarely dry mouth, thirst, nausea, vomiting, odema, raised intracranial pressure, arrhythmia, hypertension, pulmonary oedema, chest pain, headache, convulsion, dizziness, chills, fever, urinary retention, focal osmotic nephrosis, dehydration, cramp, blurred vision, rhinitis, skin necrosis and hypersensitivity reactions.

Dose: Cerebral oedema and raised intraocular pressure, by intravenous infusion over 30-60 minutes, 0.25-2g/kg repeated if necessary 1-2 times after 4-8 hours.

Mannitol 20% iv infusion 500ml, NMSF net price of Pharmaceutical Solution Industry = 20.00 SDG

5.4 Medicines used in heart failure
5.4.1 Dopamine

Indication: Cardiogenic shock including in myocardial infarction and cardiac surgery.

Contra-indications: Tachyarrhythmia, ventricular fibrillation, ischaemic heart disease, phaeochromocytoma, hyperthyroidism.

Side-effects: Nausea and vomiting, peripheral vasoconstriction, hypotension with dizziness, fainting, flushing, tachycardia, ectopic beats, palpitations, anginal pain, headache, dyspnoea, hypertension particularly in over dosage.

Dose: Cardiogenic shock, by intravenous infusion into a large vein, adult, initially 2-5micrograms/kg/minute, gradually increased by 5-10 micrograms/kg/minute according to blood pressure, cardiac output, and urine output (seriously ill patients, upto 20-50 micrograms/kg/minute).

Dopamine 40mg/ml for injection, 5ml ampoule, NMSF net price of Fresenius Kabi = 5.00SDG
Dopamine 40mg/ml for injection, 5ml ampoule, NMSF net price of Laboratoire Renaudin = 3.50 SDG

5.4.2 Dobutamine

Indications: Inotropic support in infarction, cardiac surgery, cardiomyopathies, septic shock, and cardiogenic shock, cardiac stress testing.

Contra-indications: Phaeochromocytoma.

Side-effects: Nausea, hypotension, hypertension (marked increase in systolic blood pressureindicatesoverdose), arrhythmias, palpitations, chest pain, dyspnoea, bronchospasm, headache, fever, increased urinary urgency, eosinophilia, rash, phlebitis, very rarely myocardial infarction, hypokalaemia, coronary artery spasm and thrombocytopenia also reported.

Dose: By intravenous 2.5–10 micrograms/kg/minute, adjusted according to response.

Dobutamine HCL 50mg/ml, 5ml ampoule for injection, NMSF net price of Panpharma (Rotex-Medica) = 11.00SDG
Dobutamine HCL 50mg/ml, 5ml ampoule for injection, NMSF net price of Neon Lab India = 12.50 SDG

5.4.3 Milrinone

Indications: Short-term treatment of severe congestive heart failure unresponsive to conventional maintenance therapy (not immediately after myocardial infarction), acute heart failure, including low output states following heart surgery.

Contra-indications: Severe hypovolaemia.

Side-effects: Ectopic beats, ventricular tachycardia, supraventricular arrhythmias (more likely in patients with pre-existing arrhythmias), hypotension, headache, less commonly ventricular fibrillation, chest pain, tremor, hypokalaemia,

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thrombocytopenia, very rarely bronchospasm, anaphylaxis, and rash.

Dose: By intravenous injection over 10minutes, either undiluted or diluted before use, 50micrograms/kg followed by intravenous infusion at a rate of 375-750 nanograms/kg/minute, usually for up to 12 hours following surgery or for 48-72 hours in congestive heart failure, max. daily dose1.13mg/kg.

Milrinone, NMSF net price = New item

5.4.4 Doxazosin

Indications: Hypertension, benign prostatic hyperplasia.

Cautions: Care with initial dose, pulmonary oedema due to aortic or mitral stenosis, cataract surgery, heart failure.

Contra-indications: History of postural hypotension, monotherapy in overflow bladder or anuria.

Side-effects: Dyspnoea, coughing, fatigue, vertigo, parasthesia, sleep disturbance, anxiety, influenza-like symptoms, back pain, myalhia, less commonly weight changes, angina, myocardial infarction, hypoaesthesia, tremor, agitation, micturation disturbance, epistaxis, arthralagia, tinnitus, and gout.

Dose: Hypertension 1mg daily increased after 1-2 weeks to 2mg once daily and thereafter to 4mg once daily, if necessary, max. 16 mg daily.

Doxazocin mesilate 1mg tablet, NMSF net price of Pfizer = 1.40 SDG
Doxazocin mesilate 1mg tablet, NMSF net price of Alpharonia Pharmaceutical = 0.89 SDG
Doxazocin mesilate 1mg tablet, NMSF net price of The United Pharmaceutical = 1.01 SDG
Doxazocin mesilate 2mg tablet, NMSF net price of Medochemie = 1.26 SDG
Doxazocin mesilate 4mg tablet, NMSF net price of Pfizer 2.00 SDG
Doxazocin mesilate 4mg tablet, NMSF net price of The United Pharmaceutical = 1.13 SDG

5.5 Antithrombotic Medicines

5.5.1 Streptokinase

Indication: Life-threatening deep-vein thrombosis, pulmonary embolism, acute arterial thromboembolism, acute myocardial infarction.

Contra-indications: Repeat use of streptokinase beyond 4 days of first administration, recent haemorrhage, surgery (including dental), parturition, trauma, heavy vaginal bleeding, haemorrhagic stroke, history of cerebrovascular disease (especially recent or if residual disability), coma, severe hypertension, coagulation defects, bleeding diathesis, aortic dissection, risk of gastro intestinal bleeding (such as recent history of peptic ulcer, oesophageal varices, or ulcerative colitis), acute pancreatitis, severe liver disease, acute pulmonary disease with cavitation, previous allergic reactions.

Side-effects: Nausea and vomiting, bleeding, usually limited to site of injection but internal bleeding including intracranial haemorrhage may occur (if serious bleeding occurs, discontinue infusion, coagulation factors may be required), hypotension, arrhythmias (particularly in myocardial infarction), allergic reactions including rash, flushing, uveitis, and anaphylaxis, fever, chills, back or abdominal pain, Guillain-Barré syndrome reported rarely.

Dose: Acute myocardial infarction (preferably within 1 hour of infarction), by intravenous infusion, adult, 1500000IU over 60 minutes.Thrombosis, by intravenous infusion, adult, 250000IU over 30 minutes, followed by 100000IU every hour for 12–72 hours, according to condition with monitoring of clotting parameters.

Streptokinase 1.500.000IU lyophilized for i.v inj, NMSF net price of BBT Biotech Germ=385.00 SDG
Streptokinase 1.500.000IU lyophilized for i.v inj, NMSF net price of CSL Behring GmbH /Germany = 500.00 SDG

5.5.2 Heparin Sodium

Indications: Treatment and prophylaxis of deep-vein thrombosis and pulmonary embolism, unstable angina ischaemic stroke.

Contra-indications: Hypersensitivity Heparin, haemophilia and other haemorrhagic disorders, thrombocytopenia, peptic ulcer, recent cerebral haemorrhage, severe hypertension, severe liver or renal disease, after major trauma or recent surgery (especially to eye or nervous system), acute bacterial endocarditis.

Side-effects: Immune-mediated thrombocytopenia usually develops 6–10 days after commencement of therapy (requires immediate withdrawal of Heparin), haemorrhage, skin necrosis, hypersensitivity reactions including urticaria, angioedema, and anaphylaxis, osteoporosis after prolonged use and rarely alopecia.

Dose:Treatment of deep-vein thrombosis and pulmonary embolism, by intravenous injection, adult, loading dose of 5000IU (10,000 IU in severe pulmonary embolism) followed by continuous intravenous infusion of 15-25IU/kg/hour or by subcutaneous injection of 15,000IU every 12 hours, laboratory monitoring is essential, preferably on a daily basis and dose adjusted accordingly, by intravenous injection, Small adult and child, lower loading dose, then by continuous intravenous infusion, 15-25IU/kg/hour or by subcutaneous injection, 250IU/kg every 12 hours. Prophylaxis in general surgery, by subcutaneous injection, adult, 5000IU 2 hours before surgery, then every 8-12hours for 7 days or until patient is ambulant (monitoring not needed), pregnant woman, 5000-10,000IU every 12 hours.

Heparin sodium 5000IU/ml, 5ml vial, NMSF net price of Panpharma (Rotex- Medica) =20.00 SDG

5.5.3 Tinzaparin Sodium

Indications: Prophylaxis of deep vein thrombosis, prevention of clotting in extracorporeal circuits, treatment of deep vein thrombosis of pulmonary embolism, treatment of venous thromboembolism in pregnancy.

Cautions: Elderly, concomitant use of Medicines that increase risk of bleeding.

Contra-indications: Haemophilia and other haemorhagic disorders, thrombocytopenia, recent cerebral haemorrhage, severe hypertension, peptic ulcer, after major trauma or recent surgery to eye or nervous system, acute bacterial endocarditis.

Side-effects: haemorrhage, thrombocytopenia, rarely rebound hyperlipidaemia, priapism, hyperkalaemia, osteoporosis, alopecia or prolonged use, injection site reactions (including urticaria, angioedema, and anaphylaxis). Less commonly headache.

Dose: Prophylaxis of deep vein thrombosis, by subcutaneous injection, general sugery, 3500 units every 24 hours, orthopaedic surgery 50 units/kg 2 hours before surgery, then 50units/kg every 24 hours or 4500 units 12 hours before surgery, then 4500 unit every 24 hours.

Treatment of deep-vein thrombosis and of pulmonary embolism, by subcutaneous injection, 175units/kg once daily until adequate oral anticoagulation established.

Treatment of venous thromboembolism in pregnancy, by subcutaneous injection, 175units/kg once daily (based on early pregnancy body weight).

Tinzaparin Sodium 10000 IU/ml, 1 ml injection, NMSF net price of Leo Pharmaceutical Products Ltd A/S = 74.75 SDG
Tinzaparin sodium 3500 IU/0.35ml, 1 ml injection, NMSF net price of Leo Pharmaceutical Products Ltd A/S = 30.83 SDG
Tinzaparin sodium 4500 IU/0.45ml, 1ml injection, NMSF net price of Leo Pharmaceutical Products Ltd A/S = 45.00 SDG

5.5.4 Warfarin

Indications: Prophylaxis of embolization in rheumatic heart disease and atrial fibrillation, prophylaxis of thrombi formation after insertion of prosthetic heart valve, prophylaxis and treatment of venous thrombosis and pulmonary embolism, transient ischaemic attacks.

Contra-indications: Pregnancy, peptic ulcer, severe hypertension, bacterial endocarditis.

Side-effects: Haemorrhage, hypersensitivity, rash, alopecia, diarrhoea, unexplained drop in haematocrit, "purpletoes", skin necrosis, jaundice, hepatic dysfunction, nausea, vomiting, pancreatitis.

Dose: Usual induction dose, 10mg daily for 2days, according to the individual patient, the subsequent dose depends upon the prothrombin time, the usual daily maintenance dose, 3-9mg daily taken at the sametime each day.

Warfarin 1mg tablet, NMSF net price of Cipla Ltd = 0.12 SDG
Warfarin 1mg tablet, NMSF net price of Glaxo Welcome = 0.08 SDG
Warfarin 3mg tablet, NMSF net price of Glaxo Welcome = 0.12 SDG
Warfarin 5mg tablet, NMSF net price of Cipla Ltd = 0.22 SDG
Warfarin 5mg tablet, NMSF net price of Glaxo Welcome = 0.17 SDG

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5.5.5 Clopidogril

Indications: Prevention of atherothrombotic events in peripheral arterial disease, or within 35 days of myocardial infarction, or within 6 months of ischaemic stroke, prevention of atherothrombotic events in acute coronary syndrome with out ST-segment elevation and in acute myocardial infarction with ST-segment elevation, prevention of atherothrombotic and thromboembolic events in patients with atrial fibrillation and for whom warfarin is unsuitable.

Cautions: Patients at risk of increased bleeding from trauma, surgery, or other pathological conditions, concomitant use of Medicines that increases risk of bleeding, discontinue 7 days before elective surgery if antiplatelet effect not desirable, history of hypersensitivity reactions to thienopyridine

Contra-indications: Active bleeding.

Side-effects: Dyspepsia, abdominal pain, diarrhoea, bleeding disorder, less commonly nausea, vomiting, gastritis, flatulence, constipation, headache, dizziness, paraethesia, leucopenia, decreased platelet, esinophilia, rash, and pruritis, very rarely confusion, hepatitis, pancreatitis, colitis, hallucination, taste disturbances, stomatitis, bronchospasm, interstitial pneumonia, and hypersensitivity like reactions.

Dose: prevention of atherothrombotic events in peripheral arterial disease or after myocardial infarction or ischaemic stroke, 75mg once daily .

Acute coronary syndrome (without ST-segment elevation), initially 300mg then 75mg daily.

Acute myocardial infarction (with ST-segment elevation) initially 300mg then 75mg daily, initial dose omitted if patient over 75 years.

Prevention of atherothrombotic and thromboembolic events in patients in patients with arterial fibrillation, 75mg once daily.

Clopidogril 75mg tab, NMSF net price of General Medicine Co. = 0.32 SDG
Clopidogril 75mg tab, NMSF net price of Sanofi Aventis (WINTHROP) = 7.00 SDG
Clopidogril 75mg tab, NMSF net price of Sun Pharma Ltd India = 0.49 SDG

5.5.6 Dipyridamole

Indications: Secondary prevention of ischaemic stroke and transient ischaemic attacks, adjunct to oral anticoagulantion for prophylaxis of thromboembolism associated with prosthetic heart valves.

Cautions: Rapidly worsening angina, aortic stenosis, recent myocardial infarction, left ventricular outflow obstruction, heart failure, may exacerbate migraine, hypotension, myasthenia gravis, coagulation disorders, concomitant use of Medicines that increase risk of bleeding.

Side-effects: Gastrointestinal effects, dizziness, myalgia, throbbing headache, hypotension, hot flushes and tachycardia, worsening symptoms of coronary heart disease, hypersensitivity reactions such as rash, urticaria, severe bronchospasm and angioedema, increased bleeding during or after surgery, thrombocytopenia is reported.

Dose: By mouth, 300- 600mg daily in 3-4 divided doses modified-release preparation by intravenous injection, diagnostic only.

Dipyridamole 75mg tab, NMSF net price of Codal Synto = 0.07 SDG

5.6 Lipid regulating agents

5.6.1 Bile acid sequestrants

5.6.1.1 Cholestyramine

Indications: Hyperlipidaemias, particularly type IIa, in patients who have not responded adequantely to diet and other measures, primary prevention of coronary heart disease in men aged 35- 59 years with coronary heart hypercholesterolaemia who have not responded to diet and other appropriate measures, pruritis associated with partial biliary obstruction and biliary cirrhosis, diarrhoeal disorders.

Cautions: It interferes with the absorption of fat-soluble Vitamins, supplements of Vitamins A, D, K, and Folic acid may be required when treatment is prolonged.

Contra-indications: Complete biliary obstruction.

Side-effects: Constipation, nausea, vomiting, gastrointestinal disorders, hypertriglyceridaemia, increasing bleeding tendency due to hypoprothrombinaemia associated with Vitamin K deficiency.

Dose: Lipid reduction, initially 4g daily increased by 4g at weekly interval to 12-24g daily in 1-4 divided doses, then adjusted as required, max. 36g daily

Cholestyramine unhydrous powder 4g/sachet, NMSF net price of Pharma Science = 7.50 SDG

5.6.2 Fenofibrate

Indication: Adjunct to diet and other appropriate measures in mixed hyperlipidaemia if statin contra-indicated or not tolerated, or in severe hypertriglyceridaemia, adjunct to statin in mixed hyperlipidaemia if triglycerides and HDL-cholesterol inadequately controlled in patients at high cardiovascular risk.

Cautions: Correct hypothyrodisim before initiating treatment, liver function tests recommended every 3 months for first year (discontinue treatment if significantly raised).

Contra-indications: Gall bladder disease, pancreatitis (unless due to severe hypertriglyceridaemia), photosensitivity to Ketoprofen.

Side-effects: Abdominal distension, diarrhoea, nausea, anorexia, less commonly cholestasis, dizziness, headache, renal failure, erectile dysfunction, myotoxicity (with myasthenia, myalagia, or very rarly rhabdomylosis), urticaria, pruritis, rash, photosensitivity reactions, alopecia, rarely pancreatitis, periepheral neuropathy, very rarely gallstones, interstitial lung disease, anaemia, leucopenia, pancytopenia, increased platelets count, thrombocytopenic purpura, Stevens-Johnson syndrome, toxic epidermal necrolysis, also less commonly pancreatitis, pulmonary embolism, rarely hepatitis, also reported interstitial pneumopathies.

Dose: One daily (dose form not appropriate for children or in renal impairment).

Fenofibrate (micronised) 160 mg tablets, NMSF net price = New Item

5.6.3 Gimfibrozil

Indications: Adjunct to diet and other appropriate measures in mixed hyperlipidaemia or primary hypercholesterolaemia if statin contraindicated or not tolerated, orin severe hypertriglyceridaemia, adjunct to diet and other appropriate measures in primary prevention of cardiovascular disease in men with hyperlipidaemias if statin contraindicated or not tolerated.

Cautions: Monitor blood counts for first year, monitor liver function (discontinue treatment if abnormalities persist) preferably avoid use with statins (high risk of rhabdomyolysis) correct hypothyrodisim before initiating treatment.

Contra-indications: History of gall bladder or biliary tract disease including gallstones, photosensitivity to fibrates.

Side-effects: Dyspepsia, diarrhoea, constipation, nausea, vomiting, abdominal pain, flatulence, headache, fatigue, vertigo, eczema, rash, less commonly atrial fibrillation, rarely pancreatitis, disturbances in hepatic function including hepatitis and cholestatic jaundice, angioedema, dizziness, paraesthesia, depression, drowsiness, sexual dysfunction, thrombocytopenia, anaemia, leucopenia, eosinophilia, bone marrow suppression, mylagia, myopathy, myasthenia, myositis accompanied by increase increatine kinase (discontinue if raised significantly) blurred vision, pruritis, urticaria, exfoliative dermatitis, alopecia, photosensitivity.

Dose: 1.2g daily, usually in 2 divided doses, 0.9-1.2g daily, child, not recommended.

Gemfibrozil 600mg tablets, NMSF net price of Atco Laboratories Limited = 0.81 SDG

5.6.4 Statins

5.6.4.1 Fluvastatin

Indications: Adjunct to diet in primary hypercholesterolaemia or combined (mixed) hyperlipidaemia (types 2a and 2b) prevention of coronary events after precutaneous coronary intervention.

Cautions: Hypothyrodisim should be managed adequately before starting treatment with caution in those with a history of liver disease or with a high alcohol intake statins should be used with caution in those with risk factors for myopathy or rhabdomyolysis.

Side-effects: Myalgia, myopathy, myositis, and rhabdomylysis, rarely cause hepaitis and jaundice, pancreatitis and hepatic failure, very rarely other side effects include gastrointestinal disturbances, sleep disturbance, headache, dizziness, depression, paraesthesia, asthenia, peripheral

neuropathy, amnesia, fatigue, sexual dysfunction, thrombocytopenia, arthralgia, visual disturbance, alopecia, and hypersensitivity reactions, and in very rare cases, Statin can cause interstitial lung disease, if patients develop symptoms such as dyspnoea, cough, weight loss, hyperglycaemia, also very rarely vasculitis.

Dose: Hypercholesterolaemia or combined hyperlipidaemia, initially 20-40 mg daily in the evening, adjusted at intervals of at least 4 weeks, up to 80 mg daily (given in 2 divided doses) may be required. Following percutaneous coronary intervention, 80 mg daily.

Fluvastatin sodium 40 mg capsules/tablets, NMSF net price= New Item.

5.6.4.2 Simvastatin

Indications: Primary hypercholesterolaemia, homozygous familial hypercholesterolaemia or combined (mixed) hyperlipidaemia in patients who have not responded adequately to diet and other appropriate measures, prevention of cardiovascular events in patients with atherosclerotic cardiovascular disease or diabetes mellitus.

Cautions: Hypothyroidism should be managed adequantely before starting treatment with statin. Statin should be used with caution in those with history of liver disease or with a high alcohol intake. Also should be taken with caution in those with risk factors for myopathy or rhabdomylosis. Also 80 mg dose only for those with severe hypercholesterolaemia and at high risk of cardiovascular complications.

Side-effects: Statins have been associated with myalgia, myopathy, mysitis, and rhabdomyolysis. Statins can alter liver function test and rarely can cause hepatitis and jaundice, pancreatitis and hepatic failure have been reported very rarely. Other side-effects include gastro-intestinal disturbances, sleep disturbance, headache, dizziness, depression, paraesthesia, asthenia, peripheral neuropathy, amnesia, fatigue, sexual dysfunction, thrombocytopenia, arthralgia, visual disturbance, alopecia, and hypersensitivity reactions. In very rare cases, statins can cause interstitial lung disease, if patients develop symptoms such as dyspnoea, cough, and weight loss, they should seek medical attention. Statins can cause hyperglycaemia and may be associated with the development of diabetes mellitus, particularly in those already at risk of the condition, also rarely anaemia is reported.

Dose: Primary hypercholesterolaemia, combined hypelipidaemia, 10-20mg daily at night, adjusted at intervals of at least 4weeks, max. 80mg once daily at night.

Homozygous familial hypercholesterolaemia, initially 40mg daily at night, adjusted to intervals of at least 4 weeks, max. 80mg once daily at night.

Prevenyion of cardiovascular events, initially 20-40mg once daily at night adjusted at intervals of least 4 weeks, max. 80mg once daily at night.

Simvastatin 10mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.690 SDG
Simvastatin 20mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.863 SDG
Simvastatin 40mg tablet, NMSF net price of Micro Labs Limited = 1.87 SDG

5.6.4.3 Atorvastatin

Indications: Primary hypercholesterolaemia, heterozygous familial hypercholesterolaemia or combined hyperlipidemia in patients who have not responded adequantely to diet and other appropriate measures, prevention of cardiovascular events in patients at high risk of a first cardiovascular event.

Cautions: Hypothyroidism, myopathy or rhabdomyolysis, haemorrhagic stroke.

Side-effects: Myalagia, myopathy, myotitis, and rhabdomyolysis, nasophyrngitis, epistaxis, pharyngeal pain, back pain, hyperglycaemia, tinnitus, peripheral oedema, neck pain, rarely cholestasis, Steven-Johnson syndrome, toxic epidermal necrolysis, very rarely gynaecomastia, hearing loss.

Dose: Primary hypercholesterolaemia and combined hyperlipidaemia usually 10mg once daily, if necessary, may be increased at intervals of at least 4 weeks to max. 80mg once daily.

Familial hypercholestrolaemia, initially 10mg daily, increased at intervals of at least 4 weeks to 40mg once daily, if necessary, further increased to max. 80mg once daily.

Prevention of cardiovascular events initially

10mg once daily adjusted according to response.

Atorvastatin10mg tablets, NMSF net price of Intas Pharmaceuticals = 0.23 SDG
Atorvastatin10mg tablets, NMSF net price of Troikaa Pharmaceutical India = 0.54 SDG
Atorvastatin10mg tablets, NMSF net price of Zydus Cadila Healthcare = 0.60 SDG
Atorvastatin (as calcium trihydrate) 20mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 0.460 SDG

5.7 Beta-Sitosterol

Indications: Heart disease and high cholesterol, It is also used for boosting the immune system and for preventing colon cancer as well as for gallstones, common cold and flu (influenza), HIV/AIDs, rheumatoid arthritis, Tuberculosis, psoriasis, allergies, cervical cancer, fibromyalgia, systemic lupus erythematosus (SLE), asthma, hair loss, bronchitis, migraine headache, and chronic fatigue syndrome.Some men use beta-sitosterol for enlarged prostate (benign prostatic hyperplasia or BPH). Some women use it for symptoms of menopause.It is also used for enhancing sexual activity. Marathon runners sometimes use beta-sitosterol to reduce pain and swelling after a run. And some people apply beta-sitosterol to the skin for treating wounds and burns.

Side-effects: Nausea, indigestion, gas, diarrhoea, or constipation.

Dose: For benign prostatic hyperplasia (BPH): 60 to 130mg of beta-sitosterol divided into 2-3 doses daily.

For high cholesterol: 800mg to 6grams per day divided and given before meals.

Beta-Sitosterol 0.25%, 30g topical ointment, NMSF net price of Gulf Pharmaceutical Industries = 30.00 SDG

6 Anti-infective Medicines

6.1 Antihelminthics

6.1.1 Schistosomicides

6.1.1.1 Praziquantel

Indications: Intestinal schistosomiasis, urinary schistosomiasis, intestinal, liver, and lung, fluke infections, cestode infections.

Contra-indication: Paragonimus infections treatment in hospitalas may be Central Nervous System involvement, pregnancy (unless immediate treatment required, delay treatment until after delivery, breast-feeding (avoid during and for 72 hours after treatment).

Side-effects: Abdominal discomfort, nausea, vomiting, malaise, headache, dizziness, drowsiness, rectal bleeding, rarely hypersensitivity reactions, including fever, pruritus, and eosinophilia (may be due to dead and dying parasites).

Dose: Intestinal fluke infections, by mouth, adult and child over 4years, 25mg/kg as a single dose. Liver and lung fluke infections, by mouth, adult and child over 4 years 25mg/kg 3 times daily for 2 consecutive days, alternatively 40mg/kg as single dose, treatment may need to be extended for several days in paragonimiasis. Schistosomiasis, by mouth, adult and child over 4 years, 40-60mg/kg as a singl edose, or in 3 divided doses of 20mg/kg at intervals of 4-6 hours.

Praziquantel 600mg tablets, NMSF net price of General Medicine Co. =1.86 SDG

6.2 Antibacterial Medicines

6.2.1 Beta lactam Medicines

6.2.1.1 Amoxicillin

Indication: Urinary tract infections, upper respiratory tract infections, bronchitis, pneumonia, otitis media, dental abscess and other oral infections

osteomyelitis, Lyme disease, endocarditis prophylaxis, post-splenectomy.

Cautions: History of allergy to Penicillins, renal impairment 'erythematous rash common in glandular fever, cytomegalovirus infection, chronic lymphatic leukaemia, and sometimes in HIV infection, maintain adequate hydration with high doses.

Contra-indications: Hypersensitivity to Penicillins.

Side-effects: Nausea and vomiting, diarrhoea, rash (hypersensitivity or toxic response) may be indicative of a serious reaction- discontinue treatment) hypersensitivity reactions including urticaria, angioedema, anaphylaxis, serum sickness-like reactions, haemolytic anaemia, and interstitial nephritis rarely antibiotic-associated colitis, neutropenia, thrombocytopenia coagulation disorders, rarely Central Nervous System disorders including convulsions (associated with high doses or impaired renal function).

Dose: Infections due to sensitive organisms, by mouth, adult and child over 10 years.

250mg every 8 hours, doubled in severe infections, child upto 10 years, 125mg every 8 hours, doubled in severe infections. Severe or recurrent purulent respiratory tract infections, by mouth, adult, 3g every 12 hours. Pneumonia, by mouth, adult, 0.5-1g every 8 hours. Dental abscess (short course) by mouth, adult, 3g repeated once after 8 hours. Urinary tract infections (short course) by mouth, adult, 3g repeated once after 10-12 hours. Uncomplicated genital chlamydial infection, non-gonococcal urethritis, by mouth, adult, 500 mg every 8 hours for 7days. Gonorrhoea (short-course), bymouth, adult, 3g as asingle dose(with probenecid, 1g) Otitis media,by mouth, adult, 1g every 8 hours, child, 40mg/kg daily in 3 divided doses (maximum, 3g daily).

Amoxicillin trihydrate 250mg capsule, NMSF net price of Cima = 0.23 SDG
Amoxicillin trihydrate 250mg capsule, NMSF net price of General Medicine Co. = 0.26 SDG
Amoxicillin trihydrate 250mg capsule, NMSF net price of Wafrapharma Laboratories = 0.23 SDG
Amoxicillin trihydrate 500mg capsule, NMSF net price of Cima = 0.31 SDG
Amoxicillin trihydrate 500mg capsule, NMSF net price of General Medicine Co. = 0.40 SDG
Amoxicillin trihydrate 500mg capsule, NMSF net price of Wafrapharma Laboratories = 0.40 SDG
Amoxicillin trihydrate 125mg/5ml (100ml) suspension, NMSF net price of General Medicine Co. = 1.04 SDG
Amoxicillin trihydrate 125mg/5ml (75ml) suspension, NMSF net price of Amipharma Laboratories Ltd. = 4.60 SDG
Amoxicillin trihydrate 125mg/5ml (75ml) suspension, NMSF net price of Pharmaland Pharmaceuticals = 3.91 SDG
Amoxicillin trihydrate 125mg/5ml (75ml) suspension, NMSF net price of Wafrapharma Laboratories = 3.58 SDG
Amoxicillin trihydrate 250mg/5ml (75ml) suspension, NMSF net price of Amipharma Laboratories Ltd. = 6.50 SDG
Amoxicillin trihydrate 250mg/5ml (75ml) suspension, NMSF net price of Pharmaland Pharmaceuticals = 6.50 SDG
Amoxicillin trihydrate 250mg/5ml (75ml) suspension, NMSF net price of Wafrapharma Laboratories = 5.00 SDG

6.2.1.2 Co-amoxiclav

A mixture of Amoxicillin (as the trihydrate or as the sodium salt) and Clavulanic acid (as potassium clavulanate), the proportions are expressed in the form x/y where x and y are the strengths in milligrams of Amoxicillin and Clavulanic acid respectively.

Indications: Infections due to beta-lactamase-producing strains (where Amoxicillin alone not appropriate) including respiratory-tract infections, bone and joint infections, genito-urinary and abdominal infections, cellulitis, animal bites, severe dental infection with spreading cellulitis or dental infection not responding to first-line antibacterial.

Cautions: Maintain adequate hydration with high doses (particularly during parenteral therapy) cholestatic jaundice can occur either during or shortly after the use of Co-amoxiclav. An epidemiological study has shown that the risk of acute liver toxicity was about 6 times greater with Co-amoxiclav than with Amoxicillin. Cholestatic jaundice is more common in patients above the age of 65 years and in men, these reactions have only rarely been reported in children. Jaundice is usually self-limiting and very rarely fatal. The duration of treatment should be appropriate to the indication and should not usually exceed 14 days.

Contra-indications: Penicillin hypersensitivity, history of Co-amoxiclav-associated or Penicillin-associated jaundice or hepatic dysfunction.

Side-effects: Hepatitis, cholestatic jaundice, Stevens-Johnson syndrome, toxic epidermal necrolysis, exfoliative dermatitis, vasculitis reported, rarely prolongation of bleeding time, dizziness, headache, convulsions (particularly with high doses or in renal impairment), superficial staining of teeth with suspension, phlebitis at injection site.

Amoxicillin 875mg + Clavulonic acid 125mg tablet (1g), NMSF net price of Bilim = 1.50 SDG
Amoxicillin 875mg + Clavulonic acid 125mg tablet (1g), NMSF net price of General Medicine Co. = 2.25 SDG
Amoxicillin 250mg + Clavulanic acid 125mg 375mg Tablet, NMSF net price of Julphar = 0.76 SDG
Amoxicillin 250mg + Clavulanic acid 125mg 375mg Tablet, NMSF net price of General Medicine Co. = 1.40 SDG
Amoxicillin 250mg + Clavulanic acid 125mg 375mg Tablet, NMSF net price of Global Pharmaceuticals = 1.20 SDG
Amoxicillin 500mg + Clavulanic acid 125mg. 625mg tablet, NMSF net price of Julphar = 1.00 SDG
Amoxicillin 500mg + Clavulanic acid 125mg. 625mg tablet, NMSF net price of Global Pharmaceuticals = 1.28 SDG
Amoxicillin 500mg + Clavulanic acid 125mg. 625mg tablet, NMSF net price of Sandoz = 1.28 SDG
Amoxicillin 125mg + Clavulanic acid 31mg (156mg) - 100ml suspension, NMSF net price of Julphar = 7.00 SDG
Amoxicillin 125mg + Clavulanic acid 31mg (156mg) - 100ml suspension, NMSF net price of Medochemie = 11.22 SDG
Amoxicillin 125mg + Clavulanic acid 31mg (156mg) - 100ml suspension, NMSF net price of Sandoz = 12.24 SDG
Amoxicillin Trihydrates 300mg + Clavulanic acid 12.5mg (312mg) dry powder for reconstitution of oral suspension, 100ml bottle, NMSF net price of Julphar = 10.75 SDG
Amoxycillin Trihydrates 300mg + Clavulanic acid 12.5mg (312mg) powder for suspension, 100ml bottle, NMSF net price of Medochemie = 19.95 SDG
Amoxicillin 1g + Clavulonic acid 200mg 1.2gm inj, NMSF net price of Hikma Plc = 20.00 SDG
Amoxicillin 1g + Clavulonic acid 200mg 1.2gm inj, NMSF net price of Glaxo Welcome 35.50 SDG
Amoxicillin 200 + Clavulonic acid 28.5mg suspension (70ml/bottle), NMSF net price of General Medicine Co. = 16.39 SDG
Amoxicillin 200 + Clavulonic acid 28.5mg suspension (70ml/bottle), NMSF net price of Jazeera Pharmaceuticals Industries = 19.08 SDG
Amoxicillin 200 + Clavulonic acid 28.5mg suspension (70ml/bottle), NMSF net price of Saudi Pharmaceutical Indus. & Med. Co. (SPIMACO) = 17.48 SDG
Amoxicillin 400 + Clavulonic acid 57mg suspension (70ml/bottle), NMSF net price of General Medicine Co. = 18.90 SDG
Amoxicillin 400 + Clavulonic acid 57mg suspension (70ml/bottle), NMSF net price of Jazeera Pharmaceuticals Industries = 24.00 SDG
Amoxicillin Sodium 500mg + Potassium Clavulanate 100mg powder for reconstitution for injection with diluent, NMSF net price of Hikma Plc = 15.00 SDG

6.2.1.3 Amoxicillin+Flucloxacillin

Indications: Bacterial infections caused by susceptible organisms including middle ear infections, upper and lower respiratory tract infections, gastrointestinal infections, skin and soft-tissue infections such as boils or infections as a result of spider bites, impetigo - a bacterial skin infection characterised by small pus-filled blisters, and endocarditis - inflammation of the lining of the heart and its valves.

Side-effects: Mild diarrhoea, nausea and vomiting, headache, white patches on tongue, vaginal discharge, itching, skin rash, itch wheezing, swollen mouth and tongue, fever un usual bruising, jaundice, dizziness and fainting.

Contra-indications: Patients allergic to Penicillin and Cephalosporin families.

Dose: One capsule every eight hours.

Amoxicillin trihydrate 250mg + Flucloxacillin 250mg Capsules, NMSF net price of Eipico = 2.00 SDG

6.2.1.4 Ampicillin

Indications: Urinary tract infections, otitis media, sinusitis, bronchitis, low or moderate severity community acquired pneumonia, invasive salmonellosis, endocarditis treatment, listerial meningitis.

Cautions: History of allergy, erythematous rashes common in glandular fever, increases risk of erythromatous rashes in cytomegalovirus infection, and acute and chronic lymphocytic leukaemia.

Contra-indications: Penicillin hypersensitivity.

Side-effects: Nausea, vomiting, diarrhoea, rashes (discontinue treatment) rarely, antibiotic-associated colitis.

Dose: By mouth, 0.5 -1g every 6 hours, child 1 month-1 year, 62.5mg every 6 hours, dose doubled in severe infection, 1-5 years, 125mg every 6 hours 5-12 years, 250mg every 6 hours, dose doubled in severe infection, 12-18 years, 250-500mg every 6 hours, dose doubled in severe infection, by intramuscular injection or intravenous injection or infusion, 500mg every 4-6 hours.

Endocarditis, by intravenous infusion, adult over 18 years, 2g every 4 hours.

Listerial meningitis, by intravenous infusion, adult over 18 years, 2g every 4 hours.

Ampicillin trihydrate 250mg dry powder for reconstitution for injection, NMSF net price of Panpharma = 4.00 SDG

Ampicillin 250mg + Cloxacillin sodium 250mg capsule, NMSF net price of General Medicine Co. = 0.41 SDG

Ampicillin 250mg + Cloxacillin sodium 250mg capsule, NMSF net price of Pharmaland Pharmaceuticals = 0.41 SDG

Ampicillin 250mg + Cloxacillin sodium 250mg capsule, NMSF net price of Wafrapharma Laboratories = 0.41 SDG

Ampicillin trihydrate 125mg + Cloxacillin sodium 125mg/5ml (100ml) suspension, NMSF net price of Amipharma Laboratories Ltd. = 9.20 SDG

Ampicillin trihydrate 125mg + Cloxacillin sodium 125mg/5ml (100ml) suspension, NMSF net price of Wafrapharma Laboratories = 5.30 SDG

Ampicillin sodium 250mg + Cloxacillin sodium 250mg. injection, NMSF net price of Panpharma 4.50 SDG

6.2.1.5 Benzathine Benzyl Penicillin

Indications: Streptococcal pharyngitis, diphtheria, syphilis and othertreponemal infections (yaws, pinta, bejel) rheumatic fever prophylaxis.

Contra-indications: Hypersensitivity to Penicillins (see introductory note above) intravascular injection, neurosyphilis.

Cautions: History of allergy to Penicillins.

Side-effects: Hypersensitivity reactions including urticaria, fever, joint pains, rash, angioedema, anaphylaxis, serum sickness-like reactions, haemolytic anaemia, and interstitial nephritis (see also introductory note above) neutropenia, thrombocytopenia, coagulation disorders, rarely central nervous system toxicity (associated with high dosage or severe renal failure) Jarisch-Herxheimer reaction (during treatment for syphilis and other spirochaete infections, probably due to release of endotoxins) rarely non allergic(embolic-toxic) reactions, pain and inflammation at injection site.

Dose: Streptococcal pharyngitis, primary prophylaxis of rheumatic fever, by deep intramuscular injection, adult and child over 30kg, 900mg as a single dose, child under 30kg, 450-675mg as a single dose. Secondary prophylaxis of rheumatic fever, by deep intramuscular injection, adult and child over 30kg, 900mg once every 3-4 weeks, child under 30kg, 450mg once every 3-4 weeks. Early syphilis, by deep intramuscular injection, adult, 1.8g as a single dose, divided between 2 sites. Late syphilis, by deep intramuscular injection, adult, 1.8g, divided between 2 sites, once weekly for 3 consecutive weeks. Congenital syphilis (where no evidence of CSF involvement), by deep intramuscular injection, child up to 2 years, 37.5mg/kg as a single dose. By deep intramuscular injection, adult, 900mg as a single dose, child, 450mg as a single dose.

Benzathine Penicillin1.2megaI.U for injection, NMSF net price of North China Pharmaceutical International Corporation = 1.20 SDG

Benzathine Penicillin 2.4megaI.U for injection, NMSF net price of North China Pharmaceutical International Corporation = 1.70 SDG

6.2.1.6 Procaine Benzyl Penicillin

Indications: Syphilis, anthrax, pneumonia, diphtheria, cellulitis, mouth infections, animal bites.

Cautions: History of allergy to Penicillins (see note above) renal failure.

Contra-indications: Hypersensitivity to Penicillins (see introductory note above) intravascular injection.

Side-effects: Hypersensitivity reactions including urticaria, fever, joint pains, rash, angioedema, anaphylaxis, serum sickness-like reactions, haemolytic anaemia, and interstitial nephritis (see also introductory note above) neutropenia, thrombocytopenia, coagulation disorders and central nervous system toxicity (associated with high doses and severe renal failure) (during treatment for syphilis and other spirochaete infections, probably due to release of endotoxins) rarely, non-allergic (embolic–toxic) reactions pain and inflammation at injection site.

Dose: Infections due to sensitive organisms, by deep intramuscular injection, adult, 0.6-1.2g daily. Pneumonia, by deep intramuscular injection, child, 50mg/kg daily for 10 days. Syphilis, by deep intramuscular injection, adult, 1.2g daily for 10-15 days, or up to 3 weeks in late syphilis. Neurosyphilis, by deep intramuscular injection, adult, 1.2g daily (together with probenecid, 500mg 4 times daily by mouth) for 10-14 days. Congenital syphilis, by deep intramuscular injection, child up to 2 years, 50mg/kg daily for 10 days.

Procaine Penicillin 1g (1 million IU) powder, NMSF net price of Panpharma = 4.00 SDG

6.2.1.7 Benzyl Penicillin

Indications: Pneumonia, throat infections, otitis media, Lyme disease, streptococcal endocarditis, meningococcal disease, necrotizing genterocolitis, necrotizing fasciitis, leptospirosis, neurosyphilis, anthrax, relapsing fever, actinomycosis, brain abscess, gasgangrene, cellulitis, osteomyelitis.

Contra-indications: Hypersensitivity to Penicillins (see introductory note above) avoid intrathecal route.

Cautions: History of allergy to Penicillins, renal failure.

Dose: Mild to moderate infections due to sensitive organisms, by intramuscular injection, by slow intravenous injection or by intravenous infusion, adult, 2.4-4.8g daily in 4 divided doses, with higher doses in severe infections, neonate under 1 week, 50mg/kg daily in 2 divided doses, neonate 1-4weeks, 75mg/kg daily in 3 divided doses, child 1 month-12 years, 100mg/kg daily in 4 divided doses, with higher doses in severe infections. Bacterial endocarditis, by slow intravenous injection or by intravenous infusion, adult, 7.2-14.4g daily in 6 divided doses. Meningococcal disease, by slow intravenous injection or by intravenous infusion, adult, up to 14.4g daily in divided doses, premature infant and neonate under 1 week, 100mg/kg daily in 2 divided doses, neonate 1-4 weeks, 150mg/kg daily in 3 divided doses, child 1 month-12 years, 180300mg/kg daily in 4-6 divided doses. Suspected meningococcal disease (before transfer to hospital) by intramuscular injection or by slow intravenous injection, adult and child over 10 years, 1.2g infant under 1 year, 300mg, child 1-9 years, 600mg. Neurosyphilis, by slow intravenous injection, adult, 1.8-2.4g every 4 hours for 2 weeks .Congenital syphilis, by slow intravenous injection, child up to 2 years, 30mg/kg twice daily for the first 7 days of life, then 30mg/kg 3 times daily for 3 days, by intramuscular injection or slow intravenous injection, child over 2 years, 120–180mg/kg (maximum,1.44g) daily in 4-6 divided doses for 10-14 days.

BenzylPenicillin Sodium 1megaI.U. for injection, NMSF net price of North China Pharmaceutical International Corp. = 0.50 SDG

6.2.1.8 Cefixime

Indications: Infections due to sensitive gram-positive and gram-negative bacteria.

Contra-indications: Cephalosporin hypersensitivity.

Cautions: Sensitivity to beta-lactam antibacterials, false positive urinary glucose, and false positive coombs' test.

Renal impairment: Reduce dose if eGFR less than 20 ml/minute/1.73m^2 (max. 200mg once daily).

Pregnancy: Not known to be harmful.

Breast feeding: Manufacturer advices avoid unless essential- no information available.

Side- effects: Diarrhoea (rarely antibiotic - associated colitis) nausea and vomiting, abdominal discomfort, headache, allergic reactions including rashes, pruritus, urticaria, serum sickness-like

reactions with rashes, fever and arthralgia, and anaphylaxis, Stevens-Johnson Syndrome, toxic epidermal necrolysis reported, disturbances in liver enzymes, transient hepatitis and cholestatic jaundice, other side-effects reported include eosinophilia and blood disorders (including thrombocytopenia, leucopenia, agranulocytosis, aplastic anaemia and haemolytic anaemia) reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion, hypertonia, and dizziness.

Cefixime trihydrate 100mg/5ml suspension (60ml/bottle), NMSF net price of RAM = 20.00 SDG
Cefixime trihydrate 100mg/5ml suspension (30ml/bottle), NMSF net price of Amipharma Laboratories Ltd. = 9.20 SDG
Cefixime trihydrate 200mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 1.73 SDG
Cefixime trihydrate 400mg capsule, NMSF net price of Amipharma Laboratories Ltd = 3.45 SDG

6.2.1.9 Cefotaxime

Indications: Infections due to sensitive gram-positive and gram negative bacteria, gonorrhea, surgical prophylaxis, haemophilus epiglottitis and meningitis.

Cautions: Sensitivity to beta-lactam antibacterials, false positive urinary glucose, and false positive coombs' test.

Contra-indications: Cephalosporin hypersensitivity.

Side-effects: Diarrhoea (rarely antibiotic – associated colitis), nausea and vomiting, abdominal discomfort, headache, allergic reactions including rashes, pruritus, urticaria, serum sickness-like reactions with rashes, fever and arthralgia, and anaphylaxis, Stevens-Johnson Syndrome, toxic epidermal necrolysis reported, disturbances in liver enzymes, transient hepatitis and cholestatic jaundice, other side-effects reported include eosinophilia and blood disorders (including thrombocytopenia, leucopenia, agranulocytosis, aplastic anaemia and haemolytic anaemia) reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion, hypertonia, and dizziness. Rarely arrhythmias following rapid injection reported.

Dose: By intramuscular or intravenous injection or by intravenous infusion, 1g ever 12 hours increased in severe infections (e.g meningitis) to 8g daily in 4 divided doses, higher doses (up to 12g daily in 3-4 divided dose) may be required, intramuscular doses over 1g divided between more than one site, neonate 50mg/kg daily in divided doses increased to 150-200mg/kg daily in severe infections, child 100-150mg/kg daily in 2-4 divided doses increased up to 200mg/kg daily in very severe infections.

Cefotaxime sodium 1g powder for reconstitution for injection with diluents.

Cefotaxime 500mg injection, NMSF net price of Hikma = 7.00 SDG
Cefotaxime 500mg injection, NMSF net price of Sanofi Aventis = 18.00 SDG
Cefotaxime sodium 1g injection, NMSF net price of Sanofi Aventis = 28.00SDG
Cefotaxime sodium 1g injection, NMSF net price of Hikma = 10.00 SDG

6.2.1.10 Cefditoren Pivoxil

Indications: Used to treat bacterial infections of the skin or respiratory tract, including bronchitis, pneumonea and tonsilitis.

Side-effects: Itching, pain, side-effects, watering of the eye, flushing, headache, fever, chills, leuckopenia, pseudomembranous colitis, thrombocytopenia.

Dose: 400mg orally twice a day for 10 days.

Cefditorem pivoxil 200mg film coated tablets, blister of 10's.

Cefditoren pivoxil 200mg film coated tabletsI, NMSF net price = New Item

6.2.1.11 Ceftazidime

Indications: Infections due to sensitive bacteria, especially those due to Pseudomonas spp. and those resistant to Aminoglycosides.

Contra-indications: Hypersensitivity to Cephalosporins, porphyria.

Cautions: Sensitivity to beta lactam antibacterials (avoid if history of immediate hypersensitivity reaction).

Side-effects: diarrhoea, nausea and vomiting, abdominal discomfort, headache, rarely antibiotic-associated colitis (particularly with higher

doses), allergic reactions including rash, pruritus, urticaria, serum sickness-like reactions, fever and arthralgia, and anaphylaxis, erythema multiforme and toxic epidermal necrolysis reported, transient hepatitis, cholestatic jaundice, eosinophilia and blood disorders (including thrombocytopenia, leukopenia, agranulocytosis, aplastic anaemia, and haemolytic anaemia) reversible interstitial nephritis, nervousness, sleep disturbances, confusion, hypertonia, and dizziness.

Dose: Infections due to susceptible organisms, by deep intramuscular injection, by intravenous injection, or by intravenous infusion, adult, 1g every 8 hours or 2g every 12 hours, in severe infections (including in the immunocompromised) 2g every 8-12 hours or 3g every 12 hours (in the elderly, usual maximum, 3g daily) neonate and infant up to 2 months, 25-60mg/kg daily in 2 divided doses, child over 2 months, 30-100mg/kg daily in 2-3 divided doses (intravenous route recommended for children) pseudomonal lung infection in cystic fibrosis, by deep intramuscular injection, by intravenous injection, or by intravenous infusion, adult, 100-150mg/kg daily in 3 divided doses. Infections in the immunocompromised, cystic fibrosis, or meningitis, by intravenous injection or intravenous infusion, child over 2 months up to 150mg/kg daily in 3 divided doses (maximum, 6g daily). Directions, Intramuscular doses over 1g should be divided between more than one site.

Ceftazidime 1000mg powder for injection, NMSF net price of Gulf Pharmaceutical Industries = 26.50 SDG
Ceftazidime1000mg powder for injection, NMSF net price of Glaxo Welcome = 40.00 SDG
Ceftazidime 500mg powder for reconstitution for injection, NMSF net price of Labesfal = 15.00 SDG
Ceftazidime 500mg powder for reconstitution for injection, NMSF net price of Glaxo Welcome = 33.00 SDG

6.2.1.12 Cefadroxil

Indications: Infections due to sensitive gram positive and gram negative bacteria.

Cautions: sensitivity to beta lactam antibacterials, false positive urinary glucose, and false positive coomb's test.

Contra-indications: Cephalosporin hypersensitivity.

Side-effects: diarrhoea, nausea, vomiting, abdominal discomfort, headache, allergic reactions including rashes, pruritus, urticaria, serum sickness-like reactions with rashes, fever, and arthralgia, and anaphylaxis, Steven's-Johnson Syndrome, toxic epidermal necrolysis reported, disturbance of the liver enzymes, transient hepatitis and cholestatic jaundice, other side-effects reported include eosinophilia and blood disorders, reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion, hypertonia, and dizziness.

Dose: 250mg every 8 hours, doubled for severe infections max. 4g daily, child over 1 month, 20mg/kg daily in 3 divided doses, double for severe infections, max. 1g daily, or 1 month-1 year, 62.5mg every 8 hours, 1-5 years, 125mg, doses doubled for severe infections.

Cefadroxil monohydrate 500mg capsules, NMSF net price of Kahira Pharma & Ch = 1.2 SDG

6.2.1.13 Ceftriaxone

Indications: Serious infections due to sensitive bacteria, including septicaemia, pneumonia, and meningitis, osteomyelitis, septic arthritis, Haemophilus influenzae epiglottis, surgical prophylaxis, prophylaxis of meningococcal meningitis, shigellosis, invasive salmonellosis, endocarditis, gonococcal conjunctivitis, gonorrhoea, pelvic inflammatory disease, lyme disease.

Contra-indications: Hypersensitivity to Cefalosporins, porphyria, neonates with jaundice, hypoalbuminaemia, acidosis or impaired bilirubin binding.

Cautions: Sensitivity to beta lactam antibacterials (avoid if history of immediate hypersensitivity reactions, severe renal impairment. treatment longer than 14 days, renal failure, dehydration, or concomitant total parenteral nutrition (risk of Ceftriaxone precipitation in gallbladder) pregnancy and false positive urinary glucose (if tested for reducing substances) and false positive Coombs test.

Side-effects: Diarrhoea, nausea and vomiting, abdominal discomfort, headache, rarely antibiotic-associated colitis (particularly with higher doses), allergic reactions including rash, pruritus, urticaria, serum sickness-like reactions, fever

and arthralgia, and anaphylaxis, erythema multiforme and toxic epidermal necrolysis reported, transient hepatitis, cholestatic jaundice, eosinophilia and blood disorders (including thrombocytopenia, leukopenia, agranulocytosis, a plastic anaemia, and haemolytic anaemia) reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion, hypertonia and dizziness, calcium Ceftriaxone precipitates in the urine (particularly in the very young, the dehydrated, or in those who are immobilized) or in the gallbladder (consider discontinuation if symptomatic) rarely prolongation of prothrombin time and pancreatitis.

Dose: Infections due to susceptible organisms, by deep intramuscular injection, by intravenous injection (over at least 2-4 minutes), or by intravenous infusion, adult, 1g daily, up to 2-4g daily in severe infections, infant and children under 50kg, 20-50mg/kg daily should be given, up to 80mg/kg daily in severe infections (doses of 50mg/kg and over by intravenous infusion only) by intravenous infusion (over 60 minutes), neonate, 20-50mg/kg daily (maximum, 50mg/kg daily) Uncomplicated gonorrhea and gonococcal conjunctivitis, by deep intramuscular injection, adult, 125mg as a single dose (also used with Doxycycline and/or Metronidazole to treat pelvic inflammatory disease) Neonatal gonococcal conjunctivitis, by intramuscular injection, neonate, 50mg/kg as a single dose (maximum, 125mg). Disseminated gonococcal infection, by deep intramuscular injection or by intravenous injection, adult, 1g daily for 7 days. Surgical prophylaxis, by deep intramuscular injection or by intravenous injection (over at least 2-4 minutes) adult, 1g at induction. Colorectal surgery (with an antibacterial active against anaerobes), by deep intramuscular injection, by intravenous injection (over at least 2-4 minutes) or by intravenous infusion, adult, 2g as a single dose.

Ceftriaxone Sodium 500mg/vial powder for reconstitution, NMSF net price of Hikma Plc = 6.00 SDG
Ceftriaxone Sodium 500mg/vial powder for reconstitution, NMSF net price of Surge Laboratories (PVT) Ltd = 3.50 SDG
Ceftriaxone Sodium 1g/vial powder for reconstitution, NMSF net price of Unique Pharmaceutical Laboratories = 8.50 SDG

6.2.1.14 Cephalexin Monohydrate

Indications: Infections due to sensitive Gram-positive and Gram-negative bacteria.

Cautions: Sensitivity to beta-lactam antibacterials (avoid if history of immediate hypersensitivity reaction, false positive urinary glucose (if tested for reducing substances) and false positive Coombs test.

Contra-indications: Cephalosporins hypersensitivity.

Side-effects: Diarrhoea (rarely antibiotic-associated colitis), nausea and vomiting, abdominal discomfort, headache, allergic reactions including rashes, pruritus, urticaria, serum sickness-like reactions with rashes, fever and arthralgia, and anaphylaxis, Stevens-Johnson Syndrome, toxic epidermal necrolysis reported, disturbances in livere nzymes, transient hepatitis and cholestatic jaundice, other side-effects reported include eosinophilia and blood disorders (including thrombocytopenia, leucopenia, agranulocytosis, aplastic anaemia and haemolytic anaemia), reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion, hypertonia, and dizziness.

Dose: 250mg every 6 hours or 500mg every 8-12 hours increased to 1-1.5g every 6-8 hours for severe infections, child 25mg/kg daily in divided doses, doubled for svere infections, max.100mg/kg daily, or under 1 year 125mg every 12 hours, 1-5 years 125mg every 8 hours, 5-12 years 250mg every 8 hours. Prophylaxis of recurrent urinary-tract infection, adult 125mg at night.

Cephalexin monohydrate 125mg/5ml, 100ml, NMSF net price of Pharmaland Pharmaceuticals = 5.75 SDG
Cephalexin monohydrate 125mg/5ml, 100ml, NMSF net price of Wafrapharma Laboratories = 5.00 SDG
Cephalexin (anhydrous) 250mg cap., NMSF net price of Pharmaland Pharmaceuticals = 0.35 SDG
Cephalexin (anhydrous) 250mg cap., NMSF net price of Wafrapharma Laboratories = 0.35 SDG
Cephalexin (anhydrous) 250mg cap., NMSF net price of Medochemie = 0.35 SDG
Cephalexin (monohydrate) 500mg/cap., NMSF net price of Pharmaland Pharmaceuticals = 0.50 SDG

6.2.1.15 Cefuroxime

Indications: Infections due to sensitive Gram-positive and Gram-negative bacteria.

Cautions: Sensitivity to beta-lactam antibacterials (avoid if history of immediate hypersensitivity reaction false positive urinary glucose (if tested for reducing substances) and false positive Coombs test.

Contra-indications: Cephalosporins hypersensitivity.

Side-effects: Diarrhoea (rarely antibiotic-associated colitis), nausea and vomiting, abdominal discomfort, headache, allergic reactions including rashes, pruritus, urticaria, serum sickness-like reactions with rashes, fever and arthralgia, and anaphylaxis, Stevens-Johnson Syndrome, toxic epidermal necrolysis reported, disturbances in liver enzymes, transient hepatitis and cholestatic jaundice, other side-effects reported include eosinophilia and blood disorders (including thrombocytopenia, leucopenia, agranulocytosis, aplastic anaemia and haemolytic anaemia) reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion, hypertonia, and dizziness.

Dose: By mouth (as Cefuroxime axetil), 250mg twice daily in most infections.

Including mild to moderate lower respiratory-tract infections (e.g. bronchitis) doubled for more severe lower respiratory- tract infections or if pneumonia suspected. Urinary- tract infection, 125mg twice daily, doubled in pyelonephritis child over 3 months, 125mg twice daily, if necessary doubled in child over 2 years with otitis media. Lyme disease adult and children over 12 years, 500mg twice daily for 14-21 days (for 28 days in Lyme arthritis).

By intramuscular injection or intravenous injection or infusion, 750mg every 6–8 hours, 1.5g every 6-8 hours in severe infections, single doses over 750mg intravenous route only.

Child usual dose 60mg/kg daily (range 30-100 mg/kg daily) in 3-4 divided doses (2-3 divided doses in neonates).

Surgical prophylaxis, 1.5g by intravenous injection up to 30 minutes before the procedure, up to 3 further doses of 750mg may be given by intramuscular or intravenous injection every 8 hours for high-risk procedures.

Cefuroxime 1.5g injection, NMSF net price of Tabuk Pharmaceutical Manufacturing Co. = 19.67 SDG
Cefuroxime sodium 750mg powder for injection, NMSF net price of Hikma = 7.5 SDG
Cefuroxime sodium 750mg powder for injection, NMSF net price of Glaxo Wellcome = 12.00 SDG
Cefuroxime sodium 750mg powder for injection, NMSF net price of Tabuk Pharmaceutical Manufacturing Co. = 10.00 SDG
Cefuroxime sodium 250mg tablet, NMSF net price of Micro Labs Limited = 1.5 SDG
Cefuroxime sodium 500mg tablet, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 3.68 SDG
Cefuroxime sodium 500mg tablet, NMSF net price of Okasa Pharma (Pvt) Ltd. = 3.04 SDG

6.2.1.16 Cephradine

Indication: Infections due to sensitive Gram-positive and Gram-negative bacteria also see notes above, and for surgical prophylaxis.

Cautions: Sensitivity to beta-lactam antibacterials (avoid if history of immediate hypersensitivity reaction, and hypersensitivity reactions) false positive urinary glucose (if tested for reducing substances) and false positive Coombs' test.

Contra-indications: Cephalosporin hypersensitivity.

Renal impairment: No dose adjustment required manufacturer advises caution.

Pregnancy: Not known to be harmful.

Breast-feeding: Present in milk in low concentration, but appropriate to use.

Side-effects: Diarrhoea (rarely antibiotic-associated colitis) nausea and vomiting, abdominal discomfort, headache, allergic reactions including rashes, pruritus, urticaria, serum sickness-like reactions with rashes, fever and arthralgia, and anaphylaxis, Stevens-Johnson Syndrome, toxic epidermal necrolysis reported, disturbances in liver enzymes, transient hepatitis and cholestatic jaundice, other side-effects reported include eosinophilia and blood disorders (including thrombocytopenia, leucopenia, agranulocytosis, aplastic anaemia and haemolytic anaemia) reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion,

hypertonia, and dizziness.

Cephradine 500mg capsules, NMSF net price of General Medicine Co. = 0.70 SDG

6.2.1.17 Cefpodoxime

Indication: Upper respiratory tract infections lower respiratory tract infections (including bronchitis and pneumonia) skin and soft tissue infections, uncomplicated urinary tract infections.

Cautions: Sensitivity to beta-lactam antibacterials (avoid if history of immediate hypersensitivity reaction) false positive urinary glucose (if tested for reducing substances) and false positive Coombs' test.

Contra-indications: Cephalosporin hypersensitivity.

Side-effects: Diarrhoea (rarely antibiotic-associated colitis) nausea and vomiting, abdominal discomfort, headache, allergic reactions including rashes, pruritus, urticaria, serum sickness-like reactions with rashes, fever and arthralgia, and anaphylaxis, Stevens-Johnson Syndrome, toxic epidermal necrolysis reported, disturbances in liver enzymes, transient hepatitis and cholestatic jaundice, other side-effects reported include eosinophilia and blood disorders (including thrombocytopenia, leucopenia, agranulocytosis, aplastic anaemia and haemolytic anaemia) reversible interstitial nephritis, hyperactivity, nervousness, sleep disturbances, hallucinations, confusion, hypertonia, and dizziness.

Cefpodoxime proxetil 100mg tablets, NMSF net price of Cadila Pharmaceuticals = 2.00 SDG
Cefpodoxime proxetil 200mg tablets, NMSF net price of Cadila Pharmaceuticals = 4.40 SDG

6.2.1.18 Cefdinir

Indications: Community-acquired pneumonia, respiratory tract infections (acute exacerbations of chronic bronchitis, pharyngitis and tonsillitis, acute maxillary sinusitis), skin/skin structure infections.

Cautions: Use with caution in patients with history of Penicillin allergy, dosage adjustments may be necessary if CrCl is <30 ml/min, bacterial or fungal overgrowth of non-susceptible organisms may occur with prolonged or repeated therapy.

Contra-indications: Hypersensitivity.

Side-effects: Diarrhoea, vaginal moniliasis, nausea, rash, headache, increased urine leukocytes, increased urine protein, decreased lymphocytes, glycosuria, increased alkaline phosphatase, increased eosinophils, and increased platelets.

Dose: Community acquired pneumonia 300mg twice a day (every 12 hours) for 10 days, respiratory tract infections 300mg two times a day for 5-10 days or 600mg once daily for 10 days, acute maxillary sinusitis 300mg two times a day or 600mg once daily for 10 days and for skin/skin structure infections 300mg twice a day for 10 days.

Cefdinir monohydrate 300mg capsules, NMSF net price of Hikma Plc = 11.25 SDG

6.2.1.19 Cefditoren

Indications: Chronic bronchitis, pneumonia, pharyngitis, tonsilitis, uncomplicated skin and skin structure infection.

Cautions: May cause diarrhoea, nausea, and vaginal moniliasis (yeast infection) pseudomembranous colitis may occur, clinical manifestations of carnitine deficiency may occur with prolonged use, prolonged use may result in emergence and overgrowth of resistant organisms, caution in breast-feeding.

Contra-indications: Documented hypersensitivity to drug, Penicillin, related compounds, or milk protein sodium caseinate, carnitine deficiency or inborn errors of metabolism that may result in clinically significant carnitine deficiency.

Side-effects: Diarrhoea, nausea, headache, abdominal pain, dyspepsia, vomiting, bacterial/fungal superinfection (C. difficile colitis) hypersensitivity, increased bleeding time, Stevens-Johnson syndrome, vaginal moniliasis.

Dose: acute bacterial exacerbation of chronic bronchitis 400mg two times daily for 10 days.

In case of pneumonia 400mg twice daily for 2 weeks, where in the case of other infections (pharyngitis, tonsilitis, uncomplicated skin and skin structure infections) 200mg two times a day for 10 days may required.

Cefditoren pivoxil 200mg film coated tablets, NMSF net price = New Item

6.2.1.20 Meropenem

Indications: Aerobic and anaerobic gram-positive and gram negative infections, hospital acquired septicaemia.

Cautions: Sensitivity to beta-lactam antibacterials (avoid if history of immediate hypersensitivity reaction).

Side-effects: Nausea, vomiting, diarrhoea (antibiotic associated colitis reported), abdominal pain, disturbances in liver function tests, headache, thrombocythaemia, rash, prurits, less commonly paraesthesia, eosinophilia, thrombocytopenia, leucopenia, rarely convulsions, also reported haemolytic anaemia, positive coombs' test, Stevens-Johnson Syndrome, toxic epidermal necrolysis.

Dose: By intravenous injection over 5 minutes or by intravenous infection, 0.5-1g every 8 hours, child 3 months-12 years 10-20mg/kg every 8 hours, body weight over 50kg, adult dose.

Exacerbations of chronic lower respiratory tract infection in cystic fibrosis, meningitis, 2g every 8 hours, child 3 months-12 years 40mg/kg every 8 hours, body weight over 50kg, adult dose.

Endocarditis (in combination with another antibacterial, adult over 18 years, 2g every 8 hours)
Meropenem trihydrate 1g powder for reconstitution for injection with diluents, NMSF net price of ACSDobfar/Astraz = 190 SDG
Meropenem trihydrate 500mg powder for reconstitution for injection with diluent, NMSF net price of ACSDobfar/AstraZ = 120.00 SDG

6.2.1.21 Vancomycin

Indications: Methicillin-resistant staphylococcal pneumonia, septicaemia related to vascular catheter, meningitis, antibiotic-associated colitis, endocarditis prophylaxis (with Gentamicin).

Cautions: Avoid rapid infusion (risk of anaphylactoid reactions, see adverse effects) rotate infusion sites, renal impairment, the elderly, history of deafness (avoid) monitor plasma Vancomycin concentration after 3 or 4 doses (earlier in the elderly and in renal impairment) blood counts, urine, and renal function, monitor auditory function in the elderly or in renal impairment.

Side-effects: Nephrotoxicity including renal failure and interstitial nephritis, ototoxicity (discontinue if tinnitus occurs) blood disorders, nausea, chills, fever, eosinophilia, anaphylaxis, rash, including exfoliative dermatitis, erythema multiforme (Stevens-Johnson Syndrome) toxic epidermal necrolysis, and vasculitis, phlebitis, severe hypotension (with shock and cardiac arrest) wheezing, dyspnoea, urticarial pruritus, flushing of the upper body ('Redman' Syndrome), pain and muscle spasm of the back and chest on rapid infusion.

Dose: Serious staphylococcal infections, by intravenous infusion, adult, 500mg over at least 60 minutes every 6 hours or 1g over at least 100 minutes every 12 hours.

Elderly (over 65 years) 500mg every 12 hours or 1g once daily, neonate up to 1week, 15mg/kg initially, then 10mg/kg every 12 hours, neonate 1-4 weeks, 15mg/kg initially, then 10mg/kg every 8 hours, child over 1 month, 10mg/kg every 6 hours. Antibiotic-associated colitis, by mouth, adult, 125-500mg every 6 hours for 7-10 days, child 1 month-5 years, 5mg/kg every 6 hours, child over 5 years, 62.5mg every 6 hours. Intravenous infusion, adult, 1g over at least 100 minutes, then Gentamicin 120mg at induction or 15 minutes before procedure.

Vancomycin Hydrochloride 500mg powder for injection, NMSF net price of Gulf Pharmaceutical Industries = 20.00 SDG
Vancomycin Hydrochloride 1g powder for injection, NMSF net price of Venus Remedies = 25.00 SDG

6.2.2 Macrolides

6.2.2.1 Azithromycin

Indications: Azithromycin is more active than Erythromycin against some Gram-negative organisms such as Chlamydia trachomatis. The concentration and persistence of Azithromycin is much higher in tissue than in plasma. A single dose of Azithromycin is recommended for use in the treatment of uncomplicated genital chlamydia and trachoma, but it is not recommended if there is a possibility of gonorrhoea because macrolide resistance emerges rapidly when it is used under these circumstances.

Side-effects: See under Erythromycin (but fewer gastrointestinal effects) anorexia, dyspepsia, flatulence, constipation, pancreatitis.

Syncope, dizziness, headache, drowsiness, agitation, anxiety, hyperactivity, photosensitivity, hepatitis, interstitial nephritis, acute renal failure, asthenia, paraesthesia, arthralgia, convulsions, mild neutropenia, thrombocytopenia, tinnitus,

hepatic necrosis, hepatic failure, tongue discoloration, and taste disturbances.

Dose: Uncomplicated genital chlamydial infections, trachoma, by mouth, adult over 45kg, 1g as a single dose, adult, under 45kg, 20mg/kg as a single dose.

Azithromycin 250mg cap, NMSF net price of Cima = 1.36 SDG
Azithromycin dehydrate 200mg/5ml, 15ml suspension, NMSF net price of Amipharma Laboratories Ltd. = 8.00 SDG

6.2.2.2 Erythromycin

Indications: Alternative to Penicillin in hypersensitive patients, sinusitis, otitis externa, oral infections, cholera, respiratory tract infections (including pneumonia and legionnaire's disease) syphilis, chancroid, chlamydia, neonatal chlamydial conjunctivitis, non-gonococcal urethritis, prostatitis, lymphogranuloma venereum, campylobacter enteritis, relapsing fever, skin infections, diphtheria, diphtheria and whooping cough prophylaxis, Q fever in children.

Cautions: Predisposition to QT interval prolongation (including electrolyte disturbances and concomitant use of medicines that prolong the QT interval.

Contra-indications: Hypersensitivity to erythromycin or other macrolides, porphyria.

Dose: Infections due to sensitive organisms, by mouth, adult and children over 8 years, 250-500mg every 6 hours, up to 4g daily in severe infections, child up to 2 years, 125mg every 6 hours, doubled in severe infections, child 2-8 years, 250mg every 6 hours, doubled in severe infections. Early syphilis, by mouth, adult, 500mg 4 times daily for 14 days. Late latent syphilis, by mouth, adult, 500mg 4 times daily for 30 days. Uncomplicated genital chlamydia, non-gonococcal urethritis, chancroid, by mouth, adult, 500mg 4 times daily for 7 days (14 days in lymphogranuloma venereum) Severe infections due to sensitive organisms, by intravenous infusion, adult and child, 50mg/kg daily by continuous infusion or in divided doses every 6 hours.

Side-effects: Gastrointestinal effects including nausea, vomiting, abdominal discomfort, diarrhoea, and rarely antibiotic-associated colitis, less frequently urticaria, rash, and other allergic reactions (rarely anaphylaxis) reversible hearing loss after large doses, cholestatic jaundice, infantile hypertrophic pyloric stenosis, cardiac effects (including chest pain and arrhythmias) myasthenia-like syndrome, erythema multiforme (Stevens-Johnson Syndrome) toxic epidermal necrolysis.

Erythromycin stearate or ethyl succinate 250mg tablet, NMSF net price of Amipharma Laboratories Ltd.=0.362 SDG
Erythromycin ethyl succinate, 125mg/5ml (100ml) bottle, NMSF net price of Amipharma Laboratories Ltd. = 7.82 SDG
Erythromycin ethyl succinate, 125mg/5ml (100ml) bottle, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 6.50 SDG
Erythromycin ethyl succinate, 250mg/5ml (100ml) bottle, NMSF net price of Amipharma Laboratories Ltd. = 11.50 SDG
Erythromycin ethyl succinate, 250mg/5ml (100ml) bottle, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 9.00 SDG

6.2.2.3 Clarithromycin

Indications: Respiratory-tract infections, mild to moderate skin and soft-tissue infections, otitis media, Lyme disease, prevention of pertussis, Helicobacter pylori eradication.

Cautions: Macrolides should be used with caution in patients with a predisposition to QT interval prolongation (including electrolyte disturbances and concomitant use of Medicines that prolong the QT interval) Macrolides may aggravate myasthenia gravis.

Side-effects: Nausea, vomiting, abdominal discomfort, and diarrhoea are the most common side-effects of the macrolides, but they are mild and less frequent with Azithromycin and Clarithromycin than with Erythromycin. Hepatotoxicity (including cholestatic jaundice) and rash occur less frequently. Other side-effects reported rarely or very rarely include pancreatitis, antibiotic-associated colitis, QT interval prolongation, arrhythmias, Stevens - Johnson syndrome, and toxic epidermal necrolysis. Generally reversible hearing loss (sometimes with tinnitus) can occur after large doses of a macrolide, it occurs commonly after long-term therapy with Azithromycin. Intravenous infusion may cause local tenderness and phlebitis, also dyspepsia, taste disturbances, headache, insomnia, hyperhidrosis, less commonly gastritis, flatulence, constipation, dry mouth, stomatitis, glossitis, anorexia, chest pain, anxiety, dizziness, tremor, malaise, blood disorders (including leucopenia) myalgia, tinnitus, also reported confusion, psychotic disorders, depression, abnormal dreams, convulsions, paraesthesia, hypoglycaemia, renal failure, interstitial nephritis, myopathy, tooth and tongue discoloration, smell disturbances.

Clarithromycine 500mg tablet, NMSF net price of Micro Labs Limited = 1.40 SDG
Clarithromycine 500mg tablet, NMSF net price of Azal Pharmaceutical = 1.71 SDG
Clarithromycine 500mg tablet, NMSF net price of Dar Aldawa = 2.42 SDG

6.2.3 Chloramphenicol

Indications: Severe life-threatening infections, particularly those caused by Haemophilus influenza and typhoid fever, also, pneumonia, cerebral abscess, mastoiditis, rickettsia, relapsing fever, gangrene, granuloma inguinale, listeriosis, plague, psitticosis, tularaemia, Whipple disease, septicaemia, meningitis.

Cautions: Avoid repeated courses and prolonged use, hepatic impairment, severe renal impairment (reduce dose, blood counts required before and during treatment, monitor plasma concentrations in neonates (see below) breast-feeding.

Contra-indications: Pregnancy.

Side-effects: Bone marrow depression reversible and irreversible aplastic anaemia (with reports of leukaemia) anaemia, leukopenia, and thrombocytopenia. Nocturnal haemoglobinuria, peripheral neuritis and opticneuritis, nausea, vomiting, diarrhoea, dry mouth, stomatitis, glossitis, headache, depression, hypersensitivity reactions including rash, urticaria, fever, angioedema, and rarely anaphylaxis, Grey syndrome (vomiting, greenish diarrhoea, abdominal distension, hypothermia, pallid cyanosis, irregular respiration, circulatory collapse) may follow excessive doses in neonates with immature hepatic metabolism, Grey syndrome also reported in infants born to mothers treated in late pregnancy.

Dose: Infections due to susceptible organisms which are not susceptible to other antimicrobials, by mouth, by intravenous injection, or by intravenous infusion, adult and child, 50mg/kg daily in 4 divided doses, up to 100mg/kg daily in divided doses in severe infections such as meningitis, septicaemia, and haemophilus epiglottitis (reduce high doses as soon as clinically indicated) neonate under 2 weeks, 25mg/kg daily in 4 divided doses, infant 2 weeks to 1year, 50mg/kg daily in 4 divided doses. Epidemics of meningococcal meningitis, by intramuscular injection (of oily suspension) adult, 3g as a single dose, repeated after 48 hours if necessary, infant 1-8weeks, 250mg as a single dose, infant 2-11 months, 500mg as a single dose, child 1-2 years, 1g as a single dose, child 3-5years, 1.5g as a single dose, child 6-9 years, 2g as a single dose, child 10-14 years, 2.5g as a single dose, child over 15 years, as for adult, repeated after 48 hours if necessary. The oily suspension is for intramuscular use only.

Chloramphenicol Sodium succinate 1gm/injection, NMSF net price of Troikaa Pharmaceutical India = 4.00 SDG

6.2.4 Quinolones
6.2.4.1 Nalidixic Acid

Indications: Urinary-tract infections.

Cautions: Avoid in acute porphyria, false positive urinary glucose (if tested for reducing substances) monitor blood counts, renal and liver function if treatment exceeds 2 weeks.

Contra-indications: Quinolones should be used with caution in patients with a history of epilepsy or conditions that predispose to seizures, in G6PD deficiency, myasthenia gravis (risk of exacerbation) and in children or adolescents (arthropathy has developed in weight-bearing joints in young animals. Exposure to excessive sunlight should be avoided (discontinue if photosensitivity occurs) quinolones can prolong the QT interval. Moxifloxacin is contra-indicated in patients with risk factors for QT interval prolongation (e.g. electrolyte disturbances, acute myocardial infarction, heart failure with reduced left ventricular ejection fraction, bradycardia, congenital long QT syndrome, concomitant use with other Medicines known to prolong the QT interval, history of symptomatic arrhythmias)and the other quinolones should be used with caution in these patients.

Anti-infective Medicines

Side-effects: Include nausea, vomiting, dyspepsia, abdominal pain, diarrhoea (rarely antibiotic-associated colitis) headache, dizziness, rash (very rarely Stevens - Johnson syndrome and toxic epidermal necrolysis). Less frequent side-effects include anorexia, sleep disturbances, asthenia, confusion, anxiety, depression, hallucinations, tremor, blood disorders (including eosinophilia, leucopenia, and thrombocytopenia) arthralgia, myalgia, disturbances in vision and taste. Other side- effects reported rarely or very rarely include hepatic dysfunction (including jaundice and hepatitis) hypotension, vasculitis, dyspnea (more frequent with Moxifloxacin) convulsions, psychoses, paraesthesia, renal failure, interstitial nephritis, tendon inflammation and damage photosensitivity, disturbances in hearing and smell. The drug should be discontinued if psychiatric, neurological or hypersensitivity reactions (including severe rash) occur. also reported toxic psychosis, increased intracranial pressure, cranial nerve palsy, peripheral neuropathy, and metabolic acidosis.

Dose: 900mg every 6 hours for 7 days, reduced in chronic infections to 600mg every 6 hours.

Nalidixic acid 500mg tablet, NMSF net price of Dar Aldawa = 0.87 SDG

6.2.4.2 Ciprofloxacin

Indications: Gastroenteritis (including cholera, shigellosis, travellers' diarrhoea campylobacter, and salmonella enteritis typhoid, gonorrhoea, chancroid, pelvic inflammatory disease (with Doxycycline and Metronidazole) legionnaires' disease, meningitis (including meningococcal meningitis prophylaxis) respiratory tract infections (including pseudomonal infections in cystic fibrosis, but not pneumococcal pneumonia) urinary tract infections, bone and joint infections, septicaemia, anthrax, skin infections, otitis externa, prophylaxis in surgery.

Cautions: History of epilepsy or conditions that predispose to seizures, G6PD deficiency, myasthenia gravis (risk of exacerbation) avoid exposure to excessive sunlight (discontinue if photosensitivity occurs) rarely tendon damage avoid excessive alkalinity of urine and ensure adequate fluid intake (risk of crystalluria) CiprOfloxacin causes arthropathy in the weight-bearing joints of immature animals and is therefore generally not recommended for use in children and growing adolescents. However, the significance of this effect in humans is uncertain and in some specific circumstances, short-term use of Ciprofloxacin in children may be justified. For example, Ciprofloxacin is used to treat pseudomonal infection-sin cystic fibrosis (for children over 5 years).

Contra-indications: History of tendon disorders related to Quinolone use.

Side-effects: Nausea, vomiting, dyspepsia, abdominal pain, flatulence, diarrhoea (rarely antibiotic-associated colitis) pancreatitis, dysphagia, tremor, hyperglycaemia, headache, dizziness, sleep disorders, rash (rarely erythema multiforme (Stevens- Johnson Syndrome) and toxic epidermal necrolysis) pruritus, vasculitis, erythema nodosum, petechiae, haemorrhagic bullae, less frequently anorexia and increased blood urea and creatinine, drowsiness, restlessness, asthenia, depression, confusion, hallucinations, convulsions, paraesthesia, hypoesthesia, movement disorders, photosensitivity, hypersensitivity reactions (including fever, urticaria, angioedema, arthralgia, myalgia, and anaphylaxis) blood disorders (including eosinophilia, leukopenia, thrombocytopenia) disturbances in vision, taste, hearing, and smell, tinnitus, tenosynovitis, tachycardia, hypotension, oedema, syncope, hot flushes and sweating, also isolated reports of tendon inflammation and damage (especially in the elderly and in those taking corticosteroids) haemolytic anaemia, renal failure, interstitial nephritis, and hepatic dysfunction (including hepatitis and cholestatic jaundice) discontinue if psychiatric, neurological, or hypersensitivity reactions (including severe rash).

Dose: Infections due to susceptible organisms, by mouth, adult, 250-750mg twice daily.

Shigellosis, by mouth, adult, 500mg twice daily for 3 days. Cholera, by mouth, adult, 1g as a single dose. Acute uncomplicated cystitis, by mouth, adult, 100mg twice daily for 3 days. Gonorrhoea and gonococcal conjunctivitis, by mouth, adult, 500mg as a single dose. Chancroid, by mouth adult, 500mg twice daily for 3 days. Pelvic inflammatory disease, by mouth, adult, 500mg twice daily. Pseudomonal lower respiratory tract infection in cystic fibrosis, by mouth, adult, 750mg twice daily, child 5-17 years, (see also Precautions) up to 20mg/kg twice daily (maximum, 1.5g daily).Surgical prophylaxis, by mouth, adult, 750mg, 60-90 minutes before procedure. Prophylaxis of meningococcal meningitis, by mouth, adult, 500mg as a single dose.

Ciprofloxacin 2mg/ml infusion, 100ml bottle with i v set, NMSF net price of Cipla = 10.00 SDG
Ciprofloxacin2mg/ml infusion, 100ml bottle with i v set, NMSF net price of Claris Llfesciences Ltd. = 12.00 SDG
Ciprofloxacin 250mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.311 SDG
Ciprofloxacin 500mg tablet, NMSF net price of Cima = 0.61 SDG
Ciprofloxacin 500mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.33 SDG

6.2.4.3 Norfloxacin

Indications: See under dose.

Cautions: Quinolones should be used with caution in patients with a history of epilepsy or conditions that predispose to seizures, in G6PD deficiency myasthenia gravis (risk of exacerbation) and in children or adolescents (arthropathy has developed in weight-bearing joints in young animals) exposure to excessive sunlight should be avoided (discontinue if photosensitivity occurs).

Quinolones can prolong the QT interval. Moxifloxacin is contra-indicated in patients with risk factors for QT interval prolongation (e.g. electrolyte disturbances, acute myocardial infarction, heart failure with reduced left ventricular ejection fraction, bradycardia, congenital long QT syndrome, concomitant use with other medicines known to prolong the QT interval, history of symptomatic arrhythmias) and the other quinolones should be used with caution in these patients.The CSM has warned that quinolones may induce convulsions in patients with or without a history of convulsions, taking NSAIDs at the same time may also induce them.

Contra-indications: Quinolone hypersensitivity.

Side-effects: Include nausea, vomiting, dyspepsia, abdominal pain, diarrhoea (rarely antibiotic-associated colitis) headache, dizziness, rash (very rarely Stevens-Johnson Syndrome and toxic epidermal necrolysis) less frequent side-effects include anorexia, sleep disturbances, asthenia, confusion, anxiety, depression, hallucinations, tremor, blood disorders (including eosinophilia, leucopenia, thrombocytopenia) arthralgia, myalgia, disturbances in vision and taste. Other side-effects reported rarely or very rarely include hepatic dysfunction (including jaundice and hepatitis) hypotension, vasculitis, dyspnea (more frequent with Moxifloxacin) convulsions, psychoses, paraesthesia, renal failure, interstitial nephritis, tendon inflammation and damage, photosensitivity, disturbances in hearing and smell. The drug should be discontinued if psychiatric, neurological or hypersensitivity reactions (including severe rash) occur also tinnitus, epiphora, rarely pancreatitis, very rarely arrhythmias, also reported, polyneuropathy and exfoliative dermatitis.

Dose: Lower urinary-tract infections, 400mg twice daily for 7-10 days (for 3 days for uncomplicated infections in women) chronic relapsing 'lower' urinary-tract infections, 400mg twice daily for up to 12 weeks, maybe reduced to 400mg once daily if adequate suppression within first 4 weeks, chronic prostatitis, 400mg twice daily for 28 days.

Norfloxacin 400mg tablet, NMSF net price of Citypharm Pharmaceutical Industries = 0.345 SDG

6.2.4.4 Ofloxacin

Indications: Urinary tract infections, low respiratory tract infections, pelvics inflammatory disease, skin and soft tissue infections.

Cautions: History of psychiatric illness.

Contra-indications: Quinolone hypersensitivity.

Side-effects: Cough, nasopharyngitis, eye irritation, rarely arrhythmias, bronchospasm, abdominal dreams, hot flushes, hyperhidrosis, very rarely neuropathy, extrapyramidal symptoms, tinnitus, also reported pneumonitis, changes in blood sugar, myopathy, rhabdomylolysis, on intravenous infusion, hypotension, and local reactions (including thrombophlebitis).

Dose: By mouth, urinary tract infections, 200-400mg daily preferably in the morning, increased if necessary in upper urinary tract infections to 400mg twice daily acute and chronic prostatitis, 200mg twice daily for 28 days.

Lower respiratory tract infections, 400mg daily preferably in the morning, increased if necessary to 400mg twice daily skin soft tissue infections, 400mg twice daily uncomplicated gonorrhea, 400mg as a single dose, uncomplicated genital chlamydial infection, non gonococcal urethritis, 400mg daily in single or divided doses for 7 days.

Pelvic inflammatory disease, 400mg twice daily for 14 days by intravenous infusion (over at least 30 minutes for each 200mg), complicated urinary tract infection, 200mg daily Lower respiratory tract infection, 200mg twice daily.

Septicaemia, 200mg twice daily.

Skin and soft tissue infections, 400mg twice daily.

Severe or complicated infections, dose may be increased to 400mg twice daily.

New Item

6.2.5 Tetracyclines

6.2.5.1 Tetracycline

Indications: Infections caused by Chlamydia, rickettsia, brucella, and the spirochaete, brucella, and the spirochaete, lyme disease, also used for respiratory and genital mycoplasma infections, in acne, in destructive periodontal disease, in exacerbations of chronic bronchitis and for leptospirosis in Penicillin hypersensitivity. Also Tetracyclines can be effective against oral anaerobes.

Cautions: Tetracyclines may increase muscle weakness in patients with myasthenia gravis, and exacerbate systemic lupus erythematosus. Antacids, and aluminium, calcium, iron, magnesium, and zinc salts also reduces the absorption of Demeclocyclines, Oxytetracycline, and Tetracycline.

Contraindications: Deposition of Tetracyclines in growing bone and teeth causes staining and occasionally dental hypoplasia, and they should not given to children under 12 years, or to pregnant or breast-feeding women.

Side-effects: Nausea, vomiting diarrhoea, dysphagia, and oesophageal irritation. Other rare side -effects include hepatotoxicity, pancreatitis, blood disorders, photosensitivity, and hypersensitivity reactions, headache and visual disturbances may include benign intracranial hypertension, bulging fontanelles have been reported in infants, also acute renal failure and skin discoloration.

Dose: 250mg every 6 hours, increased in severe infections to 500mg every 6-8 hours.

Non-gonococcal urethritis, 500mg every 6 hours for 7-14 days (21 days if failure or relapse after first course).

Tetracycline 250mg capsules, NMSF net price of Wafrapharma Laboratories = 0.20 SDG
Tetracycline 3% skin ointment, NMSF net price of Gulf Pharmaceutical Industries = 4.00 SDG

6.2.5.2 Doxycycline

Indications: Supplement to Quinine or Artesunate treatment for multidrug-resistant Plasmodium falciparum malaria, short-term prophylaxis of multidrug-resistant P.falciparum malaria, see also notes above, bacterial infections.

Contra-indications: Children under 8 years, porphyria, systemic lupus erythematosus.

Cautions: Avoid exposure to sunlight or sunlamps (photosensitivity reported).

Side-effects: Gastrointestinal disturbances, anorexia, flushing, tinnitus, photosensitivity, hypersensitivity reactions (including rash, exfoliative dermatitis, Stevens - Johnson syndrome, urticaria, angioedema, anaphylaxis and pericarditis) headache and visual disturbances, hepatotoxicity, blood disorders, pancreatitis and antibiotic-associated colitis reported, staining of growing teeth and occasional dental hypoplasia.

Dose: Supplement to malaria treatment (see note above) by mouth, adult and child over 8 years, 100mg twice daily for 7-10 days. Short-term prophylaxis of malaria, by mouth, adult, 100mg daily for up to 8 weeks, childen over 8 years, 1.5mg/kg daily for up to 8 weeks, Doxycycline should be started on the day before exposure and continued for 4 weeks after last risk of exposure.

Doxycycline 100mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 0.25 SDG
Doxycycline 100mg tablet, NMSF net price of Shangahi Sudan Pharmaceutical Company Ltd. = 0.25 SDG

6.2.6 Aminoglycoside

6.2.6.1 Kanamycin

Indications: Used to treat wide variety of gram negative bacterial infections.

Cautions: Kanamycin should be use with caution to pregnant women, avoid concomitant administration of Aminoglycosides with some Cephalosporins.

Side-effects: Ototoxicity, nephrotoxicity, neuromuscular blockade, rash fever, headache, paresthesia, nausea, vomiting and diarrhoea.

Dose: Adults or children 15mg/kg/day in two equally divided dosages administered at equally divided intervals, i.e., 7.5mg/kg every 12h.

Kanamycin 1g powder for reconstitution for injection.

Kanamycin 1g powder for reconstitution for injection, NMSF net price of Panpharma = 11.00 SDG

6.2.6.2 Clindamycin

Indications: Staphylococcal bone and joint infections, peritonitis, falciparum malaria.

Cautions: Discontinue immediately if diarrhoea or colitis develops, monitor liver and renal function if treatment exceeds 10 days, and in neonates and infants, avoid rapid intravenous administration, avoid in acute porphyria.

Contra-indications: Diarrhoeal states, avoid injections containing benzyl alcohol in neonates.

Side-effects: Diarrhoea (discontinue treatment) abdominal discomfort, oesophagitis, oesophageal ulcers, taste disturbances, nausea, vomiting, antibiotic-associated colitis, jaundice, leucopenia, eosinophilia, and thrombocytopenia reported, polyarthritis reported, rash, pruritus, urticaria, anaphylactoid reactions, Stevens-Johnson Syndrome, toxic epidermal necrolysis, exfoliative and vesiculobullous dermatitis reported, pain, induration, and abscess after intramuscular injection, thrombophlebitis after intravenous injection.

Clindamycin Hydrochloride 150mg capsules, BNMSF net price = New Item
Clindamycin Hydrochloride 300mg capsules, NMSF net price = New Item
Clindamycin phosphate 1%, 50ml topical solution, NMSF net price of Amman Ph Ind Co. = 10.00 SDG

6.2.6.3 Gentamicin

Indications: Pneumonia, cholecystitis, peritonitis plague, endocarditis, septicaemia, acute pyelonephritis, prostatitis, otitis externa, skin and soft tissue infections, pelvic inflammatory disease (with Clindamycin) meningitis, listeriosis, tularaemia, brucellosis, surgical prophylaxis, eye infections.

Cautions: Renal impairment, neonates, infants, and the elderly (adjust dosage and monitor renal, auditory, and vestibular function, and serum Gentamicin concentrations) avoid prolonged use conditions characterized by muscular weakness, obesity (use ideal body weight to calculate dose and monitor serum Gentamicin concentration closely.

Contra-indications: Myasthenia gravis.

Side-effects: Vestibular and auditory damage also nephrotoxicity, hypomagnesaemia on prolonged therapy, antibiotic-associated colitis, stomatitis, also nausea, vomiting, rash, and blood disorders.

Dose: Infections due to susceptible organisms, by intramuscular injection or by slow intravenous injection (over at least 3 minutes) or by intravenous infusion, adult, 3-5mg/kg daily in divided doses every 8 hours, NEONATE up to 2 weeks, 3 mg/kg every 12 hours, child 2 weeks-12 years, 2mg/kg every 8 hours. Pelvic inflammatory disease (with Clindamycin) by intravenous injection, adult, 1.5mg/kg every 8 hours. Endocarditis (as part of combination therapy) by intramuscular injection or by intravenous injection (over at least 3 minutes) adult, 1mg/kg every 8 hours. Surgical prophylaxis (with Clindamycin) by intravenous injection, adult, 5mg/kg as a single dose at induction.

Gentamycin Sulphate 40mg/ml for injection, 2ml, NMSF net price of Unique Pharmaceutical Laboratories = 1.00 SDG

6.2.6.4 Lincomycin

Indications: Infections caused by streptococcus pneumoniaeand other streptococci

Cautions: Discontinue if persistent diarrhoea, history of GI disease (colitis) asthma or allergies may occur. Also used with caution in patients with severe renal and/or hepatic impairment.

Contra-indications: Hypersensitivity to Lincomycin or Clindamycin.

Side-effects: Nausea, vomiting, diarrhoea, abdominal pain, tenesmus, glossitis, stomatitis, pruritus, angioedema, serum sickness and anaphylactic or anaphylactoid reactions, rash, urticaria, vaginitis, exfoliative/vesiculobullous dermatitis, erythema multiforme, thrombo-

phlebitis, erythma, pain, sweeling, transient increases in serum bilirubin, alkaline phosphatase, transient leukopenia, neutropenia, esinophilia, thrombocytopenia, agranulocytosis, headache, mylasia, tinnitus, dizziness, vertigo.

Doses: Intramuscularly 600mg every 12-24hr.

Intravenously 600-1000mg every 8-12hr, not to exceed 8g/day.

Lincomycin 200mg tab., Lincomycin 600mg injection.

Lincomycin Hydrochloride 200mg capsules, NMSF net price = New Item
Lincomycin Hydrochloride 300mg/ml, 2ml solution for injection, NMSF net price = New Item

6.2.6.5 Amikacin Sulphate

Indications: Serious gram-negative infections resistant to Gentamicin.

Cautions: The main side-effects of the Aminoglycosides are dose-related, therefore, care must be taken with dosage, and, whenever possible, parenteral treatment should not exceed 7 days. Renal function should be assessed before starting an Aminoglycoside and during treatment. If possible, dehydration should be corrected before starting an Aminoglycoside. Auditory and vestibular function should also be monitored during treatment. In order to optimize the dose and avoid toxicity, serum-Aminoglycoside concentrations should be monitored in patients receiving parenteral Aminoglycosides (see also Serum Concentrations). Ototoxicity and nephrotoxicity occur most commonly in the elderly, therefore, monitoring is particularly important in these patients, who may require reduced doses.

Aminoglycosides should be used with caution in those with conditions characterised by muscular weakness (avoid in myasthenia gravis). Aminoglycosides should preferably not be given with potentially ototoxic diuretics (e.g. Furosemide) if concurrent use is unavoidable administration of the Aminoglycoside and of the diuretic should be separated by as long a period as practicable.

Contra-indications: Aminoglycosides may impair neuromuscular transmission and should not be given to patients with myasthenia gravis.

Side-effects: The important side-effects of the Aminoglycosides are nephrotoxicity and irreversible ototoxicity (including vestibular and auditory damage) rash occurs commonly with Streptomycin, but less frequently with the other Aminoglycosides. Rare side-effects include nausea, vomiting, antibiotic-associated colitis, peripheral neuropathy, electrolyte disturbances (notably hypomagnesaemia on prolonged therapy, but also hypocalcaemia and hypokalaemia) and stomatitis.

Very rarely reported side-effects include blood disorders and CNS effects (including headache, encephalopathy, and convulsions) Aminoglycosides may impair neuromuscular transmission, large doses given during surgery have been responsible for a transient myasthenic syndrome in patients with normal neuromuscular function.

Dose: Multiple daily dose regimen, by intramuscular or by slow intravenous injection or by infusion, 15mg/kg daily in 2 divided doses, increased to 22.5mg/kg daily in 3 divided doses in severe infections, max.1.5g daily for up to10 days (max. cumulative dose 15g)

Once daily dose regimen (not for endocarditis, febrile neutropenia, or meningitis, see notes above and also consult local guidelines) by intravenous infusion, initially 15mg/kg (max.1.5g) then adjust according to serum-amikacin concentration, max. cumulative dose 15g.

Amikacin Sulphate 500mg/2ml, NMSF net price of Hikma Plc. = 7.00 SDG
Amikacin Sulphate 500mg/2ml, NMSF net price of Pharmathen = 17.00 SDG

6.2.7 Metronidazole

Indications: Anaerobic bacterial infections, including gingivitis and other oral infections, pelvic inflammatory disease (with Doxycycline and either CiprOfloxacin or Ceftriaxone) tetanus, septicaemia, peritonitis, brain abscess, necrotizing pneumonia, antibiotic-associated colitis, leg ulcers and pressure sores and surgical prophylaxis, bacterial vaginosis, skin and soft tissue infections, animal bites (with Doxycycline) tissue nematode infections in particular, dracunculiasis, trichomonal vaginitis, amoebiasis, and giardiasis (Helicobacter pylori) eradication.

Cautions: Disulfiram-like reaction with alcohol, hepatic impairment and hepatic encephalopathy

clinical and laboratory monitoring recommended in courses lasting longer than 10 days.

Contra-indications: Chronic alcohol dependence.

Dose: Anaerobic infections (usually treated for 7 days) by mouth, adult, 800mg initially, then 400mg every 8 hours or 500mg every 8 hours, child, 7.5mg/kg every 8 hours. Anaerobic infections, by intravenous infusion over 20 minutes, adult, 500mg every 8 hours, child, 7.5mg/kg every 8 hours. Anaerobic infections, by rectum, adult and children over 10 years, 1g every 8 hours for 3 days, then 1g every 12 hours, children up to 1 year, 125mg every 8 hours for 3 days, then every 12 hours, child 1-5 years, 250mg, Children 5-10 years, 500mg. Bacterial vaginosis, by mouth, adult, 2g as a single dose or 400-500mg twice daily for 5-7 days. Pelvic inflammatory disease, by mouth, adult, 400-500mg twice daily for 14 days. Leg ulcers and pressure sores, by mouth, adult 400mg every 8 hours for 7 days. Acute ulcerative gingivitis, by mouth, adult, 200–250mg every 8 hours for 3 days, children 1-3 years, 50mg every 8 hours for 3 days, children 3-7 years, 100mg every 12 hours for 3days, children 7-10 years, 100mg every 8 hours for 3 days. Acute oral infections, by mouth, adult, 200mg every 8 hours for 3-7 days, children 1–3 years, 50mg every 8 hours for 3-7 days, children 3-7 years, 100mg every 12 hours for 3-7 days, children 7-10 years, 100mg every 8 hours for 3-7 days. Antibiotic-associated colitis, by mouth adult, 800mg initially, then 400mg 3 times daily for 10 days. Surgical prophylaxis, by mouth, adult, 400-500mg 2 hours before surgery, up to 3 further doses of 400-500mg may be given every 8 hours for high-risk procedures, children, 7.5mg/kg 2 hours before surgery, up to 3 further doses of 7.5mg/kg may be given every 8 hours for high-risk procedures. Surgical prophylaxis, by rectum, adult, 1g 2 hours before surgery, up to 3 further doses of 1g may be given every 8 hours for high-risk procedures, children 5-10 years, 500mg 2 hours before surgery, up to 3 further doses of 500mg may be given every 8 hours for high-risk procedures. Surgical prophylaxis by intravenous infusion, adult, 500mg at induction, up to 3 further doses of 500mg may be given every 8 hours for high-risk procedures, children, 7.5mg/kg at induction, up to 3 further doses of 7.5mg/kg may be given every 8 hours for high-risk procedures.

Metronidazole 200mg tablet, NMSF net price of Citypharm Pharmaceutical Industries = 0.10 SDG
Metronidazole 200mg/5ml suspension, 70ml, NMSF net price of Amipharma Laboratories Ltd. = 5.52 SDG
Metronidazole 200mg/5ml suspension. 70ml, NMSF net price of Wafrapharma Laboratories = 4.72 SDG
Metronidazole 5mg/ml in 100ml infusion, NMSF net price of Unique Pharmaceutical Laboratories = 5.50 SDG.
Metronidazole 5mg/ml in 100ml infusion, NMSF net price of Pharmaceutical Solution Industry = 6.50 SDG
Metronidazole 250mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.062 SDG
Metronidazole 500 mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.14 SDG
Metronidazole 500 mg tablet, NMSF net price of Citypharm Pharmaceutical Industries = 0.13 SDG

6.2.8 Nitrofurantoin

Indications: Urinary-tract infections.

Cautions: Pulmonary disorders, hepatic impairment, monitor lung and liver function on long-term therapy (discontinue if lung function deteriorates) neurological or allergic disorders, anaemia, diabetes mellitus, the elderly and debilitated, Vitamin B and folate deficiency, use may result in false positive urinary glucose (if testing for reducing substances) urine may be coloured yellow or brown.

Contra-indications: Impaired renal function, infants less than 3 months, G6PD- deficiency including breast-feeding of affected infants, pregnancy at term, porphyria.

Side-effects: Dose-related gastrointestinal disorders, nausea, hypersensitivity reactions including urticaria, rash, sialadenitis, pruritus, and angioedema, anaphylaxis reported, rarely, cholestatic jaundice, hepatitis, and exfoliative dermatitis, erythema multiforme, pancreatitis, arthralgia, blood disorders, pulmonary reactions (including pulmonary fibrosis, possible association with lupus erythematosus-like syndrome) peripheral neuropathy, benign intracranial hypertension, transient alopecia.

Dose: Acute uncomplicated urinary tract infections, by mouth, adult, 100mg every 12 hours or

50mg every 6 hours, with food for 7 days, children over 3 months, 3mg/kg daily in 4 divided doses. Severe recurrent urinary tract infection, by mouth, adult, 100mg every 6 hours with food for 7 days (reduced to 200mg daily in divided doses if severe nausea) prophylaxis of chronic urinary tract infections, by mouth, adult, 50-100mg at night, children over 3 months, 1mg/kg at night (with regular monitoring of lung and liver function).

Nitrofurantoin 100mg tablet, NMSF net price of Kahira Pharm. & Chem. Ind. Co. Cairo - A.R.E. = 0.610 SDG

6.2.9 Cotrimoxazole (Sulphamethoxazole + Trimethoprim)

Indications: Urinary tract infections, respiratory tract infections including bronchitis, pneumonia, and infections in cystic fibrosis, typhoid fever, melioidosis, listeriosis, brucellosis, granuloma inguinale, neonatal chlamydial conjunctivitis, otitis media, skin infections, animal bites, pneumonia.

Cautions: Renal impairment, hepatic impairment maintain adequate fluid intake (to avoid crystalluria) blood disorders (avoid unless under specialist supervision, monitor blood counts and discontinue immediately if blood disorder develops), rash (discontinue immediately) predisposition to folate deficiency or hyperkalaemia, the elderly, asthma, G6PD deficiency.

Contra-indications: Hypersensitivity to Sulfonamides or Trimethoprim, porphyria.

Side-effects: Nausea, diarrhoea, headache, hyperkalaemia, hypersensitivity reactions including rash and very rarely, Stevens-Johnson Syndrome, toxic epidermal necrolysis, and photosensitivity (discontinue immediately) less commonly vomiting, very rarely glossitis, stomatitis, anorexia, liver damage (including jaundice and hepatic necrosis) pancreatitis, antibiotic-associated colitis, myocarditis, cough and shortness of breath, pulmonary infiltrates, aseptic meningitis, depression, convulsions, peripheral neuropathy, ataxia, tinnitus, vertigo, hallucinations, hypoglycaemia, blood disorders (including leukopenia, thrombocytopenia, megaloblastic anaemia, and eosinophilia), hyponatraemia, renal disorders (including interstitial nephritis) arthralgia, myalgia, vasculitis, and systemic lupus erythematosus.

Dose: Infections due to susceptible organisms (which are not susceptible to other antibacterials) by mouth adult, Sulfamethoxazole 800mg + Trimethoprim 160mg every 12 hours, increased to Sulfamethoxazole 1.2g + Trimethoprim 240mg every 12 hours in more severe infections, children 6 weeks-5 months, Sulfamethoxazole 100mg + Trimethoprim 20mg every 12 hours, children 6 months-5 years, Sulfamethoxazole 200mg + Trimethoprim 40mg every 12 hours, children 6-12 years, Sulfamethoxazole 400mg + Trimethoprim 80mg every 12 hours, by intravenous infusion, adult, Sulfamethoxazole 800mg + Trimethoprim160mg every 12 hours, increased to Sulfamethoxazole 1.2g + Trimethoprim 240mg, every 12 hours in more severe infections, children, Sulfamethoxazole 30mg/kg daily + Trimethoprim 6mg/kg daily in 2 divided doses.

Co-trimoxazole 240mg/5ml, 100ml bottle, NMSF net price of Amipharma Laboratories Ltd. = 5.00 SDG

Co-trimoxazole 240mg/5ml, 100ml bottle, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 3.68 SDG

Co-trimoxazole 480mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.17 SDG

6.3 AntiTuberculosis Medicines

6.3.1 Rifampicin

Indications: Tuberculosis, in combination with other medicines, leprosy, meningitis.

Contra-indications: Hypersensitivity to Rifamycins jaundice.

Cautions: Hepatic impairment monitor liver function and blood counts in liver disorders, alcohol dependence, the elderly, and in those on prolonged therapy, renal impairment porphyria, discolours soft contact lenses, important, advise patients on hormonal contraceptives to use additional means.

Side-effects: Severe gastrointestinal disturbances including anorexia, nausea, vomiting, and diarrhoea (antibiotic-associated colitis reported) headache, drowsiness, rash, fever, influenza-like syndrome and respiratory symptoms, collapse, shock, haemolytic anaemia, acute renal failure, and thrombocytopenic purpura (more frequent with intermittent therapy) alterations of liver function, jaundice, and potentially fatal hepatitis (dose related, do not exceed maximum dose

of 600mg daily) oedema, muscular weakness and myopathy, exfoliative dermatitis, toxic epidermal necrolysis, pemphigoid reactions, leukopenia, eosinophilia, and menstrual disturbances also reported, urine, tears, saliva, and sputum coloured orange- red.

Dose: Tuberculosis (as part of a 6 or 8 months regimen, by mouth, adult and child, 10mg/kg daily or 3 times weekly (maximum, 600mg daily).

Rifampicin 150mg, 300mg Capsule or tablet, NMSF net price = New item

6.3.2 Streptomycin

Indications: Tuberculosis, in combination with other medicines, tularaemia, plague, brucellosis.

Cautions: Children (painful injection, avoid use if possible) renal impairment infants, and the elderly (adjust dose and monitor renal, auditory, and vestibular function, and plasma Streptomycin concentrations).

Contra-indications: Hearing disorders, myasthenia gravis, pregnancy.

Side-effects: Vestibular and auditory damage, nephrotoxicity, hypersensitivity reactions (withdraw treatment) paraesthesia of mouth, rarely hypomagnesaemia on prolonged therapy, antibiotic-associated colitis, also, nausea, vomiting, and rash, rarely haemolytic anaemia, aplastic anaemia, agranulocytosis, and thrombocytopenia, pain and abscess at injection site.

Dose: Tuberculosis by deep intramuscular injection, adult and child, 15mg/kg daily or 3 times weekly (patients over 60 years or those weighing less than 50kg may not tolerate doses above 500-750mg daily).

Streptomycin Sulphate 1gm injection, NMSF net price of North China Pharmaceutical International Corp. = 0.76 SDG

6.3.3 Tobramycin

Indications: Effective against infections caused by pseudomonas aeruginosa.

Dose: Adult and child over 1 year, apply twice daily for 6-8 days, in severe infection, apply 4 times daily on the first day, then twice daily for 5-7 days.

New Item

6.4 Antifungal Medicines

6.4.1 Amphotericin B

Indications: Life-threatening fungal infections including histoplasmosis, coccidioido mycosis, paracoccidioido mycosis, blastomycosis, aspergillosis, cryptococcosis, mucormycosis, sporotrichosis, and candidosis, leishmaniasis.

Cautions: Initial test dose required renal impairment monitor hepatic and renal function, blood counts, and plasma electrolyte concentrations (including potassium and magnesium concentration) pregnancy. Anaphylaxis rarely occurs with intravenous Amphotericin B and a test dose is advisable before commencing the first infusion. The patient should be observed for about 30 minutes after the test dose.

Side-effects: Fever, headache, anorexia, weight-loss, nausea and vomiting, malaise, diarrhoea, muscle and joint pain, dyspepsia, epigastric pain, renal function disturbances (including hypokalaemia, hypomagnesaemia, and renal toxicity) blood disorders, cardiovascular toxicity (including arrhythmias) neurological disorders (including peripheral neuropathy) abnormal liver function (discontinue treatment) rash, anaphylactoid reactions (see note above) pain and thrombo phlebitis at injection site.

Dose: Systemic fungal infections, by intravenous infusion, adult and child, initial test dose, 1mg over 20-30 minutes, followed by 250micrograms/kg daily, gradually increased up to 1mg/kg daily, or in severe infection, up to 1.5mg/kg daily or on alternate days.

Amphotricin B 50mg powder for injection, (lyophilized), NMSF net price of the Bharat Serums And Vaccines Limited India = 40.00 SDG

6.4.2 Clotrimazole

Indication: Ringworm infection can affect the scalp (tinea capitis), body (tinea corporis) groin (tinea cruris) hand (tinea manuum) foot (tinea pedis, athlete's foot) or nail (tinea unguium).

Cautions: Contact with eyes and mucous membranes should be avoided.

Side-effects: Occasional local irritation and hypersensitivity reactions include mild burning sensation, erythema, and itching. Treatment should be discontinued if these are severe.

Clotrimazole 100mg pessaries, NMSF net price of Glenmark = 0.68 SDG

6.4.3 Fluconazole

Indications: Vaginal candidiasis and candial balanitis, mucosal candidiasis (except genital) oropharyngeal candidiasis, oesophagitis, candiduria, non invasive bronchopulmonary infections, tinea pedis, corporis, cruris, pityriasis versicolor, and dermal candidiasis, invasive candidal infections (including candidaemia and disseminated candidiasis) and cryptococcal infections (including meningitis), prevention of relapse of streptococcal meningitis in HIV-infected patients after completion of primary therapy, prevention of fungal infections in immunocompromised patients.

Cautions: Concomitant use with hepatotoxic medicines, monitor liver function with high doses or extended courses, discontinue if signs or symptoms of hepatic disease (risk of hepatic necrosis) susceptibility to QT interval prolongation.

Contra- indications: Acute prophyria.

Side effects: Nausea, abdominal discomfort, diarrhoea, flatulence, headache, rash (discontinue treatment or monitor closely if infection invasive or systemic) less commonly dyspepsia, vomiting, taste disturbance, hepatic disorders, hypersensitivity reactions, anaphylaxis, dizziness, seizures, alopecia, pruritis, toxic epidermal necrolysis, Stevens-Johnson Syndrome (severe cutaneous reactions more likely in HIV- positive patients) hyperlipidaemia, leucopenia, thrombocytopenia, and hypokalaemia reported.

Dose: Vaginal candidiasis and candial balanitis, adult and child over 16 years, by mouth, a single dose of 150mg.

Mucosal candidiasis, by mouth, 50mg daily Fluconazole.

Fluconazole 150mg capsules, 1 capule/pack, NMSF net price of Cipla Ltd = 8.00 SDG

6.4.4 Itraconazole

Indications: Oropharyngeal candidiasis, Vulvovaginal candidiasis, Pityriasis versicolor, Tinea corporis and Tinea cruris, Tinea pedis and Tinea manuum, Onychomycosis, Aspergillosis, Histoplasmosis, Systemic candidiasis and Cryptococcosis, including Cryptococcal meningitis where other antifungal medicines inappropriate or ineffective, maintenance in HIV-infected patients to prevent relapse of underlying fungal infection and prophylaxis in neutropenia, prophylaxis in patients with haematological malignancy or undergoing bone-marrow transplant.

Cautions: Absorption reduced in HIV-infection and neutropenia (monitor plasma-itraconazole concentration and increase dose if necessary) susceptibility to congestive heart failure potentially life-threatening hepatotoxicity, reported very rarely, discontinue if signs of hepatitis develop. Avoid or use with caution if history of hepatotoxicity with other medicines or in active liver disease. Monitor liver function if treatment continues for longer than one month, if receiving other hepatotoxic medicines, if history of hepatotoxicity with other medicines, or in hepatic impairment.

Contra-indications: Acute porphyria.

Side-effects: Nausea, vomiting, taste disturbances, abdominal pain, diarrhoea, hepatitis, dyspnoea, headache, hypokalaemia, rash, less commonly dyspepsia, flatulence, constipation, oedema, dizziness, peripheral neuropathy (discontinue treatment) menstrual disorder, myalgia, rarely pancreatitis, heart failure, hypertriglyceridemia, erectile dysfunction, urinary frequency, leucopenia, visual disturbances, tinnitus, deafness, alopecia, photosensitivity, toxic epidermal necrolysis, Stevens-Johnson Syndrome, also reported, blood pressure changes, confusion, drowsiness, tremor, thrombocytopenia, renal impairment, arthralgia, with intravenous injection hyperglycaemia

Dose:

- By mouth, oropharyngeal candidiasis, Vulvovaginal candidiasis, 200mg twice daily for 1 day.
- Pityriasis versicolor, 200mg once daily for 7 days.
- Tinea corporis and tinea cruris, either 100mg once daily for 15 days or 200mg once daily for 7 days.
- Tinea pedis and tinea manuum, either 100mg once daily for 30 days or 200mg twice daily for 7 days.
- Onychomycosis, either 200mg once daily for 3 months or course ('pulse') of 200mg twice daily for 7 days, subsequent courses repeated after 21-day interval, fingernails 2 courses, toenails 3 courses.
- Aspergillosis, 200mg twice daily.
- Histoplasmosis, 200mg 3 times daily for 3 days, and then 200mg once or twice daily.

Systemic candidiasis and cryptococcosis including cryptococcal meningitis where other antifungal medicines inappropriate or ineffective, 200mg once daily (candidiasis 100-200mg once daily) increased in invasive or disseminated disease and in cryptococcal meningitis to 200mg twice daily.

Maintenance in HIV-infected patients to prevent relapse of underlying fungal infection and prophylaxis in neutropenia when standard therapy inappropriate, 200mg once daily, increased to 200mg twice daily if low plasma-itraconazole concentration.

Prophylaxis in patients with haematological malignancy or undergoing bone-marrow transplant.

- By intravenous infusion, systemic aspergillosis, candidiasis and cryptococcosis including cryptococcal meningitis where other antifungal medicines inappropriate or ineffective, histoplasmosis, 200mg every 12 hours for 2 days, then 200mg once daily for max. 12 days

Itraconazole 100mg capsules, NMSF net price of Glenmark = 3.50 SDG

Itraconazole 100mg capsules, NMSF net price of Jordan Sweden Medical & Sterilization Co (Joswe-Medical) = 3.00 SDG

6.4.5 Isoconazole

Indications: Treatment of bacterial and fungal infections.

Cautions: Should be used with particular caution in facial dermatoses, and only for short periods. A steroid rosacea-like facies may be produced. Topical corticosteroid preparations should be used with caution near the eyes.

Contra-indications: Tuberculous and syphilitic processes in the area to be treated, virus diseases (herpes simplex, vaccinia, varicella and smallpox).

Side-effects: Itching burning, redness, dry or flaky skin and tingling. Serious side-effects include pain, swelling, open sores and rash.

Dose: Apply topically to the affected area.

Isoconazole nitrate 1% w/w, 15 g cream, NMSF net price = New Item

6.4.6 Econazole

Indications: Fungal skin infections, vaginal candidiasis.

Cautions: Contact with eyes and mucus membranes should be avoided.

Side-effects: Occasional local irritation and hypersensitivity reactions include mild burning sensation, erythema, and itching, treatment should be discontinued if these are severe.

Dose: Skin infections apply twice daily, nail infections. Apply once daily under occlusive dressing.

Econazole nitrate 150mg vaginal ovules, NMSF net price of Hayat Pharmaceuticals Industries = 7.62 SDG

Econazole 1% cream, NMSF net price of Janssen = 20.00 SDG

6.4.7 Econazole Nitrate with Triamcinolone Acetonide

Indications: Treatment of dermatomycoses complicated by inflammatory and/or pruritic manifestations of skin disorders.

Cautions: Avoid prolonged application to thin skin and to the face.

Contra-indications: In case of Tuberculosis, luetic or virous infections of the skin.

Side-effects: Hypersensitivity.

Dose: Apply sufficiently to the affected area bid.

New Item

6.4.8 Nystatin

Indications: Skin infections due to Candida spp., oral fungal infections, oral and perioral fungal infections.

Cautions: Contact with eyes and mucous membranes should be avoided.

Side-effects: Occasional local irritation and hypersensitivity reactions include mild burning sensation, erythema, and itching. Treatment should be discontinued if these are severe.

Dose: Apply 2-3 times daily continuing for 7 days after lesion have heated.

Nystatin 100,000IU vaginal tablets, NMSF net price of alpharonia pharmaceutical = 0.40 SDG

Nystatin 100,000IU/ml, 30ml oral suspension, NMSF net price of Amman Pharma.Industries Co. = 8 SDG

Anti-infective Medicines

Nystatin 100000IU/ml, 30ml oral suspension, NMSF net price of Delta for Pharmaceutical and Chemical Industries = 4.97 SDG
Nystatin Cream, NMSF net price of Alpharonia Pharmaceutical = 5.04 SDG
Nystatin + Neomycin + Gramicidin + Triamcinolone 100,000IU + 2.5mg + 0.25mg +1mg (15g) cream, NMSF net price of Gulf Pharmaceutical Industries = 8.00 SDG
Nystatin + Neomycin + Gramicidin + Triamcinolone 100,000IU + 2.5mg + 0.25mg +1mg (15g) ointment, NMSF net price of Gulf Pharmaceutical Industries = 8.00 SDG

6.4.9 Miconazole

Indications: Prevention or treatment of oral and intestinal fungal infections, oropharyngeal candidiasis in immunocompermised.

Cautions: Avoid in acute porphyria.

Contra-indications: With oral gel, impaired swallowing reflex in infants, first 5-6 months of life of an infant born preterm.

Side-effects: nausea, vomiting, rash, with buccal tablets, abdominal pain, taste disturbance, burning sensation at application site, pruritus, and oedema, with oral gel, very rarely diarrhoea(usually on long term treatment) hepatitis, toxic epidermal necrolysis, and Stevens-Johnson Syndrome.

Dose: Prevention and treatment of oral and intestinal fungal infections, 5-10ml in the mouth after food 4 times daily, retained near oral lesions before swallowing, child 4 months-2 years 2.5ml twice daily, smeared around the inside of the mouth, 2-6 years twice daily, smeared around the inside of the mouth, 2-6 years 5ml twice daily, retained near lesions before swallowing, over 6 years 5ml 4 times daily, retained near lesions before swallowing.

Oropharyngeal candideasis in immunocompromised adult, 50mg daily preferably taken in the morning for 7 days, if no improvement, continue treatment for a further 7 days.

Miconazole nitrate 200mg suppositories, NMSF net price of Gulf Pharmaceutical Industries = 2.00 SDG
Miconazole nitrate 200mg suppositories, NMSF net price of Dar Aldawa = 1.96 SDG
Miconazole nitrate 200mg suppositories, NMSF net price of The United Pharmaceutical = 2.00 SDG
Miconazole nitrate 400mg suppositories, NMSF net price of Gulf Pharmaceutical Industries = 4.00 SDG
Miconazole nitrate 400mg suppositories, NMSF net price of Dar Aldawa = 5.00 SDG
Miconazole nitrate 400mg suppositories, NMSF net price of The United Pharmaceutical = 4.00 SDG
Miconazole 2% cream (30g/tube), NMSF net price of Gulf Pharmaceutical Industries = 5.00 SDG
Miconazole 2% cream (30g/tube), NMSF net price of Medochemie = 6.83 SDG

6.4.10 Terbinafine

Indications: Dermatophytes infections of the nails, ringworm infections (including tinea pedis, cruris, and corporis) where oral therapy appropriate (due to site, severity or extent) also use for fungal skin infections.

Cautions: Psoriasis (risk of exacerbation) autoimmune disease (risk of lupus-erythromatosus-like effect) avoids contact with eye.

Side-effects: Abdominal discomfort, anorexia, nausea, diarrhoea, headache, rash and urticaria occasionally with arthralgia or myalgia, less commonly taste disturbance, rarely liver toxicity (including jaundice, cholestasis and hepatitis) discontinue treatment, angioedema, dizziness, malaise, paraesthesia, hypoaesthesia, photosensitivity, very rarely psychiatric disturbances, blood disorders, lupus erythematosus like effect, exacerbation of psoriasis, serious skin reaction (including Stevens-Johnson Syndrome and toxic epidermal necrolysis) discontinue treatment if progressive skin rash, also reported, pancreatitis, vasculitis, influenza- like symptoms, rhabdomylosis, disturbances in smell. Also for topical preparations local irritation and hypersensitivity reactions include burning sensation, erythema, and itching are reported.

Dose: By mouth, 250mg daily usually for 2-6 weeks in tinea pedis, 2-4 weeks in tinea cruris, 4 weeks in tinea corporis, 6 weeks-3 months in nail infections, child usually for 4 weeks, tinea capitis, over 1 year, body weight 10-20kg, 62.5mg once daily, body weight 20-40kg, 125mg once daily, body weight over 40kg, 250mg once daily.

Topically, apply thinly 1-2 times daily for up to 1 week in tinea pedis, 1-2 weeks in tinea corporis and tinea cruris, 2 weeks in cutaneous candidiasis.

Terbinafine Hydrochloride 250mg tablets, NMSF net price of Global Napi = 4.00 SDG
Terbinafine Hydrochloride 1%, 30g cream, NMSF net price of Global Napi = 9.22 SDG

6.4.11 Pyrantel pamoate

Indications: Ascariasis (Roundworm), Enterobius (Pinworm), Eosinophilic Enterocolitis (Hookworm).

Cautions: Anaemia, hepatic impairment, malnutrition.

Contra-indications: Hypersensitivity, intestinal obstruction, hepatic disease.

Side-effects: Dizziness, drowsiness, insomnia, headache, rash, anorexia, nausea, vomiting, abdominal cramps, diarrhoea, tenesmus, elevated LFTs, weakness.

Dose: Ascariasis (Roundworm) 11mg/kg orally once daily, not exceed 1g/dose.

Enterobius (Pinworm) 11mg/kg orally two times daily for 2 weeks, not exceed 1g/dose.

Eosinophilic Enterocolitis (Hookworm) 11mg/kg orally three times per day, not to exceed 1g/ dose

New Item

6.4.12 Ketoconazole

Indications: Fungal infections, vulval candidiasis.

Cautions: Contact with eye or mucus membrane should be avoided.

Side effects: Occasional local irritation and hypersensitivity reactions include mild burning sensation, erythema, and itching. Treatment should be discontinued if there are severe.

Dose: Adult over 18 years, tinea pedis, apply twice daily other fungal infections, apply 1-2 times daily.

Ketoconazole 2% cream (15g/tube), NMSF net price of GMC = 6.12 SDG
Ketoconazole 2% shampoo (120ml/bottle), NMSF net price Of Rafarm Pharmaceutical = 6.12 SDG

6.4.13 Griseofulvin

Indications: Dermatophyte infections of the skin, scalp, hair, and nails where topical therapy has failed or in appropriate.

Cautions: Driving may impair performance of skilled tasks, effects of alcohol enhanced.

Contra-indications: Severe liver disease, systemic lupus erythematosus, acute porphyria.

Side-effects: Nausea, vomiting, diarrhoea, headache, also reported, abdominal pain, dyspepsia, hepatotoxicity, glossitis, taste disturbances, sleep disturbances, dizziness, fatigue, confusion, agitation, depression, impaired coordination and hearing, peripheral neuropathy, menstrual disturbances, renal failure, leucopenia, systemic lupus erythematosus, rash, and photosensitivity.

Dose: Dermatophyte infections, 500mg once daily or in divided doses in severe infection doe may be doubled, reducing when response occurs, child under 50kg, 10mg/kg once daily or in divided doses.

Tinea capitis caused by Trichophyton tonsurans, 1g once daily or in divided doses, child under 50kg 15-20mg/kg once daily or in divided doses.

Griseofulvin 125mg tablets, NMSF net price of Medochemie = 0.23 SDG
Griseofulvin 125mg tablets, NMSF net price of Kahira Pharma. and Chem. Ind. Co. Cairo-A.R.E. = 0.23 SDG
Griseofulvin 500mg tablets, NMSF net price of Medochemie = 0.80 SDG

6.5 Antiviral Medicines

6.5.1 Acyclovir

Indications: Treatment of primary genital herpes, disseminated and also varicella zoster infections in immunocompromised patients, herpes simplex encephalitis, eye infections.

Cautions: Maintain adequate hydration, renal impairment, pregnancy and breast-feeding.

Side-effects: Nausea, vomiting, abdominal pain, diarrhoea, headache, fatigue, rash, urticaria, pruritus, photosensitivity, very rarely hepatitis, jaundice, dyspnoea, neurological reactions (including dizziness, confusion, hallucinations, convulsions, and drowsiness) acute renal failure, anaemia, thrombocytopenia, and leukopenia, on intravenous infusion, severe local inflammation (sometimes resulting in ulceration) and very rarely fever, agitation, tremor, and psychosis.

Dose: Treatment of herpes simplex (including

genital herpes) by mouth, adult and child over 2 years, 200mg (400mg in the immunocompromised or if absorption is impaired) 5 times daily, usually for 5days (longer if new lesions appear during treatment or if healing is incomplete) children under 2 years, half the adult dose. Treatment of herpes simplex in the immunocompromised, severe initial genital herpes, by intravenous infusion, adult and children over 12 years, 5mg/kg every 8 hours, usually for 5 days. Treatment of disseminated herpes simplex, by intravenous infusion, neonate and infant up to 3months, 20mg/kg every 8 hours for 10-14 days (21 days if CNS involvement) children 3 months-12 years, 250mg/ml 2 every 8 hours, usually for 5 days. Prevention of recurrent herpes simplex, by mouth, adult, 200mg 4 times daily or 400mg twice daily, reduced to 200mg 2-3 times daily if possible and interrupted every 6-12 months for reassessment. Prophylaxis of the herpes simplex in the immunocompromised, by mouth, adult and children over 2 years, 200-400mg 4 times daily, children under 2 years, half the adult dose. Treatment of chickenpox, by mouth, adult, 800mg 4-5 times daily for 5-7 days, children under 2 years, 200mg 4 times daily, children 2-5 years, 400mg 4 times daily, children over 6 years, 800mg 4 times daily. Treatment of herpes zoster, by mouth, adult, 800mg 5 times daily for 7-10 days. Treatment of varicella zoster, by intravenous infusion, adult and children over 12 years, 5mg/kg every 8 hours, usually for 5-7 days (doubled in the immunocompromised) neonate and infant up to 3 months, 10-20mg/kg every 8 hours for at least 7 days, children 3 months-12 years, 250mg/ml 2 every 8 hours usually for 5 days (doubled in the immunocompromised) treatment of herpes simplex encephalitis, varicella-zoster in the immunocompromised, by intravenous infusion, adult and child over 12 years, 10mg/kg every 8 hours, children 3 months-12 years, 500mg/ml 2 every 8 hours, usually given for at least 10 days in encephalitis, possibly for 14-21 days.

Acyclovir Sodium 250mg powder for i.v infusion, NMSF net price of Troikaa Pharmaceutical India = 35.00 SDG

Acyclovir Sodium 250mg powder for i.v infusion, NMSF net price of Glaxosmithkline Export Ltd = 90.00 SDG

Acyclovir 200mg tablets, NMSFnetprice of Zydus Cadila Healthcare = 0.65 SDG

Acyclovir 400mg tablets, NMSF net price of Cipla = 0.30 SDG

Acyclovir 5% Cream 20g/tube, NMSF net price of Cipla = 3.00 SDG

6.5.2 Zidovudine

Indications: HIV infection in combination with other antiretroviral medicines, prevention of maternal-fetal HIV transmission.

Cautions: Haematological toxicity particularly with high dose and advanced disease monitor full blood count after 4 weeks of treatment, then every 3 months, Vitamin B12 deficiencies, if anaemia or myelosuppression occur, reduce dose or interrupt treatment according to product literature, or consider other treatment.

Contra-indications: Abnormally low neutrophil counts or haemoglubin concentration, neonates with hyperbilirubinaemia requiring treatment other than phototherapy, or with raised transaminase, acute prophyria.

Side-effects: Anaemia (may require transfusion) taste disturbance, chest pain, influenza-like symptoms, paraesthesia, neuropathy convulsions, dizziness, drowsiness, anxiety, depression, loss of mental acuity, myopathy, gynaecomastia, urinary frequency, sweating, pruritus, pigmentation of nails, skin and oral mucosa.

Doses:

- By mouth, 250-300mg twice daily.
- Prevention of maternal-fetal HIV transmission, seek specialist advice.
- Patients temporarily unable to take zidovudine by mouth, by intravenous infusion over 1 hour, 0.8-1mg/kg every 4 hours (approximating to 1.2-1.5mg/kg every 4 hours by mouth) usually for not more than 2 weeks.

Zidovudine 100mg tablet, NMSF net price of Cipla = 0.36 SDG

6.6 Antiprotozoal Medicines

6.6.1 Antimalarial Medicines

6.6.1.1 Artemether

Indications: Treatment of severe P. falciparum malaria in areas where Quinine is ineffective.

Contra-indications: First trimester of pregnancy.

Cautions: Dizziness may impair ability to perform skilled tasks, for example, operating machinery or driving.

Side-effects: Headache, nausea, vomiting, abdominal pain, diarrhoea, dizziness, tinnitus, neutropenia, elevated liver enzyme Values, cardiotoxicity (after high doses) neurotoxicity (in animal studies).

Dose: Treatment of severe P. falciparum malaria (in areas of Quinine resistance) by intramuscular injection, adult and children over 6 months, loading dose of 3.2 mg/kg, then 1.6mg/kg daily until patient can tolerate oral medication or up to a maximum of 7 days, this is followed by a single dose of oral Mefloquine 15mg/kg (occasionally, 25mg/kg if necessary) to effect a radical cure.

Artemether 40mg/ml for inj, NMSF net price of Shanghai Pharmaceutical Co Ltd = 2.00SDG

Artemether 40mg/ml for inj, NMSF net price of M M Pharma = 1.04 SDG

Artemether 80mg/ml for inj, NMSF net price of Shanghai Pharmaceutical Co Ltd = 2.50 SDG

6.6.1.2 Artemether + Lumefantrine

Indications: Treatment of uncomplicated malaria caused by P. falciparum alone or with other Plasmodium spp. in areas with significant drug resistance.

Contra-indications: Breast-feeding, history of arrhythmias, clinically relevant bradycardia, or congestive heart failure accompanied by reduced left ventricular ejection fraction, family history of sudden death or congenital prolongation of QT interval (see also Precautions).

Cautions: First trimester of pregnancy electrolyte disturbances, concomitant administration of medicines that prolong the QT interval, monitor patients unable to take food (greater risk of recrudescence) Dizziness may impair ability to perform skilled tasks, for example, operating machinery or driving.

Side-effects: Abdominal pain, anorexia, diarrhoea, nausea and vomiting, headache, dizziness, sleep disorders, palpitation, arthralgia, myalgia, cough, asthenia, fatigue, pruritus, rash.

Dose: Treatment of uncomplicated P. falciparum malaria: by mouth, adult and children over 12 years/body weight over 35kg, initially 4 tablets followed by 5 further doses of 4 tablets each at 8, 24, 36, 48, and 60hours (total, 24 tablets over 60 hours) child body weight 5-14kg, initially 1 tablet followed by 5 further doses of 1 tablet each at 8, 24, 36, 48, and 60 hours (total, 6 tablets over 60 hours) body weight 15-24kg, initially 2 tablets followed by 5 further doses of 2 tablets each at 8, 24, 36, 48, and 60 hours (total, 12 tablets over 60 hours) body weight 25-34kg, initially 3 tablets followed by 5 further doses of 3 tablets each at 8, 24, 36, 48, and 60 hours (total, 18 tablets over 60 hours).

Artemether 20mg+ Lumefantrine 120mg tablet, NMSF net price of Ajanta Pharma Company = 1.05 SDG

Artemether 20mg+ Lumefantrine 120mg tablet, NMSF net price of Novartis Pharma Services Incorporation = 2.46 SDG

6.6.1.3 Artesunate

Indications: Treatment of P. falciparum malaria especially in Quinidine-resistant patients.

Side-effects: Cardio-toxicity (high doses) neurotoxicity observed in animal studies, drug induced fever, skin rash.

Artesunate 50mg + Sulphadoxine 500mg + Pyrimethamine 25mg/tablet- children Strip, NMSF net price of Amipharma Laboratories Ltd. = 6.38 SDG

Artesunate 100mg+ Sulphadoxine 500mg + Pyrimethamine 25mg/tablet- adult Strip, NMSF net price of Amipharma Laboratories Ltd. = 9.80 SDG

6.6.1.4 Primaquine

Indications: Elimination of intrahepatic forms of P. vivax and P. ovale (after standard Chloroquine therapy) elimination of gametocytes of P. falciparum (after standard therapy with a blood schizontocide).

Cautions: Monitor blood count (if either methaemoglobinaemia or haemolysis occurs, withdraw treatment and consult a physician) G6PD deficiency (exclude before radical treatment for P. vivax and P. ovale malaria) however, this is not necessary before single-dose gametocytocidal.

Contra-indications: Pregnancy (treatment with Primaquine should be delayed until after delivery, and breast-feeding, conditions that predispose to granulocytopenia (including active rheumatoid arthritis and lupus erythematosus).

Side-effects: Anorexia, nausea and vomiting,

abdominal pain, acute haemolytic anaemia (frequently in G6PD deficiency) methaemoglobinemia, haemoglobinuria, agranulocytosis, granulocytopenia and leukopenia.

Dose: Radical treatment of P. vivax and P. ovale malaria (after standard Chloroquine therapy) by mouth, adult, 250micrograms/kg daily (or 15mg daily) for14 days, children, 250micrograms/kg daily for 14 days, in G6PD deficiency, adult, 750 micrograms/kg once a week for 8 weeks, child, 500-750micrograms/kg once a week for 8 weeks. Gametocytocidal treatment of P. falciparum malaria (after standard blood schizontocide therapy) by mouth, adult and child, 500-50 micrograms/kg as a single dose.

Primaquine Phosphate 15mg tablet, NMSF net price of IPCA Laboratories Ltd. = 0.25 SDG

6.6.1.5 Quinine

Indications: Treatment of multidrug-resistant P. falciparum malaria, alone or in combination with other antimalarial medicines.

Cautions: Atrial fibrillation, conduction defects, or heart block (monitor for signs of cardiac toxicity and blood glucose and electrolyte concentrations during intravenous use) pregnancy (but in acute malaria, benefitis usually considered to outweigh risk.

Contra-indications: Haemoglobinuria, opticneuritis, tinnitus, myasthenia gravis.

Side-effects: Cinchonism (tinnitus, headache, blurred vision, temporary blindness, altered auditory acuity, nausea, diarrhoea, hot and flushed skin, rash, and confusion) hypersensitivity reactions including angioedema, rarely haemorrhage and asthma, hypoglycaemia (especially after parenteral administration) renal damage (culminating in acute renal failure and anuria) blood disorders, cardiovascular, gastrointestinal, and Central Nervous System effects, very toxic in over dosage(immediate medical attention required).

Dose: Treatment of multidrug-resistant P. falciparum malaria, by mouth, adult, 600mg (Quinine sulfate) every 8 hours for 3, 7, or 10 days, child, 10mg/kg (Quinine sulfate) every 8 hours for 3, 7, or 10 days, duration of treatment depends on local susceptibility of P. falciparum and whether or not additional antimalarials are used.

Quinine diHydrochloride 300mg/ml, 2ml injections, NMSF net price of Lab. Renaudin = 3.00 SDG

Quinine Sulphate 300mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 0.63 SDG

6.6.1.6 Mefloquine

Indications: Chemoprophylaxis of malaria in areas of the world where there is a high risk of Chloroquine resistance falciparum malaria, rarely used for the treatment of falciparum malaria because of increased resistance. It is rarely used for the treatment of non-falciparum malaria because better tolerated alternatives are available.

Cautions: Cardiac conduction disorders, epilepsy (avoid for prophylaxis) traumatic brain injury, not recommended for children under 3 months (5kg). Mefloquine is associated with potentially serious neuropsychiatric reactions, dizziness or disturbed sense of balance may affect performance of skilled tasks (e.g. driving) effects may occur and persist up to several months after stopping Mefloquine.

Contra-indications: Hypersensitivity to Quinine, history of blackwater fever, avoid for standby treatment if history of convulsions, avoid for prophyalxis if history of psychiatric disorders (including depression) or convulsion.

Side-effects: Nausea, vomiting, abdominal pain, diarrhoea, headache, dizziness, visual disturbances, pruritus, anorexia, dyspepsia, hepatic failure, hypotension, hypertension, flushing, chest pain, bradycardia, tachycardia, palpitation, arrhythmias, syncope, oedema, dysponea, pneumonitis, drowsiness, sensory and motor neuropathies, tremor, ataxia, panic attacks, confusin, amnesia, seizures, encephalopathy, speech disturbances, malaise, fever, blood disorders (including leucopenia, leucocytosis, thrombocytopenia) muscle weakness, mylasia, arthralgia, cataract, optic neuropathy, vestibular disorders, rash (including Stevens-Johnson Syndrome) alopecia, hyperhidrosis.

Dose: Prophylaxis of malaria, adult and child body weight over 45kg, 250mg once weekly, body weight 5-16kg, 62.5mg once weekly, body weight 16-25kg, 125mg once weekly, body-weight 25-45kg, 187.5mg once weekly.

Treatment of malaria, see notes above.

New Item

6.6.1.7 Halofantrine

Indications: Malaria.

Cautions: Allergic to any ingredient in Halofantrine, family history of congenital QT interval prolongation, use of Cisapride or Ziprasidone.

Contra-indications: Sensitivity to sunlight.

Side-effects: Cough, diarrhoea, dizziness, headache, loss of appetite, nausea, stomach pain, vomiting, and allergic reaction.

Dose: Take Halofantrine on an empty stomach, at least 1 hour before or 2 hours after a meal.

New Item

6.6.2 Albendazole

Indications: Used in conjunction with surgery to reduce the risk of recurrence or as primary treatment in inoperable cases.

Dose: Given as a single dose of 400mg, is an alternative.

Albendazole 200mg Tablet, NMSF net price of General Medicine Co. = 1.02 SDG

Albendazole 200mg Tablet, NMSF net price of Amoun Pharmaceuticals = 1.45 SDG

Albendazole suspension 100mg/5ml, 20ml bottle, NMSF net price of Glaxo Wellcome = 13.06 SDG

Albendazole suspension 100mg/5ml, 20ml bottle, NMSF net price of Sigma Pharmaceutical Industries = 16.00 SDG

6.6.3 Mebendazole

Indications: Effective against Ascaris lumbricoides and is generally considered to be the drug of choice.

Dose: 100mg twice daily for 3 days or 500mg as a single dose.

Mebendazole 100mg/5ml, 30ml suspension, NMSF net price of Unique Pharmaceutical Laboratories = 3.00 SDG

Mebendazole 100mg Tablets, NMSF net price of Lusomedicamenta = 0.96 SDG

Mebendazole 100mg Tablets, NMSF net price of The Alexandria Co. for Pharm. and Chemical Ind. Alex.A.R.E. = 0.46 SDG

Mebendazole 100mg Tablets, NMSF net price of Unique Pharmaceutical Laboratories = 0.15 SDG

6.6.4 Niclosamide

Indications: Used for tapeworm infections.

Side-effects: Gastrointestinal upset, lightheadedness, and pruritis.

Niclosamide 500mg chewable tablets, NMSF net price of The Alexandria Co. for Pharm. and Chemical Ind. Alex.A.R.E. = 0.43 SDG

6.7 Amoebicides

6.7.1 Diloxamide furoate

Indications: Symptomatic patients with E. histolytica cysts in the faeces, chronic amoebiasis and as adjunct to Metronidazole or Tinidazole in acute amoebiasis.

Side-effects: Flatulence, vomiting, urticaria, pruritus.

Dose: 500mg every 8 hours for 10 days, child body-weight over 25kg, 20mg/kg daily in 3 divided doses for 10 days.

Diloxanide furoate 500mg tablets New Item

6.8 Leshmaniacides

6.8.1 Sodium Stiboglucate

Indications: Leishmaniasis.

Cautions: Intravenous injections must be given slowly over 5 (to reduce risk of local thrombosis) and stopped if coughing or substernal pain, mucocutaneous disease, monitor ECG before and during treatment, heart disease, treat intercurrent infections.

Side-effects: Anorexia, nausea, vomiting, abdominal pain, diarrhoea, ECG changes, coughing, headache, lethargy, erthralagia, mylasia, rarly jaundice, flushing, bleeding from nose or gum, substernal pain, vertigo, fever, sweating, and rash.

Dose: The dose 20mg/kg daily (max. 850) by intermuscular or intravenous injection for 28 days in visceral leishmaniasis and for 20 days in cutaneous infection, the dosage varies with different geographical regions and expert advice should be obtained.

Sodium Stibogluconate injection, equivalent to pentavalent antimony 100mg/ml in 30ml vial for i.v or i.m, NMSF net price of Albert David Limited India = 65.00 SDG

7 Antineoplastic, Immunosuppressives and Medicines used in Palliative care

7.1 Immunosuppressive Medicines

7.1.1 Azathioprine

Indications: To prevent rejection in transplant recipients, rheumatoid arthritis, Inflammatory bowel disease.

Contra-indications: Hypersensitivity to Azathioprine and Mercaptopurine, breast-feeding.

Side-effects: Hypersensitivity reactions including malaise, dizziness, vomiting, fever, muscular pains, arthralgia, rash, hypotension, or interstitial nephritis call for immediate withdrawal, haematological toxicity including leucopenia and thrombocytopenia (reversible upon withdrawal) liver impairment, cholestatic jaundice, hairloss, increased susceptibility to infections and colitis in patients also receiving corticosteroids, nausea, rarely pancreatitis pneumonitis, and hepatic veno-occlusive disease.

Dose: Transplant rejection, by mouth or by intravenous injection (over at least 1 minute and followed by 50ml sodium chloride intravenous infusion) or by intravenous infusion, adult, up to 5mg/kg on day of surgery, then reduced according to response to 1–4mg/kg daily for maintenance.

Azathioprine 50mg tablet, NMSF net price of Aspen Bad Oldesloe GmbH = 1.30 SDG
Azathioprine 50mg tablet, NMSF net price of Remedica = 1.35 SDG

7.1.2 Ciclosporin

Indications: Prevention of rejection in kidney, liver, heart, or bone marrow transplantation, graft-versus-host disease, nephritic syndrome.

Cautions: Monitor kidney function (dose-dependent increase in serum creatinine and urea during first few weeks post-transplant may necessitate dose reduction, exclude rejection in kidney transplant) monitor liver function (adjust dosage according to bilirubin and liver enzymes, monitor blood pressure (discontinue if hypertension can not be controlled by antihypertensives) monitor serum potassium, particularly if marked renal impairment (risk of hyperkalaemia) monitor serum magnesium, hyperuricaemia, measure blood lipids before and during treatment, avoid in porphyria, pregnancy and breast-feeding.

Side-effects: Dose-related and reversible increases in serum creatinine and urea unrelated to tissue rejection, burning sensation in hands and feet during initial therapy, electrolyte disturbances including hyperkalaemia, and hypomagnesaemia, hepatic dysfunction, hyperuricaemia, hypercholesterolemia, hyperglycaemia, hypertension (especially in heart transplant patients) increased incidence of malignancies and lymphoproliferative disorders, increased susceptibility to infections due to immunosuppression, gastrointestinal disturbances, gingival hyperplasia, hirsutism, fatigue, allergic reactions, thrombocytopenia (sometimes with haemolytic uraemic syndrome) also mild anaemia, tremors, convulsions, neuropathy, dysmenorrhoea or amenorrhoea, pancreatitis, myopathy or muscle weakness, cramp, gout, oedema, headache.

Dose: Organ transplantation, by mouth, adult and child over 3 months, 10-15mg/kg 4-12 hours before surgery, then 10-15mg/kg daily for 1-2weeks, reducing to 2-6mg/kg daily for maintenance (adjust dose according to blood Ciclosporin concentration and kidney function) Organ transplantation, by intravenous infusion over 2-6 hours, adult and child, one third of the corresponding dose by mouth. Bone marrow transplantation, graft-versus-host disease, by mouth, adult and child over 3 months, 12.5-15mg/kg daily for 2 weeks, starting on the day before surgery, followed by 12.5mg/kg daily for 3-6 months, then gradually tailed off (may take up to 1 year after transplant) Bone marrow transplantation, graft-versus-host disease, by intravenous infusion over 2-6 hours, adult and child over 3 months, 3-5mg/kg daily for 2 weeks, starting on the day before surgery, followed by maintenance by mouth. Nephrotic syndrome, by mouth, adult, initially 5mg/kg daily in 2 divided doses, child, initially 6mg/kg daily in 2 divided doses (reduce dose in renal impairment, maximum, 2.5mg/kg daily) slowly reduced to lowest effective dose according to proteinuria and serum creatinine measurements for maintenance, discontinue after 3 months if no improvement (after 6 months in membranous glomerulonephritis).

Cyclosporin 25mg capsule, NMSF net price of Novartis Pharma Services Incorporation = 3.5970 SDG
Cyclosporin 50mg capsule, NMSF net price of Novartis Pharma Services Incorporation = 7.9664 SDG
Cyclosporin 100mg capsule, NMSF net price of Novartis Pharma Services Incorporation = 13.3616 SDG

7.2 Cytotoxic Medicines

The chemotherapy of cancer is complex and should be confined to specialists in oncology. Cytotoxic medicines have both anti-cancer activity and the potential to damage normal tissue, most cytotoxic medicines are teratogenic. Chemotherapy may be given with a curative intention, it may aims to prolong life or to palliate symptoms. In an increasing number of cases chemotherapy may be combined with radiotherapy or surgery or both as either neoadjuvant treatment (initial chemotherapy aimed at shrinking the primary tumour, there by rendering local therapy less destructive or more effective) or as adjuvant treatment (which follows definitive treatment of the primary disease, when the risk of sub-clinical metastatic disease is known to be high). All cytotoxic medicines cause side-effects and a balance has to be struck between likely benefit and acceptable toxicity.

Cautions and contra-indications: Treatment with cytotoxic medicines should be initiated only after base line tests of liver and kidney function have been performed and baseline blood counts established. It may be necessary to modify or delay treatment in certain circumstances. The patient should also be monitored regularly during chemotherapy and cytotoxic medicines withheld if there is significant deterioration in bone marrow, liver or kidney function. Most cytotoxic medicines are teratogenic and should not be administered during pregnancy, especially in the first trimester. Contraceptive measures are required during therapy and possibly for a period after therapy has ended. Cytotoxic medicines are also contra-indicated during breast-feeding.

The risk of venous thromboembolism in cancer is increased by chemotherapy, prophylaxis against thromboembolism may be appropriate for patients receiving chemotherapy. Cytotoxic medicines should be administered with care to avoid undue toxicity to the patient or exposure during handling by the health-care provider. Local policies for the handling and reconstitution of cytotoxic medicines should be strictly adhered to, also all waste, including patient's body fluids and excretions (and any material contaminated by them) should be treated as hazardous. Extravasation of intravenously administered cytotoxic medicines can result in severe pain and necrosis of the surrounding tissue. If extravasation occurs, aspiration of the drug should first be attempted, then the affected limb is elevated and warm compresses applied to speed and dilute the infusion or it is localized by applying cold compresses until the inflammation subsides, in severe cases, hydrocortisone cream maybe applied topically to the site of inflammation.

Side-effect: Cytotoxic medicines have a considerable potential to damage normal tissue. Specific adverse effect sapply, but a number are common to all cytotoxics such as bone marrow and immunological suppression. Furthermore, the concomitant use of immunosuppressive medicines will enhance susceptibility to infections. Fever associated with neutropenia or immunosuppression requires immediate treatment with antibiotics. Nausea and vomiting following administration of cytotoxic medicines and abdominal radio therapy are often distressing and may compromise further treatment. Symptoms maybe acute (occurring within 24 hours of treatment) delayed (first occurring more than 24 hours after treatment) or anticipatory (occurring before subsequent doses). Delayed and anticipatory symptoms are more difficult to control than acute symptoms and require different management. Susceptibility to drug-induced nausea and vomiting varies among patients, those more affected include women, patients under 50 years, anxious patients, and those who suffer from motion sickness. Repeated exposure to the cytotoxic therapy also increases susceptibility. Cytotoxic medicines associated with alow risk of emesis include Etoposide, Fluorouracil, low-dose Methotrexate, and

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the Vinca alkaloids, those with an intermediate risk include lower doses of Cyclophosphamide, Doxorubicin, and high dose Methotrexate Cisplatin, high-dose Cyclophosphamide, and Dacarbazine tend to have the highest risk of emesis. For patients at a low risk of emesis, pretreatment with an oral Phenothiazine (for example, Chlorpromazine) continued for up to 24 hours after chemotherapy, is often helpful. For patients at a higher risk, 6-10mg by mouth may be added before chemotherapy. For patients at a high risk of emesis or when other therapies are ineffective, high doses of intravenous Metoclopramide may be used. Dexamethasone is the drug of choice for the prevention of delayed symptoms, it is used alone or incombination with Metoclopramide. Good symptom control is the best way to prevent anticipatory symptoms and the addition of Diazepam (sections 1.3 and 24.3) to antiemetic therapy is helpful because of its sedative, anxiolytic, and amnesic effects. Hyperuricaemia. Hyperuricaemia may complicate treatment of conditions such as non-Hodgkin lymphomas and leukaemia. Renal damage may result from the formation of uric acid crystals. Patients should be adequately hydrated and hyperuricaemia may be managed with Allopurinol, initiated 24 hours before cytotoxic treatment and continued for 7-10 days afterwards.

Alopecia is common during treatment with cytotoxic medicines. There is no drug treatment, but the condition of ten reverses spontaneously once treatment has stopped. Oral mucositis is common during cancer chemotherapy, particularly with Fluorouracil, Methotrexate, and the Anthracyclines. Prevention of a sore mouth is important, because once it has developed treatment is much-less effective. Brushing teeth with a soft brush 2-3 times daily and rinsing the mouth frequently are probably the most effective preventative measures. Sucking ice-chips during short infusions of Fluorouracil is helpful. Treatment involves regular use of saline mouth washes. Generally mucositisis self-limiting, but it can be a focus for blood-borne infection in the absence of good oral hygiene. Any pain caused by mucositis should be dealt with effectively.

Doses: Cytotoxic medicines are determined using a variety of different methods including body-surface area or body-weight .Alternatively, doses may be fixed. Doses may be further adjusted following consideration of a patient's neutrophil count, renal and hepatic function, and history of previous adverse effects to the cytotoxic drug. Doses may also differ depending on whether a drug is used alone or incombination. Because of the complexity of dosage regimens in the treatment of malignant disease, dose statements have been omitted from some of the drug entries in this chapter. However, even where dose statements have been provided, detailed specialist literature, individual hospital chemotherapy protocols, or local cancer networks should be consulted prior to prescribing, dispensing, or administering cytotoxic medicines.

7.2 Cytotoxic Medicines

7.2.1 Alkylating Medicine

7.2.1.1 Cyclophosphamide

Indications: Malignant lymphomas including non-Hodgkin lymphomas, lymphocytic lymphoma and burkitt lymphoma, multiple myeloma, leukaemias, mycosis fungoides, neuroblastoma, adenocarcinoma of the ovary, retinoblastoma, breast cancer.

Contra-indications: See note above and consult specialist literature.

Cautions: See note above and consult specialist literature, renal impairment and hepatic impairment.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Cyclophosphamide 200mg powder vial for i.v injection, NMSF net price of Baxter Oncology Germany = 20.00 SDG
Cyclophosphamide 200mg powder vial for i.v injection, NMSF net price of Biochem Pharmaceutical India = 18.00 SDG
Cyclophosphamide 500mg powder vial for i.v injection, NMSF net price of Baxter Oncology Germany = 40.00 SDG
Cyclophosphamide 500mg powder vial for i.v injection, NMSF net price of Biochem Pharmaceutical India = 31.00 SDG
Cyclophosphamide 1gm/vial, NMSF net price of Baxter Oncology Germany = 70.00 SDG
Cyclophosphamide 1gm/vial, NMSF net price of Biochem Pharmaceutical India = 55.00 SDG
Cyclophosphamide 50mgt tablet, NMSF net price of Baxter Oncology Germany = 2.50 SDG

7.2.1.2 Chlorambucil

Indications: Chronic lymphocytic leukaemia, some non-Hodgkin lymphomas, Hodgkin disease, and Waldenstrom (primary) macroglobulinaemia.

Contra-indications: See note above and consult specialist literature Pregnancy and breast-feeding.

Side-effects: See note above

Dose: See note above and consult specialist literature.

Chlorambucil 2mg tablet, NMSF net price of Aspen Bad Oldesloe GmbH = 3.00 SDG

7.2.1.3 Ifosfamide

Indications: Extensive experience is available with these medicines, which are among the most widely used in cancer chemotherapy. They act by damaging DNA, thus interfering with cell replication. In addition to the side-effects common to many cytotoxic medicines, there are two problems associated with prolonged usage. Firstly, gametogenesis is often severely affected. Secondly, prolonged use of these medicines, particularly when combined with extensive irradiation, is associated with a marked increase in the incidence of acute non-lymphocytic leukaemia.

Contra-indications: Urinary-tract obstruction, acute infection (including urinary-tract infection) urothelial damage.

Side-effects: See above, also drowsiness, confusion, disorientation, restlessness, psychosis.

Urothelial toxicity, renal toxicity, less commonly severe encephalopathy, rarely diarrhoea, constipation, convulsions, anorexia, very rarely jaundice, thrombophlebitis, syndrome of inappropriate antidiuretic hormone secretion, acute pancreatitis, arrhythmias, and heart failure also reported.

Dose: See above.

Ifosfamide 1gm/50ml vial, NMSF net price of Baxter Oncology GMBH = 160 SDG
Ifosfamide 1gm/50ml vial, NMSF net price of Biochem Pharmaceutical India = 55.70 SDG
Ifosfamide 2gm/50ml vial, NMSF net price of Baxter Oncology GMBH = 320 SDG
Ifosfamide 2gm/50ml vial, NMSF net price of Biochem Pharmaceutical India = 101.36 SDG

7.2.2 Cytotoxic Antibiotics

7.2.2.1 Bleomycin

Indications: Adjunct to surgery and radiotherapy in palliative treatment of Hodgkin and non-Hodgkin lymphomas, reticulum cell sarcoma and lymphoma, carcinomas of the head, neck, larynx, cervix, penis, skin, vulva, testicles, embryonal cell carcinoma, chorio carcinoma, and teratoma, malignant effusions.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Side-effects: see note above and consult specialist literature.

Dose: consult specialist literature.

Bleomycin Sulphate 15IU vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 78.55 SDG

7.2.2.2 Doxorubicin

Indication: Acute leukaemias, carcinomas of the breast, bladder, ovary and thyroid, neuroblastoma, Wilmtumour, non-Hodgkin and Hodgkin lymphomas, soft tissue sarcomas, osteosarcoma.

Contra-indications: See note above and consult specialist literature.

Cautions: See note above and consult specialist literature, hepatic impairment.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Doxorubicin Hydrochloride 10mg injection vial, NMSF net price of Fresenius Kabi Oncology Ltd = 14.00 SDG
Doxorubicin Hydrochloride 50mg injection vial, NMSF net price of Fresenius Kabi Oncology Ltd = 45.00 SDG

7.2.2.3 Epirubicin

Indications: Is structurally related to Doxorubicin and clinical trials suggest that it is as effective

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in the treatment of breast cancer.

Contra-indications: See note above and consult specialist literature.

Cautions: See note above and consult specialist literature.

Side-effects: See note above and consult specialist literature.

Dose: See note above Consult specialist literature.

Epirubicin Hydrochloride 2mg/ml for injection, 25ml vial, NMSF net price of Thymoorgan Pharmazie Gmbh = 200.00 SDG
Epirubicin Hydrochloride 2mg/ml for injection, 25ml vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 235.00 SDG
Epirubicin Hydrochloride 2mg/ml for injection, 25ml vial, NMSF net price of Naprod Lifescience = 155.00 SDG
Epirubicin Hydrochloride 2mg/ml for injection inj, 5ml vial, NMSF net price of Thymoorgan Pharmazie Gmbh = 49.76 SDG
Epirubicin Hydrochloride 2mg/ml for injection, 5ml vial, NMSF net price of Hikma = 45.00 SDG
Epirubicin Hydrochloride 2mg/ml for injection, 5ml vial, NMSF net price of Naprod Lifescience = 55.00 SDG

7.2.2.4 Dactinomycin:

Indications: Trophoblastic tumours, Wilmtumour, Ewing sarcoma, rhabdomyosarcoma.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature, hepatic impairment.

Side-effects: see note above and consult specialist literature.

Dose: consult specialist literature.

Dactinomycin 500mcg vial, NMSF net price of Celon Laboratories-Ltd = 182.50 SDG
Dactinomycin 500mcg vial, NMSF net price of Neon Laboratories Ltd = 182.50 SDG

7.2.2.5 Daunorubicin

Indications: Acuteleukaemias.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature, renal impairment, hepatic impairment.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Daunorubicin Hydrochloride 2mg/ml for injection 10ml vial, NMSF net price of Naprod Life science = 49.71 SDG

7.2.2.6 Mitomycin

Indications: Treat up pergastro-intestinal and breast cancers and by bladder instillation for superficial bladder tumours.

Side-effects: Prolonged use may result in permanent bone-marrow damage. It may also cause lung fibrosis and renal damage. It causes delayed bone-marrow toxicity and therefor it is usually administered at 6-weekly intervals. See note above and consult specialist literature.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature, renal impairment, hepatic impairment.

Dose: See note above Consult specialist literature.

Mitomycin 10mg powder for injection, NMSF net price of Neon Laboratories Ltd = 101.00 SDG
Mitomycin 10mg powder for injection, NMSF net price of Naprod Lifescience = 81.00 SDG

7.2.2.7 Mitoxantrone

Indications: Metastatic breast cancer, non-hodgkin's lymphoma, adult acute non-lymphocytic leukaemia, and non-resectable primary hepatocelluar carcinoma.

Cautions: Intrathecal administration not recommended.

Side-effects: Anorexia, diarrhoea, abdominal pain, gastrointestinal bleeding, constipation, dysponia, drowsness, confusion, paraesthesia, anxiety, amenorrhoea, and transient blue-green discoloration of urine and blue discoloration of skin and nails also reported.

Dose: Doses is adjusted according to body surface area or body weight.

Mitoxantrone Hydrochloride 2mg/ml for intravenous solution 15ml vial, NMSF net price = New Item

7.2.2.8 Melphalan

Indications: Is licensed for the treatment of multiple myeloma, polycythaemia vera, childhood neuroblastoma, advanced ovarian adenocarcinoma, and advanced breast cancer. Melphalan is also licensed for regional arterial perfusion in localised malignant melanoma of the extremities and localized soft-tissue sarcoma of the extremities.

Side-effects: see above.

Dose: By mouth, multiple myeloma, dose may vary according to regimen, typical dose 150micrograms/kg daily for 4 days, repeated every 6 weeks.

Polycythaemia Vera, initially, 6-10mg daily reduced after 5-7 days to 2-4mg daily until satisfactory response then further reduces to 2-6mg per week By intravenous injection or infusion and regional arterial perfusion.

Melphalan 2mg tablet, NMSF net price of Aspen Bad Oldesloe GmbH= 5.50 SDG
Melphalan 2mg tablet, NMSF net price of Neon Laboratories Ltd = 6.00 SDG

7.2.3 Antimetabolites and related therapy

7.2.3.1 Fluorouracil

Indications: Carcinomas of the colorectum, breast, stomach, pancreas, cervix, prostate, ovary, and endometrium, liver tumours, head and neck tumours, actinic keratosis.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature, hepatic impairment.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Fluorouracil 250mg vial, NMSF net price of Ebewe Pharma = 24.00 SDG
Fluorouracil 250mg vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 16.22 SDG
Fluorouracil 500mg vial, NMSF net price of Ebewe Pharma = 32.00 SDG
Fluorouracil 500mg vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 25.34 SDG

7.2.3.2 Mercaptopurine

Indications: Acute leukaemias, inflammatory bowel disease.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature, renal impairment hepatic impairment

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Mercaptopurine 50mg tablet, NMSF net price Aspen Bad Oldesloe GmbH 2.20 SDG

7.2.3.3 Methotrexate

Indications: Carcinoma of the breast, head and neck, and lung, trophoblastic tumours, acute lymphoblastic leukaemia, meningeal leukaemia, non-Hodgkin lymphomas, advanced cases of mycosis fungoides, non-metastatic osteosarcoma, severe rheumatoid arthritis, Crohn disease.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature, renal impairment, hepatic impairment.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Methotrexate Sodium Salt 2.5mg tablet, NMSF net price of Ebewe Pharma = 1.12 SDG
Methotrexate Sodium Salt 2.5mg tablet, NMSF net price of Fresenius Kabi Oncology Ltd. = 1.32 SDG
Methotrexate Sodium 50mg/2ml injection, NMSF net price of Fresenius Kabi Oncology Ltd. = 14.91 SDG
Methotrexate Sodium 500mg injection, NMSF net price of Fresenius Kabi Oncology Ltd. = 45.00 SDG
Methotrexate Sodium 500mg injection, NMSF net price of Biochem Pharmaceutical India. = 55.00 SDG

7.2.3.4 Hydroxycarbamide (hydroxyurea)

Indications: Chronic myeloid leukemia, cancer of the cervix in conjunction with radiotherapy, used for polycythemia (the usual treatment is venesection).

Cautions: Patients receiving long term therapy with Hydroxycarbamide should be advised to protect skin sun exposure and should be monitored for secondary malignancies.

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Side-effects Myelosuppression, nausea and skin reactions.

Dose: 20-30mg/kg daily or 80mg/kg every third day.

Hydroxy Urea 500mg capsules, NMSF net price of APM = 2.00 SDG
Hydroxy Urea 500mg capsules, NMSF net price of Cipla Ltd = 2.00 SDG

7.2.3.5 Temozolamide

Indications Treatment of newly diagnosed glioblastoma multiforme in adults (in combination with monotherapy) and subsequently as monotherapy It is also licensed for second line treatment of malignant glioma in adults and children over 3 years.

Side-effects: Oral mucotitis, tumor lysis syndrome, hyperuricaemia, nausea and vomiting, alopecia, thromboembolism.

Doses: Child under 3 years not recommended.

Temozolamide 20mg capsule, NMSF net price of Essex Chemie Ag (Orion) = 100 SDG
Temozolamide 20mg capsule, NMSF net price of Msd Idea Ag Weystrasse = 106 SDG
Temozolamide 100mg capsule, NMSF net price of Medac = 100.00 SDG
Temozolamide 100mg capsule, NMSF net price of Msd Idea Ag Weystrasse = 200.00 SDG
Temozolamide 250mg capsule, NMSF net price of Msd Idea Ag Weystrasse = 1,343.00 SDG
Temozolamide 5mg capsule, NMSF net price of Msd Idea Ag Weystrasse = 28.86 SDG

7.2.3.6 Capecitabine

Indications: Which is metabolized to Fluorouracil, is given by mouth. It is licensed as monotherapy or combination therapy for adjuvant treatment of advanced colon cancer following surgery, for monotherapy or combination therapy of metastatic colorectal cancer, and for first-line treatment of advanced gastric cancer in combination with a platinum based regimen. Capecitabine is also licensed for second-line treatment of locally advanced or metastatic breast cancer either in combination with Docetaxel (where previous therapy include Dananthracycline) or alone (after failure of a Taxane and Anthracycline regimen or where further Anthracycline treatment is not indicated). For the role of Capecitabine in the treatment of breast cancer.

Side-effects: See above and hand-foot (desquamative) syndrome, diarrhoea.

Dose: Stage III colon cancer, adjuvant following surgery, monotherapy, adult over 18 years 1.25g/m2 twice daily for 14 days, subsequent courses repeated after 7 days interval, recommended duration of treatment 6 months Stage III colon cancer, adjuvant following surgery, in combination therapy, adult over 18years 0.8-1g/m2 twice daily for 14 days, subsequent courses repeated after 7 days interval, recommended duration of treatment 6 months. Metastatic colorectal cancer, monotherapy, adult over 18 years 1.25g/m2 twice daily for 14 days, subsequent courses repeated after 7 days interval. Metastatic colorectal cancer, in combination therapy, adult over 18 years 0.8-1g/m2 twice daily for 14 days, subsequent courses repeated after 7 days interval. Advanced gastric cancer, in combination with a platinum-based regimen, adult over 18 years 0.8-1g/m2 twice daily for 14 days, subsequent courses repeated after 7 days interval or 625mg/m2 twice daily given continuously. Locally advanced or metastatic breast cancer, monotherapy or in combination with Docetaxel, adult over 18 years 1.25g/m2 twice daily for 14 days, subsequent courses repeated after 7 days interval.

Capecitabine 500mg tablet, NMSF net price of Roche = 16.77 SDG
Capecitabine 500mg tablet, NMSF net price of Biochem Pharmaceutical India = 6.00 SDG
Capecitabine 500mg tablet, NMSF net price of Cipla Ltd = 45.00 SDG

7.2.3.7 Fludarabine

Indications: Treatment of advanced B-cell chronic lymphocyteic leukemia, and after first line treatment in patients with sufficient bone marrow reserves.

Cautions: Monitor for signs and symptoms of hemolysis, monitor for neurological toxicity, worsening of exiciting and increased susceptibility to skin cancer.

Contra-indication: Haemolytic anaemia.

Side-effects: Diarrhoea, anoxrexia, oedema, pneumonia, cough, peripheral neuropathy, visual disturbances, chills, fever, malaise, weakness, rash.

Dose: By mouth, adult 40mg/m2 for 5 days every 28 days usually for 6 cycles.

Fludarabine phosphate 10mg, 25mg, 50mg powder for reconstitution for inj, NMSF net price = New Item

7.2.3.8 Gemcitabine

Indications: Is used intravenously, it is given alone for elderly patients or for palliative treatment, or with Cisplatin as first-line treatment for locally advanced or metastatic non-small cell lung cancer. It is also used in the treatment of locally advanced or metastatic pancreatic cancer. Combined with Cisplatin, Gemcitabine is also licensed for the treatment of advanced bladder cancer. Combined with Carboplatin, Gemcitabine is licensed for the treatment of locally advanced or metastatic epithelial ovarian cancer which has relapsed after are currence-free interval of at least 6 months following previous platinum-based therapy. Combined with Paclitaxel, Gemcitabine is also Licensed for the treatment of metastatic breast cancer which has relapsed after previous chemotherapy including ananthracycline. Gemcitabine is generally well tolerated but it can cause mild gastro-intestinal side-effects, musculoskeletal pain, influenza-like symptoms and rashes, renal impairment and pulmonary toxicity have also been reported. Haemolytic uraemic syndrome has been reported rarely and Gemcitabine should be discontinued if signs of microangiopathic haemolytic anaemia occur.

Contra-indications: See above.

Side-effects: See above.

Dose: See above.

Gemcitabine Hydrochloride 200mg/5ml inj fori. vuse (lyophilized), NMSF net price of Fresenius Kabi Oncology Ltd. = 40.50 SDG
Gemcitabine Hydrochloride 1000mg injection for i.v use (lyophilized), NMSF net price of Fresenius Kabi Oncology Ltd. = 213.00 SDG

7.2.3.9 Calcium Folinate

Indications: Antidote in high-dose Methotrexate therapy (as a 'folate rescue').

In advertent overdose of Methotrexate, palliative treatment of advanced metastatic colorectal cancer (in combination with Fluorouracil).

Cautions: Not for pernicious anaemia or other megaloblastic anaemia due to Vitamin B12 deficiency, pregnancy and breast-feeding.

Side-effects: Allergic reactions, pyrexia after parenteral administration.

Dose: Antidote to Methotrexate (usually started 24 hours after administration of Methotrexate) by intramuscular or intravenous injection or by intravenous infusion, adult and child, up to 120mg in divided doses over 12-24 hours, then 12-15mg by intramuscular injection, or 15mg by mouth every 6 hours for 48-72 hours.

Calcium Folinate 50mg injection, NMSF net price of Fresenius Kabi Oncology Ltd. = 25.00 SDG
Calcium Folinate 50mg injection, NMSF net price of Ebewe Pharma = 40.00 SDG
Calcium Folinate 50mg injection, NMSF net price of Hospira = 51.10 SDG
Calcium Folinate 50mg injection, NMSF net price of Korea United Pharm INC. = 28.75 SDG
Calcium Folinate 50mg injection, NMSF net price of Pharmedic Laboratories (Pvt) Ltd. = 14.80 SDG

7.2.4 Vinca Alkaloids and Etoposide

7.2.4.1 Vinblastine

Indications: Disseminated Hodgkin and non-hodgkin lymphomas, advanced testicular carcinoma, breast carcinoma, palliative treatment of Kaposi sarcoma, trophoblastic tumours.

Cautions: See note above and consult specialist literature, hepatic impairment.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding, intrathecal injection.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Vinblastine Sulphate 10mg powder for inj. For i.v use only, NMSF net price of Cipla Ltd = 30.00 SDG
Vinblastine Sulphate 10mg powder for inj. For I.V use only, NMSF net price of Naprod Lifescience = 30.00 SDG

7.2.4.2 Vincristine

Indications: Acute lymphoblastic leukemia, neuroblastoma, Wilm tumour, and non-Hodgkin lymphomas, rhabdomyosarcoma, Ewing sarcoma, mycosis fungoides.

Cautions: See note above and consult specialist literature, hepatic impairment.

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Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding, intrathecal injection.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Vincristine 1mg/ml powder for injection for i.v use only, NMSF net price of Cipla Ltd = 8.00 SDG
Vincristine1mg/ml powder for injection for i.v use only, NMSF net price of Miracalus Pharmaceuticals Pvt Limited- Naprod = 7.50 SDG
Vincristine 2mg/ml powder for injection for i.v use only, NMSF net price of Miracalus Pharmaceuticals Pvt Limited- Naprod = 15.00 SDG
Vincristine 2mg/ml powder for injection for i.v use only, NMSF net price of Naprod Lifescience = 35.50 SDG

7.2.4.3 Etoposide

Indications: Refractory testicular tumours, lung cancer.

Contra-indications: See note above and consult specialist literature, severe hepatic impairment, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Etoposide 100mg/5ml injection, NMSF net price of Fresenius Kabi Oncology Ltd. = 15.00 SDG

7.2.5 Other Antineoplastic Medicines

7.2.5.1 Asparaginase

Indications: Acute lymphoblastic leukaemia.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

L.Asparaginase powder for injection 10,000IU/vial, NMSF net price of Medac = 520.00 SDG
L.Asparaginase powder for injection 10,000IU/vial, NMSF net price of Naprod Lifescience = 230.00 SDG

7.2.5.2 Cisplatin

Indications: Metastatic testicular tumours, metastatic ovarian tumours, advanced bladder carcinoma and other solid tumours, including lung, cervical, and head and neck cancers.

Cautions: See note above and consult specialist literature, renal impairment.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Cisplatin 10mg injection, NMSF net price of Naprod Lifescien =15.20 SDG
Cisplatin 10mg injection, NMSF net price of Biochem Pahrmaceutical India = 20.00 SDG
Cisplatin 50mg injection, NMSF net price of Biochem Pahrmaceutical India = 55.20 SDG
Cisplatin 50mg injection, NMSF net price of Naprod Lifescience = 45.60 SDG

7.2.5.3 Dacarbazine

Indications: Metastatic malignant melanoma, Hodgkin disease.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Cautions: See note above and consult specialist literature, renal impairment and hepatic impairment

Side-effects: See note above and consult specialist literature.

Dose: Consult specialist literature.

Dacarbazine powder for injection 200mg/vial, NMSF net price of Medac = 65.00 SDG
Dacarbazine powder for injection 200mg/vial, NMSF net price of Naprod Lifescience = 30.38 SDG

7.2.5.4 Topotecan

Indications: Colorectal cancer in combination with Fluorouracil and Folinic acid or as monotherapy.

Contra-indications: See above.

Side-effects: Topotecan include gastro-intestinal effects (delayed diarrhoea requiring prompt treatment may follow Irinotecan treatment), asthenia, alopecia, and anorexia.

Dose: See above.

Topotecan Hydrochloride 1mg/ml, 2.5 ml vial, NMSF net price of Fresenius Kabi Oncology Ltd.= 162.00 SDG

7.2.5.5 Paclitaxel

Indications: Ovarian cancer (advanced or residual disease following laparotomy) in combination with Cisplatin.

Contra-indications: See note above and consult specialist.

Cautions: See note above and consult specialist.

Side-effects: See note above and consult specialist literature.

Dose: See above.

Paclitaxel l6mg/ml, 5ml vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 30.40 SDG
Paclitaxel 150mg/Vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 152.00 SDG
Paclitaxel 100mg/17ml injection, NMSF net price of Fresenius Kabi Oncology Ltd. = 101.36 SDG
Paclitaxel 300mg/Vial, NMSF net price of Medac = 337.00 SDG
Paclitaxel 300mg/Vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 400.00 SDG

7.2.5.6 Docetaxel

Indications: Adjuvant treatment of operable node-positive and operable node- negative breast cancer.

Cautions: See note above and consult specialist literature.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Side-effects: See note above and consult specialist literature.

Dose: see above.

Docetaxel 20mg/0.5ml vial, NMSF net price of Aventis Pharma = 405.00SDG
Docetaxel 20mg/0.5ml vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 45.00 SDG
Docetaxel 80mg/2ml vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 160.00 SDG
Docetaxel 80mg/2ml vial, NMSF net price of Sanofi Aventis (U.K) = 1,650.00 SDG

7.2.5.7 Oxaliplatin

Indications: Metastatic colorectal cancer in combination with Fluorouracil and Folinic acid, coloncancer.

Cautions: See note above and consult specialist literature, renal impairment and hepatic impairment.

Contra-indications: See note above and consult specialist literature, pregnancy and breast-feeding.

Side-effects: See note above and consult specialist literature.

Dose: See above.

Oxaliplatin 50mg lyophilised powder for injection, NMSF net price of Medac = 537.21 SDG
Oxaliplatin 50mg lyophilised powder for injection, NMSF net price of Sanofi Aventis = 1,100.00 SDG
Oxaliplatin 100mg lyophilised powder for injection, NMSF net price of Sanofi Aventis = 1,800.00 SDG
Oxaliplatin 100mg lyophilised powder for injection, NMSF net price of Medac = 1,000.00 SDG
Oxaliplatin 100mg lyophilised powder for injection, NMSF net price of Fresenius Kabi Oncology Ltd. = 100.00 SDG

7.2.5.8 Carboplatin

Indications: Advanced ovarian cancer and lung cancer.

Side-effects: Nephrotoxicity, neurotoxicity, and ototoxicity.

Dose: Is determined according to body surface area or body weight.

Carboplatin USP 10mg/1ml, 15ml vial, NMSF net price of Thymoorgan = 146.37 SDG
Carboplatin USP 10mg/1ml, 15ml vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 66.00 SDG
Carboplatin USP 10mg/1ml, 45ml vial, NMSF net price of Thymoorgan = 394.20 SDG
Carboplatin USP 10mg/1ml, 45ml vial, NMSF net price of Fresenius Kabi Oncology Ltd. = 175.00 SDG

7.2.5.9 Sunitinib

Indications: Licenced for the treatment of advanced or metastatic renal cell carcinoma, also licenced for for the treatment of unresectable or metastatic malignant gastrointestinal stromal tumours, after failure of Imatininb, and for the treatment of unresectable or metastatic pancreatic neuroendocrine tumours.

Cautions: cardiovascular disease, discontinue if congestive heart failure develops, susceptibility to QT interval prolongation, hypertension, increased risk of bleeding, monitor for thyroid dysfunction, consider dental check-up before initiating treatment.

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Side-effects: Abdominal pain, diarrhoea, constipation, anorexia, taste disturbance, dehydration, hypertension, oedema, dyspnoea, cough, fatigue, dizziness, headache, insomnia, peripheral neuropathy, paraesthesia, hypothyrodisim, arthralagia, myalagia, increased lacrimation, epistaxis, skin, hair and urine discoloration, hand-foot syndrome, dry skin, and rash, gastrointestinal perforation, fistula formation, pancreatitis, osteonecrosis of the jaw, hepatic failure, proteinuria and seizures reported.

Doses: Gastrointestinal stomal tumours and metastatic renal cell carcinoma, 50mg once daily for 4 weeks, followed by a 2 week treatment-free period to complete 6 week cycle, adjust dose in steps of 1.25mg according to tolerability, dose range 25-75mg daily.

Pancreatic neuroendocrine tumours, 37.5mg once daily, without a treatment-free period, adjust dose in step of 12.5mg according to toleraibliiy, max. dose 50mg daily.

Sunitinib maleate 50mg capsules, NMSF Net price = New Item

7.2.6 Sex Hormones and Hormone anti agonists in Malignant Disease

7.2.6.1 Bicalutamide

Indications: Prostate cancer.

Side-effects: Nausea, diarrhoea, hypersensitivity reactions including angioneurotic oedema and urticaria, rarely cardiovascular disorders (including angina, heart failure, and arrhythmias), and hepatic failure

Dose: 150mg once daily, advanced prostate cancer, in combination with gonadorelin analogue or surgical castration, 50mg once daily (started at the same time as surgical castration or at least 3 days before gonadorelin therapy.

Bicalutamide 50mg tablet, NMSF net price of Genepharma = 4.70 SDG
Bicalutamide 50mg tablet, NMSF net price of Asterazenca = 33.55 SDG

7.2.6.2 Letrozole

Indications: Adjuvant treatment of oestrogen-receptor-positive early breast cancer in postmenopausal women, advanced breast cancer in postmenopausal women.

Cautions: Susceptibility to osteoporosis (assess bone mineral density before treatment and at regular intervals).

Contra-indications: Not indicated for premenopausal women.

Side-effects: Hot flushes, nausea, vomiting, fatigue, dizziness, headache, dyspepsia, constipation, diarrhoea, depression, anorexia, appetite, alopecia, increased sweating, rash, peripheral oedema, musculoskeletal pain, osteoporosis, bone fracture, palpitation, tachycardia, dyspnoea, cough, drowsiness, insomnia, anxiety, memory impairment, dysaesthesia, taste disturbance, pruritus, dry skin, urticaria, thrombophlebitis, abdominal pain, urinary frequency, urinary-tract infection, vaginal bleeding, vaginal discharge, breast pain, pyrexia, mucosal dryness, stomatitis, cataract, eye irritation, blurred vision, tumour pain, arthritis, leucopenia, general oedema, rarely pulmonary embolism, arterial thrombosis, cerebrovascular infarction.

Dose: 2.5mg daily.

Letrozole 2.5mg filmcoated tablet, NMSF net price of Genepharm S.A = 3.82 SDG.
Letrozole 2.5mg filmcoated tablet, NMSF net price of Sun Pharma Ltd India = 6.90 SDG

7.2.6.3 Flutamide

Indications: Advanced prostate cancer, see also notes above.

Cautions: Cardiac disease (oedema reported), also liver function tests, monthly for first 4 months, periodically thereafter and at first sign or symptom of liver disorder (e.g. pruritus, dark urine, persistant anorexia, jaundice, abdominal pain, unexplained influenza-like symptoms), avoid excessive alcohol consumption, avoid in acute prophyria (section 9.8.2), interactions, appendix 1 (Flutamide) hepatic imapriment: use with caution (hepatotoxic)

Side-effects: Gynaecomastia (sometimes with glactorrhoea), nausea, vomiting, diarrhoea, increased appetite, insomnia, tiredness, other side-effects reported include decreased libido, reduced sperm count, gastric and chest pain, hypertension, headache, dizziness, oedema, blurred vision, thirst, rash, pruritus, haemolytic anaemia, systemic lupus erythematosus-like syndrome,

and lymphoedema, hepatic injury (with transaminase abnormalities, cholestatic jaundice, hepatic nercosis, hepatic encephalopathy and occasional fatality) reported

Dose: 250mg 3 times daily (see also notes above)

Flutamide 250mg tablet, NMSF net price of Medochemie = 1.50 SDG

7.2.6.4 Tamoxifen

Indications: Breast cancer, anovulatory infertility.

Cautions: Occasional cystic ovarian swellings in premenopausal women, increased risk of thromboembolic events, especially when used with cytotoxics, endometrial changes, porphyria.

Contra-indications: Treatment of fertility contra-indicated if personal or family history of idiopathic venous thromboembolism or genetic predisposition to thromboembolism.

Side-effects: Hot flushes, vaginal bleeding and vaginal discharge, suppression of menstruation in some premenopausal women, pruriyus vulvae, gastrointestinal disturbances, headache, lightheadedness, tumour flare, decreased platelet counts, occasionally oedema, rarely hypercalcaemia if bony metastases, alopecia, rashes, uterine fibroids, also visual disturbances, leucopenia, rarely neutropenia, hypertriglyceridemia reported rarely, thromboembolic events reported, liver enzyme changes, rarely interstitial pneumonitis, hypersensitivity reactions including angioedema, Stevens-Johson syndrome, bullous pemphigoid.

Dose: Breast cancer, 20mg daily, anovulatory infertility, 20mg daily on days 2,3,4 and 5 of cycle, if necessary the daily dose may be increased to 40 mg then 80mg for subsequent courses, if cycles irregular, start initial course on any day, with subsequent course starting 45 days later or on day 2 of cycle if menstruation occur.

Tamoxifen citrate 10mg tablet, NMSF net price of Asterazenca = 1.10 SDG

7.2.6.5 Anastrozole

Indications: Adjuvant treatment of oestrogen-receptor-positive early invasive breast cancer in postmenopausal women, adjuvant treatment of oestrogen-receptor-positive early breast cancer in postmenopausal women following 2-3 years of Tamoxifen therapy, advanced breast cancer in postmenopausal women which is oestrogen-receptor-positive or responsive to Tamoxifen.

Cautions: Laboratory test for menopause if doubt, susceptibility to osteoporosis (assess bone mineral density before treatment and at regular intervals).

Contra-indications: Not for premenopausal women.

Side-effects: Hot flushes, vaginal dryness, vaginal bleeding, hair thinning, anorexia, nausea, vomiting, diarrhoea, headache, arthralagia, arthritis, bone fractures, bone pain, rash, cutaneous vasculitis, asthenia and srowsiness- may initially affect ability to drive or operate machinery, slight increases in total cholesterol levels reported, very rarely allergic reactions including angioedema and anaphylaxis.

Dose: 1mg daily.

Anastrazole 1mg tablet, NMSF net price of Astra-Zeneca -USA = 17.50 SDG

7.3 Other Immunomodulating Medicines

7.3.1 Interferon alfa

Indications: Has shown some antitumour effect in certain lymphomas and solid tumours. Interferon alfa preparations are also used in the treatment of chronic hepatitis B, and chronic hepatitis C ideally in combination with Ribavirin.

Side-effects: Dose-related, but commonly include anorexia, nausea, diarrhoea, influenza- like symptoms, and lethargy. Ocular side-effects and depression (including suicidal behaviour) have also been reported. Myelosuppression may occur, particularly affecting granulocyte counts. Cardiovascular problems (hypotension, hypertension, palpitation, and arrhythmias), nephrotoxicity and hepatotoxicity have been reported. Hypertriglyceridemia, sometimes severe, has been observed, monitoring of lipid concentration is recommended. Other side-effects include hypersensitivity reactions, thyroid abnormalities, hyperglycaemia, alopecia, psoriasiform rash, confusion, coma and seizures (usually with high doses in the elderly).

Interferon alfa 3000000IU/0.5ml for injection, NMSF net price of F. Hoffmann-La Roche Ltd = 135.00SDG

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7.3.2 Thalidomide

Indications: In combination with an alkylating agent and corticosteroid is recommended as an option for the first line treatment of multiple myeloma in people for whom high dose of chemotherapy with stem cell transplantation is considered inappropriate.

Cautions: Monitor white blood cell count, and platelet count, monitor liver function, high tumour burdern – risk of tumor lysis syndrome, monitor for arterial or venous thromboembolism and use caution peripheral neuropathy or thromboembolism.

Side-effects: Vomiting, dry mouth, dyspepsia, constipation, bradycardia, cardiac failure, deep vein thrombosis, dyspnoea, interstitial lung disease, pulmonary embolism, peripheral oedema, asthenia, confusion, depression, dizziness, drowsiness, peripheral neuropathy, dysaesthesia, paraesthesia, syncope tremor, pyrexia, pneumonia, anaemia, leucopenia, neutropenia, lymphopenia, thrombocytopenia, skin reactions including Stevens-Johson syndrome, also reported arterial fibrillation, atrioventricular block, toxic epidermal necrolysis, intestinal obstruction, gastro-intestinal perforation, haemorrhage, woresing of Parkinson disease symptoms, convulsion, hypothyroidism, sexual dysfunction, menstrual disorders, second primary malignancy, hepatic disorders, renal failure, hearing loss, myocardial infarction, cerebrovascular events.

Dose: Adult over 18 years, 200mg once daily at bed time for 6-week cycle, max 12 cycles.

Thalidomide 100mg capsules, NMSF net price of Sun Pharma Ltd India = 18.00 SDG

7.3.3 Anti-lymphocyte Monoclonal Antibodies

7.3.3.1 Rituximab

Indications: Chemotherapy resistance or relapse stage III–IV follicular non Hodgkin's lymphoma and in combination with other chemotherapy.

Cautions: In patient receiving cardiotoxic chemotherapy or with a history of cardiovascular disease because exacerbation of angina, arrhythmia, and heart failure have been reported.

Side-effects: Progressive multifocal leucoencephalopathy, cognitive, neurological, or psychiatric signs and symptoms, fever, chills, nausea, vomiting, allergic reactions, flushing and tumor pain.

Dose: Doses may be further adjusted following consideration of a patient's neutrophil count, renal and hepatic function, and history of previous adverse effects to the cytotoxic drug.

Rituximab 10mg/ml for intravenous infusion, 10ml vial, NMSF net price of Roche = 2,100.00 SDG
Rituximab 10mg/ml for intravenous infusion, 50ml vial, NMSF net price of Roche = 10,505.00 SDG

8 Nutrition And Blood Products And Plasma Substitute

8.1 Antianaemia Medicines

8.1.1 Ferrous Salt

Indications: Iron-deficiency anaemia.

Cautions: Should not be administered for longer than 6 months, pregnancy, peptic ulcer, regional enteritis, ulcerative colitis, intestinal strictures, and diverticula.

Contra-indications: Haemosiderosis, haemochromatosis, any form of anaemia not caused by iron deficiency, patients receiving repeated blood transfusions, parenteral iron therapy.

Side-effects: Constipation, diarrhoea, dark stools, nausea, epigastric pain, gastrointestinal irritation, long-term or excessive administration may cause haemosiderosis.

Dose: Iron-deficiency anaemia, by mouth, adult, elemental iron, 100-200mg daily individed doses. Prevention of iron-deficiency anaemia(in those at particular risk) by mouth, adult (woman) elemental iron 60mg daily, child under 5 years, elemental iron, 2mg/kg daily (maximum, 30mg) child over 5 years, elemental iron, 30mg daily, in women and children over 5 years, Folic acid may also be given.

Ferrous Sulphate 150mg capsule, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 0.22 SDG

Ferrous sulphate 200mg/5ml (100ml) syrup, NMSF net price of Gulf Pharmaceutical Industries = 7.00 SDG
Iron (III) hydroxide 50mg/5ml syrup, NMSFnet-price of Glenmark = 9.00 SDG

8.1.2 Ferrous Salt+Folic Acid

Indications: Prevention of Iron and Folic acid deficiencies in pregnancy.

Side-effects: Constipation, diarrhoea, dark stools, nausea, epigastric pain, gastro-intestinal irritation, long-term or excessive administration may cause haemosiderosis.

Dose: Severe anaemia, by mouth, adult, elemental iron, 120mg + Folic acid 400micrograms daily for 3 months child under 2 years, elemental iron, 25mg + Folic acid 100-400micrograms daily for 3 months child 2-12 years, elemental Iron 60mg + Folic acid, 400micrograms daily for 3 months. Prevention of Iron and Folate deficiencies in pregnancy, by mouth adult, elemental Iron, 100mg + Folic acid, 350-400micrograms daily through out pregnancy.

Ferrous salt 150mg + Folic acid 0.5mg capsule, NMSF net price of Amipharma Laboratories Ltd. = 0.23 SDG
Ferrous salt 150mg + folic acid 0.5mg capsule, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 0.23 SDG
Ferrous salt 150mg + folic acid 0.5mg capsule, NMSF net price of Glaxo Welcome = 0.35 SDG

8.1.3 Iron Hydroxide Polymaltose complex

Indications: Iron deficiency and Iron deficiency anaemia.

Cautions: Use with caution where is a risk of Iron overload, such as haemochromatosis, thalassemia, haemosidereosis or haemolytic anaemia.

Contra-indications: Hypersensitivity to any of the ingredients, and rheumatoid arthritis.

Side-effects: Diarrhoea, constipation and epigastric abdominal pain.

Ferric hydroxide polymaltose 50mg/ml (2ml) ampoule, NMSF net price of Vifor International = 10.29 SDG

8.1.4 Folic Acid

Indications: Treatment of folate-deficiency megaloblastic anaemia, prevention of neural tube defects in pregnancy.

Cautions: Women receiving antiepileptic therapy (need counseling before starting Folic acid).

Contra-indications: Should never be given without Vitamin B12 in undiagnosed megaloblastic anaemia or other Vitamin B12 deficiency states because of the risk of precipitating subacute combined degeneration of the spinal cord, folate-dependent malignant disease.

Dose: Treatment of folate-deficiency, megaloblastic anaemia, by mouth adult 5mg daily for 4 months (in pregnancy continued to term) up to15mg daily may be necessary in malabsorption states.

Folic acid 5mg tablet, NMSF net price of Blue Nile Pharmaceutical factory = 0.07 SDG

8.1.5 Mecobalamine

Indications: Megaloblastic anaemias due to Vitamin B12 deficiency.

Side-effects: Nausea, headache, dizziness, fever, hypersensitivity reactions including rash and pruritus, pain at injection site, hypokalaemia during initial treatment.

Dose: Megaloblastic anaemia without neurological involvement, by intramuscular injection, adult and child, initially 1mg 3 times a week for 2 weeks, then 1mg every 3 months. Megaloblastic anaemia with neurological involvement, by intramuscular injection, adult and child, initially 1mg on alternate days until no further improvement occurs,then 1mg every 2 months. Prophylaxis of macrocytic anaemias, by intramuscular injection, adult and child, 1mg every 2-3 months. Tobacco amblyopia and leberoptic atrophy, by intramuscular injection, adult and child, 1mg daily for 2 weeks, then 1mg twice weekly until no further improvement, then 1mg every 1-3 months.

Methylcobalamin 500microgram tablet, NMSF net price of Star-Laboratoire = 0.48 SDG
Methylcobalamin 500microgram injection, NMSF net price of Indus Pharma (Pvt) Ltd. = 2.54 SDG
Methylcobalamin 500microgram injection, NMSF net price of Macter International (PTV) Limited = 3.36 SDG
Mecobalamine 500mcg tablet, NMSF net price of Global Napi = 0.59 SDG

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8.1.6 Erythropoietin

Indications: Treat symptomatic anaemia associated with erythropoietin deficiency in deficiency in chronic renal failure.

Contra-indications: Purered cell aplasia following erythropoietin therapy, uncontrolled hypertension, patients unable to receive thromboprophylaxis, avoid injections containing benzyl alcohol in neonates.

Side-effects: Diarrhoea, nausea, vomiting, dose-dependent increase in blood pressure or aggravation of hypertension, in isolated patients with normal or low blood pressure, hypertensive crisis with encephalopathy-like symptoms and generalized tonic-clonic seizures requiring immediate medical attention, headache, dose-dependent increase in platelet count (but thrombocytosis rare) regressing during treatment, influenza-like symptoms (may be reduced if intravenous injection given over 5 minutes) cardiovascular events, shunt thrombosis especially if tendency to hypotension or arteriovenous shunt complications, very rarely sudden loss of efficacy because of pure red cell aplasia, particularly following subcutane ousadministration inpatients with chronic renal failure (discontinue erythropoietin therapy) hyperkalaemia, hypersensitivity reactions (including anaphylaxis and angioedema), skin reactions, injection-site reactions, and peripheral oedema also reported.

Dose: Symptomatic anaemia associated with chronic renal failure in patients on haemodialysis, by intravenouss injection over 1-5 minutes or by subcutaneous injection (max. 1ml per injection site) initially 50units/kg 3 times weekly adjusted according to response in steps of 25units/kg 3 times weekly at intervals of at least 4 weeks, maintenance dose, usually a total of 75-300units/kg weekly (as a single dose or in divided doses) child by intravenous injection initially as for adults, maintenance dose, body-weight under 10kg usually 75-150units/kg 3 times weekly, body-weight 10-30kg usually 60-150units/kg 3 times weekly, body-weight over 30kg usually 30–100units/kg 3 times weekly. Symptomatic anaemia associated with chronic renal failure in adults on peritoneal dialysis, by intravenous injection over 1-5 minutes or by subcutaneous injection initially 50units/kg twice weekly, maintenance dose 25-50units/kg twice weekly. Severe symptomatic anaemia of renal origin in adults with renal insufficiency not yet on dialysis, by intravenous injection over 1-5 minutes or by subcutaneous injection initially 50units/kg 3 times weekly increased according to response in steps of 25units/kg 3 times weekly at intervals of at least 4weeks, maintenance dose 17-33units/kg 3 times weekly, max. 200 units/kg 3 times weekly.

Recombinant human erythropoietin 2000IU/1ml for i.v., s.c., NMSF net price of Janssen Cilag Ag = 41.70 SDG

Recombinant human erythropoietin 4000IU/1ml for i.v., s.c., NMSF net price of Janssen Cilag Ag = 40.00 SDG

8.1.7 Iron Sucrose

A complex of Ferric hydroxide with sucrose containing 2% (20mg/ml) of iron.

Indications: Iron-deficiency anaemia.

Cautions: Hypersensitivity reactions can occur with parenteral iron and facilities for cardiopulmonary resuscitation must be available oral iron should be given until 5 days after last injection, infection (discontinue if ongoing bacteraemia).

Contra-indications: History of allergic disorders including asthma, and anaphylaxis.

Side-effects: Taste disturbances, less commonly nausea, vomiting, abdominal pain, diarrhoea, hypotension, tachycardia, flushing, palpitation, chest pain, bronchospasm, dyspnoea, headache, dizziness, fever, malaise, malagia, pruritis, rash, and injection site reactions, rarely peripheral oedema, hypertension, hypersensitivity reactions, fatigue, asthenia, and paraesthesia, bradycardia confusion, arthralagia, and increased sweating also reported.

Dose: By slow intravenous injection or by intravenous infusion, calculated according to body weight and iron deficit, child not recommended.

Iron sucrose for i.v injection 20mg/ml in 5ml ampoule, NMSF net price of Claris Lifscience Ltd = 15.00 SDG

8.1.8 Filgrastim

Indications: (Specialist use only) reduction in duration of neutropenia and incidence of febrile neutropenia in cytotoxic chemotherapy for malignancy, reduction in duration of neutropenia in myeloablative therapy followed by bone marrow transplantation, mobilistion of peripheral blood progenitor cells for harvesting and subsequent autologous or allogeneic infusion, severe congenital neutropenia, or idiopathic neutropenia, cyclic neutropenia, or recurrent infections, persistent neutropenia in advanced HIV infection.

Cautions: Regular morphological and cytogenetic bone-marrow examinations recommended in severe congenital neutropenia, secondary acute myeloid leukaemia, osteoporotic bone disease.

Contra-indications: Severe congenital neutropenia with abnormal cytogenetics.

Side-effects: Mucositis, splenic enlargement, hepatomegaly, transient hypotension, epistaxis, urinary abnormalities, osteoporosis, exacerbation of rheumatoid arthritis, anaemia, transient decrease in blood glucose, pseudogout, and raised uric acid, less commonly capillary leak syndrome, very rarely splenic rupture.

Dose: Cytotoxic induced neutropenia, preferably by subcutaneous injection or by intravenous infusion, adult and child, 5000000units/kg daily started at least 24 hours after cytotoxic chemotherapy, continued until neutrophil count in normal range, usually for up to 14 days.

Myeloablative therapy followed by bone-marrow transplantation, by intravenous infusion over 30 minutes or over 24 hours or by subcutaneous infusion over 24 hours, 1 million units/kg daily, started at least 24 hours following cytotoxic chemotherapy and adjusted according to neutrophil count.

Mobilisation of peripheral blood progenitor cells for autologous infusion, used alone, by subcutaneous injection or by subcutaneous infusion over 24 hours 1 million units/kg for 5-7 days, used following adjunctive myelosuppressive chemotherapy, by subcutaneous, 5000000units/kg daily, started the day after completing chemotherapy and continued until neutrophil count Mobilization of peripheral progenitor cells for autologous infusion, by subcutaneous injection, adult under 60 years and child over 16 years, 1 million units/kg daily in for 4-5 days.

Severe chronic neutropenia, by subcutaneous injection, adult and child, in severe congenital neutropenia, initially 1.2 million units/kg daily in single or divided doses, adjusted according to response Persistent neutropenia in HIV infection, by subcutaneous, initially 100000units/kg daily, increased as necessary until neutrophil count in normal range (usual max. 400000 units/kg daily) then adjusted to maintain neutrophil count in normal range.

Filgrastim 30 million units 300µg/ml Vial, NMSF net price of F. Hoffmann-La Roche Ltd = 700.00 SDG

8.2 Vitamins

8.2.1 Alfacalcidol (1-α- Hydroxycholecalciferol)

Indications: Prevention and treatment of simple Vitamin D deficiency, treatment of Vitamin D deficiency caused by malabsorption or chronic liver disease, hypocalcaemia associated with hypoparathyroidism.

Contra-indications: Hypercalcaemia, metastatic calcification.

Side-effects: Symptoms of overdosage include anorexia, lassitude, nausea and vomiting, diarrhoea, constipation, weightloss, polyuria, sweating, headache, thirst, vertigo, and raised concentrations of calcium and phosphate in plasma and urine pruritus, rash,and urticaria.

Dose: By mouth or by intravenous injection over 30 seconds, adult and child over 20kg, initially 1microgram daily elderly 500nanograms adjusted to avoid hypercalcaemia, maintenance, usually 0.25-1microgram daily, neonate and preterm neonate initially 50-100nanograms/kg daily.

Alfacalcidol 0.25mcg capsule, NMSF net price of Cipla Ltd = 0.30 SDG

Alfacalcidol 0.25mcg capsule, NMSF net price of The United Pharmaceutical = 0.55 SDG

Alfacalcidol 1mcg capsule, NMSF net price of Cipla LTD = 1.16 SDG

Alfacalcidol 2mcg/ml in 10ml oral drop, NMSF net price of Leo Pharmaceutical Products Ltd A/S = 150.00SDG

8.2.2 Vitamin A

Indications: Prevention and treatment of Vitamin A deficiency, prevention of complications of measles.

Sid-effects: No serious or irreversible adverse ef-

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fects at the recommended doses, high intake may cause birth defects, transient increased intracranial. pressure in adults or a tense and bulging fontanelle in infants massive overdose can cause rough skin, dry hair, enlarged liver, raised erythrocyte sedimentation rate, raised serum calcium, and raised serum alkaline phosphatase concentrations.

Dose: Prevention of Vitamin A deficiency by mouth adult, 200000IU every 6 months adult (pregnant woman) maximum of 10000 IU daily or maximum 25000IU weekly adult (woman of childbearing age) 200000IU at delivery or within 8 weeks of delivery, infant under 6 months, 50000IU, infant 6-12 months, 100000IU every 4-6months, preferably at measles vaccination, child over 1 year (preschool) 200000IU every 4-6 months.

Viamin A 50,000IU capsule, NMSF net price of Kahira Pharma. & Chem. Ind. Co. Cairo - A.R.E. = 0.20 SDG

8.2.3 Ascorbic Acid (Vitamin C)

Indications: Prevention and treatment of scurvy.

Cautions: Ascorbic acid possibly reduces absorption of Selenium (give at least 4 hours apart.).

8.2.4 Vitamin B Complex

Is a combination of eight Vitamins B1, B2, B3, B5, B6, B7, B9, and B12.

Indications: Pre- and post-operative treatment, when requirements are increased as in fever, severe burns, increased metabolism, pregnancy, gastrointestinal disorders interfering with intake or absorption of Vitamins, prolonged or wasting diseases, alcoholism and where other deficiencies exist.

Cautions: Anaphylactogenesis may occur with parenteral Thiamine. Use with caution. An intradermal test dose is recommended prior to administration in patients suspected of being sensitive to the drug.

Contra-indications: Sensitivity to the ingredients listed.

Side-effects: Mild transient diarrhoea, polycythemia vera, peripheral vascular thrombosis, itching transitory exanthema, feeling of swelling of entire body, anaphylactic shock and death.

Vitamin B complex tablet, NMSF net price of Arab Drug Co = 0.16 SDG

Vitamin B complex injection, NMSF net price of Laboratories Renaudin = 2.50 SDG

Vitamin B1 + B6 + B12 injection, NMSF net price of Merckle = 5.00 SDG

Vitamin B1 + B6 + B12 tablet, NMSF net price of Merck GaA = 1.00 SDG

Vitamin B1 + B6 + B12 tablet, NMSF net price of Merckle = 1.00 SDG

Vitamin B complex syrup, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 6.90 SDG

8.2.5 Pyridoxine Hydrochloride (Vitamin B6)

Indications: Prevention and treatment of specific deficiency states or where the diet is known to be inadequate, they may be prescribed in the NHS to prevent or treat deficiency but not as dietary supplements.

Cautions: Prydoxine reduces effects plasma of Levodopa when given without Dopa decarboxylase inhibitor.

Side-effects: Sensory neuropathy reported with high doses given for extended periods.

Dose: Deficiency states, 20-50mg up to 3 times daily.

Isoniazid-induced neuropathy, prophylaxis 10mg daily (or 20 mg daily if suitable products not available) treatment, 50mg three times daily.

Idiopathic sideroblastic anaemia, 100-400mg daily in divided doses.

Penicillamine-induced neuropathy, prophylaxis in Wilson's disease (unlicensed use) 20mg daily.

Premenstrual syndrome (unlicensed use) 50-100mg daily.

Prolonged use of Pyridoxine in a dose of 10mg daily is considered safe but the long term use of Pyridoxine in a dose of 200mg or more daily has been associated with neuropathy. The safety of long term Pyridoxine supplementation with doses above 10mg daily has not been established.

Pyridoxine HCl 40mg tablet, NMSF net price of Citypharm Pharmaceutical Industries = 0.31 SDG

8.2.6 Vitamin K

Indications: Vitamin K is necessary for the production of blood clotting factors and proteins necessary for the normal calcification of bone.

Dose: Vitamin K (as Phytomenadione) 1mg may be given by a single intramuscular injection at birth, this prevents Vitamin K deficiency bleeding in virtually all babies. For preterm neonates, see Alternatively, in healthy babies who are not at particular risk of bleeding disorders, Vitamin K may be given by mouth, and arrangements must be in place to ensure the appropriate regimen is followed.

Two doses of a colloidal (mixed micelle) preparation of Phytomenadione 2mg should be given by mouth in the first week, the first dose being given at birth and the second dose at 4-7days. For exclusively breast-fed babies, at third dose of colloidal Phytomenadione 2mg is given by mouth at 1 month of age, the third dose is omitted in formula-fed babies because formula feeds contain adequate Vitamin K. An alternative regimen is to give one dose of Phytomenadione 1mg by mouth at birth (using the contents of a Phytomenadione capsule, to protect from the risk of Vitamin K deficiency bleeding in the first week, for exclusively breast-fed babies, further doses of Phytomenadione 1mg are given by mouth (using the contents of a Phytomenadione capsule) at weekly intervals for 12 weeks.

Phytomenadione 10mg/ml, NMSF net price of F. Hoffmann-La Roche Ltd = 7.50 SDG

8.2.7 Multivitamins and Minerals

Indications: Used to treat Vitamin or mineral deficiencies caused by illness, pregnancy, poor nutrition, digestive disorders, certain medications, and many other conditions.

Side-effects: Severe allergic reactions (rash, hives, itching, difficulty breathing, tightness in the chest, swelling of the mouth, face, lips, or tongue) blurred vision, dark urine, frequent hunger, thirst, or urination, persistent diarrhoea, nausea, or vomiting, stomach pain, yellowing of the skin or eyes.

Dose: 2 capsules orally once daily.

Multivitamin capsule + Minerals, NMSF net price of Pharco Pharmaceutical = 0.40 SDG

Multivitamin capsule + Minerals, NMSF net price of Strides Arcolab = 0.60 SDG

Ferrous+ Folic acid+ multivitamin capsules, NMSF net price of Eipico = 0.33 SDG

Multivitamin injection, NMSF net price of Frese-nius Kabi = 28.00 SDG

Multivitamin syrup 120ml, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 6.90 SDG

8.2.8 Calcium Carbonate + Vitamin D3

Indications: Osteoporosis prevention in adults ≥50 years, high risk for Vitamin D deficiency, African Americans and others with dark pigmented skin, individuals with limited sun exposure, individuals who consistently wearing sunscreen SPF ≥8.

Cautions: Calcium carbonate used with caution in patient with history of kidney stones, Vitamin D (Ergocalciferol) have strong caution in patient with renal impairment, also is used with caution in patient with heart disease, kidney stones, arteriosclerosis, and is recommended to discontinue the treatment if patient becomes hypercelcaemic, or use concurrent cardiac glycosides.

Contra-indications: Calcium carbonate can cause, hypersensitivity, hypercalciuria, renal calculi, Hypophosphataemia, hypercalcaemia, suspected Digoxin toxicity.Vitamin D may cause hypercalcaemia, hypervitaminosis D, Ergocalciferol (oral) GI, liver, or biliary disease associated with malabsorption of Vitamin D analogs.

Side-effects: (Frequency not defined).

Calcium carbonate may cause anorexia, constipation, flatulence, nausea, vomiting, hypercalcaemia, hypophosphataemia, xerostomia, acid rebound, and milk-alkali syndrome.

Vitamin D may cause hypercalcaemia, muscle/bone pain, metallic taste, headache, nausea, vomiting, dry mouth, constipation, arrhythmias.

Dose: Patients between 19-50 years require 1000mg/200IU daily.

≥51-70 years (females): 1200mg/400I.U.

≥51 years (males): 1000 mg/400I.U.

≥70 years (females): 1200mg/600I.U.

Calcium carbonate 500mg table, NMSF net price of The United Pharmaceutical = 0.76 SDG

Calcium Carbonate 1250mg + Vitamin D 400 IU Tablet, NMSF net price of VITANE PHARMA = 0.42 SDG

8.2.9 Calcium Gluconate

Indications: Hypocalcaemic tetany.

Contra-indications: Associated with hypercal-

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caemia and hypercalciuria (for example, some forms of malignant disease).

Side-effects: Gastrointestinal disturbances, bradycardia, arrhythmia, injection-site reactions, peripheral vasodilation, fall in blood pressure.

Dose: Hypocalcaemic tetany, by slow intravenous injection adult, 1g (2.2mmol) followed by about 4g (8.8mmol) daily by continuous intravenous infusion.

Calcium gluconate 100mg/ml, 10ml Ampoule, NMSF net price of Pharmaceutical Solution Industry = 5.00SDG

8.3 Medicines Affecting Blood Coagulation

8.3.1 Blood Coagulation Factors

Factor VIII is essential for blood clotting and the maintenance of effective haemostasis, von Willebrand factor is a mediator in platelet aggregation and also acts as a carrier for factor VIII. Blood coagulation factors VII, IX, and X are essential for the conversion of factor II (prothrombin) to thrombin. Deficiency in any of these factors results in haemophilia. Bleeding episodes in haemophilia require prompt treatment with replacement therapy. Factor VIII, used for the treatment of haemophilia A, is a sterile freeze-dried powder containing the blood coagulation factor VIII fraction prepared from pooled human venous plasma.

Standard factor VIII preparations also contain Von Willebrand factor and may be used to treat Von Willebrand disease. Highly purified preparations, including recombinant factor VIII, are available, they are indicated for the treatment of haemophilia A but do not contain sufficient Von Willebrand factor for use in the management of Von Willebrand disease. Factor IX complex is a sterile freeze-dried concentrate of blood coagulation factors II, VII, IX, and X derived from fresh venous plasma. Factor IX complex, which is used for the treatment of haemophilia B may also be used for the treatment of bleeding due to deficiencies of factor II, VII, and X. High purity preparations of factor IX which do not contain clinically effective amounts of factor II, VII, and X are available. A recombinant factor IX preparation is also available.

8.3.1.1 Factor IX Complex (Coagulation Factors, II, VII, IX, X) Concentrate.

Indications: Replacement therapy for factor IX deficiency in haemophilia B, bleeding due to deficiencies of factors II, VII, or X.

Contra-indications: Disseminated intravascular coagulation.

Side-effect: Allergic reactions including chills, and fever.

Dose: Haemophilia B, by slow intravenous infusion, adult and child, according to patient's needs and specific preparation used. Treatment of bleeding due to deficiencies in factor II, VII or X as well as IX, by slow intravenous infusion, adult and child, according to patient's needs.

Factor IX Complex Concentrate 500IU, NMSF net price=638.280 SDG

8.3.1.2 Factor VIII Concentrates

Indications: Control of haemorrhage in haemophilia A.

Side-effect: Allergic reactions including chills, fever.

Dose: Haemophilia A, by slow intravenous infusion, adult and child, according to patients.

Factor VIII concentrate 250IU, NMSF net price of Bio Products Laboratory (BPL) U.K = 500.00 SDG
Factor VIII concentrate 250IU, NMSF net price of CSL Behring = 800.00 SDG
Factor VII Iconcentrate without VWF, 250IU, NMSF net price of CSL Behring = 304.00 SDG
Factor VIII concentrate 250IU, NMSF net price of Octapharma = 650.00 SDG
Factor VIII concentrate without VWF, 500IU, NMSF net price of CSL Behring = 608.00 SDG
Factor VIII dried fraction with VWF 500 IU vial, NMSF net price of Bio Products Laboratory (BPL) U.K = 912.00 SDG
Factor VIII dried fraction 500IU vial, NMSF net price of Bio Products Laboratory (BPL) U.K = 1,000.00 SDG
Factor VIII dried fraction 500IU vial, NMSF net price of Octapharma = 1,165.00 SDG

8.4 Plasma Substitutes

8.4.1 Dextran

Indications: Short-term blood volume expansion.

Contra-indications: Severe congestive heart failure, renal failure, bleeding disorders such as thrombocytopenia and hypofibrinogenaemia. 30%, where possible, monitor central venous pressure, can interfere with blood group cross-matching and biochemical tests (take samples before start of infusion), monitor for hypersensitivity reactions, pregnancy.

Side-effect: Hypersensitivity reactions including fever, nasal congestion, joint pains, urticaria, hypotension, bronchospasm, and rarely, severe anaphylactoid reactions, transient increase in bleeding time.

Dose: Short-term blood volume expansion, by rapid intravenous infusion, adult, 500–1000ml initially, followed by a further 500ml if necessary (total dosage should not exceed 20ml/kg during the initial 24 hours), if required 10ml/kg daily may be given for a further 2 days (treatment should not continue for longer than 3 days), child, total dosage should not exceed 20ml/kg.

Dextran 20mg/ml, 2ml Ampoule, NMSF net price Of Pharmacosmos A/S = 15.00 SDG

9 Gastrointestinal Systems

9.1 Antacids and Other Antiulcer Medicines

9.1.1 Aluminium Hydroxide

Indications: Ulcer and non-ulcer dyspepsia, gastro-oesophageal reflux diseases hyperphosphataemia.

Contra-indications: Hypophosphataemia, gastrointestinal or rectal bleeding, appendicitis, porphyria.

Side-effects: Constipation, intestinal obstruction (with large doses), Hypophosphataemia with increased bone resorption, hypercalciuria, and increased risk of osteomalacia (more common in patients on a low phosphate diet or on prolonged therapy), hyperaluminemia resulting in osteomalacia, encephalopathy, dementia, and microcytic anaemia (in chronic renal failure treated with aluminium hydroxide as phosphate binding agent).

Dose: Dyspepsia, gastro-oesophageal reflux disease, by mouth, adult, 1–2 tablets chewed 4 times daily and at bedtime or 5–10ml suspension 4 times daily, between meals and at bed time, child 6–12 years, 5ml up to 3 times daily. Hyperphosphataemia, by mouth, adult, 2–10g daily individed doses with meals.

Antacid suspension (Aluminium hydroxide + Magnesium hydroxide + Simethicone), NMSF net price of Julphar = 7.00 SDG
Antacid suspension (Aluminium hydroxide + Magnesium hydroxide+ Simethicone), Bell Sons & Co. (Druggists) Ltd= 12.13 SDG
Antacid suspension (Aluminium hydroxide + Magnesium hydroxide + Simethicone), Egyptian International Pharmaceutical Industries Co. = 9.80 SDG
Antacid chewable tablet (Aluminium hydroxide + Magnesium hydroxide + Simethicone), NMSF net price of Julphar =0 .25 SDG

9.1.2 Magnesium Hydroxide

Indications: Ulcer and non-ulcer dyspepsia, gastro-oesophageal reflux disease.

Contra-indications: Severe renal impairment.

Side-effects: Diarrhoea, hypermagnesemia resulting in loss of deep tendon reflexes and respiratory depression, along with other symptoms including nausea, vomiting, flushing of skin, thirst, hypotension, drowsiness, confusion, muscle weakness, bradycardia, coma ,and cardiac arrest (in renal impairment).

Dose: Dyspepsia, gastro-oesophageal reflux disease, by mouth, adult, 5–10ml repeated according to patient's needs.

Antacid suspension (Aluminium hydroxide + Magnesium hydroxide + Simethicone), NMSF net price of Julphar = 7.00 SDG
Antacid suspension (Aluminium hydroxide + Magnesium hydroxide + Simethicone), Bell Sons & Co. (Druggists) Ltd = 12.13 SDG
Antacid suspension (Aluminium hydroxide + Magnesium hydroxide + Simethicone), Egyptian International Pharmaceutical Industries Co. = 9.80 SDG

Antacid chewable tablet (Aluminium hydroxide + Magnesium hydroxide + Simethicone), NMSF net price of Julphar = 0.25 SDG

9.1.3 Simethicone

Is an antifoaming agent. It's licensed for fantile colic but evidence of benefit is uncertain.

Simethicone 40mg tablet, NMSF net price of Greater Pharma Ltd = 0.15 SDG
Simethicone 40mg/ml Oral drops, 30ml/bottle, NMSF net price of Hayat Pharmaceuticals industries = 12.00 SDG

9.1.4 Ranitidine

Indications: Benign gastric and duodenal ulceration, gastro-oesophageal reflux disease, Zollinger Ellison syndrome, other conditions where gastric acid reduction is beneficial.

Contra-indications: porphyria.

Side-effects: Diarrhoea and other gastrointestinal disturbances, headache, dizziness, rash, tiredness, acute pancreatitis, bradycardia, atrioventricular block, confusion, depression, rarely hallucinations (particularly in the elderly or the very ill), hypersensitivity reactions (including fever, arthralgia, myalgia, and anaphylaxis), blood disorders (including agranulocytosis, leukopenia, pancytopenia, and thrombocytopenia), hepatitis, tachycardia, agitation, visual disturbances, erythema multiforme, alopecia, gynaecomastia, and impotence, very rarely interstitial nephritis.

Dose: Benign gastric and duodenal ulceration,by mouth, adult, 150mg twice daily or 300mg at night for 4-8 weeks (up to 6 weeks in chronic episodic dyspepsia and up to 8 weeks in NSAIMs-associated ulceration, in NSAIMs-associated duodenal ulceration, 300mg can be given twice daily for 4 weeks to achieve a higher healing rate) child (pepticulcer) 2-4mg/kg twice daily (maximum, 300mg daily) Benign gastric and duodenal ulceration, reflux oesophagitis, Zollinger-Ellison syndrome, by intramuscular injection, adult, 50mg every 6-8 hours, by slow intravenous injection, adult, 50mg diluted to 20ml and given over at least 2 minutes (may be repeated every 6-8 hours), by intravenous infusion, adult, 25mg/hour for 2 hours (may be repeated every 6-8 hours) Duodenal ulceration associated with H.pylori, see note above. Prophylaxis of NSAIMs-induced gastric or duodenal ulcer, by mouth, adult, 300mg twice daily. Gastro-oesophageal reflux disease, by mouth, adult, 150mg twice daily or 300mg at night for up to 8 weeks, or if necessary, 12 weeks, increased in moderate to severe disease to 600mg daily in 2-4 divided doses for up to 12 weeks. Long-term treatment of healed gastro-oesophageal reflux disease, by mouth, adult, 150mg twice daily. Zollinger Ellison syndrome, by mouth, adult, 150mg 3 times daily, up to 6g daily individed doses has been used. Gastric acid reduction (prophylaxis of acid aspiration) in obstetrics, by mouth, adult, 150mg at onset of labour, then every 6 hours. Surgical procedures, by intramuscular or slow intravenous injection, adult, 50mg 45-60 minutes before induction of anesthesia (intravenous injection diluted to 20ml and given over at least 2minutes) by mouth, adult, 150mg 2 hours before induction of anesthesia, and also, when possible, on the preceding evening. Prophylaxis of stress ulceration, by slow intravenous injection, adult, initially 50mg diluted to 20ml and given over at least 2 minutes, then 125-250micrograms/kg per hour by continuous intravenous infusion (may be followed by 150mg twice daily by mouth when oral feeding commences)..

Ranitidine 150mg tablet, NMSF net price of Strides Arcolab = 2.50 SDG
Ranitidine 150mg tablet, NMSF net price of General Medicine Co. = 0.32 SDG
Ranitidine 300mg tablet, NMSF net price of Gulf Pharmaceutical Industries = 0.60 SDG
Ranitidine 300mg tablet, NMSF net price of General medicine Co. = 0.43 SDG
Ranitidine 50mg/2ml ampoule, NMSF net price of Hikma plc = 3.00 SDG
Ranitidine 50mg/2ml ampoule, NMSF net price of Glaxo Welcome = 5.00 SDG

9.1.5 Cimetidine

Indications: Benign gastric ulcer, duodenal ulcer, erosive gastroesophageal Reflux Disease, heartburn, pathological hypersecretory conditions.

Cautions: Antiandrogen may cause feminization & sexual dysfunction in males.

Contra-indications: Hypersensitivity to Cimetidine or other H2 receptor antagonist.

Side-effects: headache, dizziness, somnolence, gynecomastia, confusion, impotence, diarrhoea, nausea, vomiting.

Dose: For benign gastric ulcer and duodenal ulcer 800mg orally at bed time, 400mg orally every 12 hours, 300 orally every 6 hours, for erosive gastro-esophageal reflux disease 800mg orally every 12 hours, 400mg orally every 6 hours. In case of heartburn use OTC only 200mg orally up to 12 hours to relieve the symptoms, and to prevent the symptoms 200mg orally with glass of water right before or any time up to 30 minutes before eating food or drinking beverages that cause heartburn. In pathological hypersecretory conditions patient take 300mg orally every 6 hrs with meals and at bed time.

Cimitedine 100mg/ml in 2ml Injection, NMSF net price Of Panpharma (Rotex- Medica) = 3.50 SDG
Cimitedine 100mg/ml in 2ml Injection, NMSF net price Of Duopharma (M) Sdn Bhd = 3.50 SDG

9.1.6 Famotidine

Indications: Benign gastric and duodenal ulceration, reflux oesophagitis.

Cautions: Gastric malignancy.

Side-effects: Diarrhoea, headache, dizziness, constipation, less commonly dry mouth, nausea, vomiting, flatulence, taste disorders, anorexia, fatigue, very rarely chest tightness, interstitial pneumonia, seizures, paraesthesia

Dose: Benign gastric and duodenal ulceration, treatment, 40mg at night for 4-8 weeks, maintenance 20mg at night.

Reflux oesophagitis, 20-40mg twice daily for 6-12 weeks, maintenance, 20mg twice daily.

Child not recommended.

Famotidine 20mg tablet, NMSF net price of Dar Aldawa = 0.55 SDG
Famotidine 20mg tablet, NMSF net price of Micro Labs Limited = 0.35 SDG
Famotidine 40mg tablet, NMSFnetprice of Atco Laboratories Limited = 0.51 SDG
Famotidine 40mg tablet, NMSF net price of Micro Labs Limited = 0.86 SDG

9.1.7 Prostaglandin Analogues

9.1.7.1 Misoprostol

Indications: Gastric and duodenal ulcers, prevent NSAIMs associated ulcers, its use being most appropriate for the frail or very elderly from whom NSAIDs can not be withdrawn, also used to induce abortion or labour.

Cautions: Inflammatory bowel disease, conditions where hypotension might precipitate severe complications.

Contra-indications: Planning pregnancy.

Side-effects: diarrhoea, abdominal pain, dyspepsia, flatulence, nausea and vomiting, abdominal vaginal bleeding, rashes, dizziness

Dose: Benign gastric and duodenal ulceration and NSAIMs associated ulceration, adult over 18 years, 800micrograms daily (in 2-4 divided doses) with breakfast (or main meals) and at bedtime, treatment should be continued for at least 4 weeks and may be continued for up to 8 weeks if required.

Prophylaxis of NSAIMs induced gastric and duodenal ulcer, adult over 18 years, 200micrograms 4 times daily (if not tolerated, reduced to 200micrograms 2-3 times daily, but less effective).

New Item

9.2 Antisecretory Medicines and Mucosal Protectants (Proton Pump Inhibitors)

9.2.1 Esomeprazole

Indications: Duodenal ulcer associated with helicobacter pylori, NSAIMs- associated gastric ulcer, gastro-esophageal reflux disease, severe peptic ulcer bleeding.

Cautions: Osteoporosis

Side-effects: Gastrointestinal disturbances, headache, dry mouth, peripheral oedema, dizziness, sleep disturbances, fatigue, arthralagia, mylagia, rash, and pruritis, taste disturbances, confusion, fever, depression, blood disorder, pancytopenia, visual disturbances, sweeting, photosensitivity, alopecia.

Dose: Duodenal ulcer associated with helicobacter pylori, NSAIMs associated gastric ulcer, adult over 18 years, 20mg once daily for 4-8 weeks, prophylaxis in patients with an increased risk of gastroduodenal complications who require continued NSAIMs treatment, 20mg daily, Gastro-oesophageal reflux disease, adult and child over 12 year, 40mg once daily for 4 weeks, continued

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for further 4 weeks if not fully healed or symptoms persist, maintenance 20mg daily, child 1-12 years, body weight 10-20 kg, 10mg once daily for 8 weeks, body-weight over 20kg, 10-20mg once daily for 8 weeks.

Symptomatic treatment of gastro-oesophageal reflux disease, adult and child over 12 years, 20mg daily for up to 4 weeks, then 20mg daily when required chils 1-12 years, body weight over 10kg, 10mg once daily for up to 8 weeks.

Zollinger-ellison syndrome, adult over 18 years, initially 40mg twice daily, adjusted according to response, usual range 80-160mg daily.

Esomeprazole 20mg tablets, NMSF net price of Astrazeneca = 4.00 SDG
Esomeprazole 20mg tablets, NMSF net price of Azal Pharmaceutical = 1.31 SDG
Esomeprazole 40mg tablets, NMSF net price of Astrazeneca = 6.00 SDG
Esomeprazole 40mg powder for injection, NMSF net price of Astrazeneca = 44.00 SDG

9.2.2 Lansoprazole

Indications: Benign gastric ulcer, duodenal ulcer, NSAIM associated duodenal or gastric ulcer, eradication of helicobacter pylori, zollinger-ellison syndrome, gastro-oesophageal reflux disease, acid- related dyspepsia.

Cautions: Oesteoporosis.

Side-effects: Glossitis, pancreatitis, anorexia, restlessness, tremor, impotence, petechiae, and purpura, very rarely colitis, raised serum cholesterol or triglycerides.

Dose: Benign gastric ulcer, 30mg daily in the morning for 4 weeks.

Duodenal ulcer, 30mg daily in the morning for 4 weeks, maintenance 15mg daily. NSAIMs associated duodenal or gastric ulcer, 30mg once daily for 4 weeks, continued for further 4 weeks if not fully healed, prophylaxis, 15-30mg once daily. Eradication of helicobacter pylori associated with duodenal ulcer or ulcer-like dyspepsia.

Zollinger-Ellison syndrome, initially 60mg once daily adjusted according to response, daily doses of 120mg or more given in two divided doses.

Gastro-oesophageal reflux disease, 30mg daily in the morning for 4 weeks, continued for further 4 weeks if not fully healed, maintenance 15-30mg daily.

Lansoprazole 30mg capsule, NMSF net price of Amipharma Laboratories Ltd. = 0.50 SDG

9.2.3 Omeprazole

Indications: Benign gastric and duodenal ulcers, NSAIM associated duodenal ulceration, zollinger-Ellison syndrome, gastro-oesophageal reflux disease, acid reflux disease, acid related dyspepsia, and severe ulcerating reflux oesophagitis.

Cautions: Osteoporosis.

Side-effects: Gastrointestinal disturbances, headache, dry mouth, peripheral oedema, dizziness, sleep disturbances, fatigue, arthralagia, mylagia, rash, and pruritis, taste disturbances, confusion, fever, depression, blood disorder, pancytopenia, visual disturbances, sweeting, photosensitivity, alopecia, also agitation, impotence.

Dose: Bengin gastric and duodenal ulcers, 20mg once daily for 4 weeks in duodenal ulceration or 8 weeks in gastric ulceration, in severe or recurrent cases increase to 40mg daily, prevention of relapse in gastric ulcer, 20mg once daily, increased to 40mg once daily if necessary, prevention of relapse in duodenal ulcer, 20mg once daily.

NSAIM associated duodenal or gastric ulcer and gastroduodenal erosions, 20mg once dialy for 4 weeks.

Zollinger-Ellison syndrome, initially 60mg once daily, usual range 20-120mg daily.

Gastro-oesophageal reflux disease, 20mg once daily for 4 weeks.

Acid reflux disease, 10mg daily increasing to 20mg once daily if symptoms return.

Acid-related dyspepsia, 10-20mg once daily for 2-4 weeks according to response.

Severe ulcerating reflux oesophagitis, child over 1 year, body weight 10-20kg, 10mg once daily increased if necessary to 20mg once daily for 4-12 weeks, body weight over 20kg, 20mg once daily increased if necessary to 40mg once daily for 4-12 weeks, to be initiated by hospital paediatrician.

Omeprazole 20mg capsule, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 0.31 SDG
Omeprazole 40mg powder in 10ml injection, NMSF net price of Gulf Pharmaceutical Industries = 10.00 SDG
Omeprazole 40mg powder in 10ml injection, NMSF net price of Zydus Cadila Healthcare = 6.83 SDG

9.2.4 Pantoprazole

Indications: Benign gastric ulcer, duodenal ulcer, duodenal or benign gastric ulcer associated with Helicobacter pylori, prophylaxis of NSAIMs associated gastric or duodenal ulcer in patients with an increased risk of gastroduodenal complications who require continued NSAIMs treatment, gastro-oesophageal reflux disease, Zollinger Ellison syndrome (and other hypersecretory conditions).

Cautions: Proton pump inhibitors may mask the symptoms of gastric cancer, particular care is required in those presenting with 'alarm features', in such cases gastric malignancy should be ruled out before treatment. Patients at risk of osteoporosis should maintain an adequate intake of calcium and Vitamin D, and, if necessary, receive other preventative therapy. Measurement of serum-magnesium concentrations should be considered before and during prolonged treatment with a proton pump inhibitor, especially when used with other Medicines that cause hypomagnesaemia or with Digoxin. A proton pump inhibitor should be prescribed for appropriate indications at the lowest effective dose for the shortest period, the need for long-term treatment should be reviewed periodically.

Side-effects: Gastro-intestinal disturbances (including nausea, vomiting, abdominal pain, flatulence, diarrhoea, constipation), and headache. Less frequent side-effects include dry mouth, peripheral oedema, dizziness, sleep disturbances, fatigue, paraesthesia, arthralgia, myalgia, rash, and pruritus. Other side-effects reported rarely or very rarely include taste disturbance, stomatitis, hepatitis, jaundice, hypersensitivity reactions (including anaphylaxis, bronchospasm), fever, depression, hallucinations, confusion, gynaecomastia, interstitial nephritis, hyponatraemia, hypomagnesaemia (usually after 1 year of treatment, but sometimes after 3 months of treatment), blood disorders (including leucopenia, leucocytosis, pancytopenia, thrombocytopenia), visual disturbances, sweating, photosensitivity, alopecia, Stevens-Johnson syndrome, and toxic epidermal necrolysis. By decreasing gastric acidity, proton pump inhibitors may increase the risk of gastro-intestinal infections (including Clostridium difficile infection). Proton pump inhibitors can increase the risk of fractures, particularly when used at high doses for over a year in the elderly. Rebound acid hypersecretion and protracted dyspepsia may occur after stopping prolonged treatment with a proton pump inhibitor, also hyperlipidemia, weight changes.

Dose By mouth, benign gastric ulcer, adult over 18 years, 40mg daily for 8 weeks, in severe cases increase up to 80mg daily.

Duodenal ulcer, adult over 18 years, 40mg daily for 4 weeks, in severe cases increase up to 80mg daily.

Prophylaxis of NSAIMs associated gastric or duodenal ulcer in patients with an increased risk of gastroduodenal complications that require continued NSAIMs treatment, adult over 18 years, 20mg daily.

Gastro-oesophageal reflux disease, adult and child over 12 years, 20–80mg daily in the morning for 4 weeks, continued for further 4 weeks if not fully healed, maintenance 20mg daily, increased to 40mg daily if symptoms return.

Zollinger Ellison syndrome (and other hypersecretory conditions) adult over 18 years, initially 80mg once daily adjusted according to response (elderly max. 40mg daily) daily doses above 80mg given in 2 divided doses.

By intravenous injection over at least 2 minutes or by intravenous infusion, adult over 18 years, duodenal ulcer, gastric ulcer, and gastro-oesophageal reflux, 40mg daily until oral administration can be resumed.

Zollinger Ellison syndrome (and other hypersecretory conditions) adult over 18 years, initially 80mg (160mg if rapid acid control required) then 80mg once daily adjusted according to response, daily doses above 80mg given in 2 divided doses.

Pantoprazole 20mg tablet, NMSF net price of DELTA FOR PHARMACEUTICALS AND CHEMICAL INDUSTRIES = 1.10 SDG
Pantoprazole 40mg tablet, NMSF net price of Intas Pharmaceuticals = 0.60 SDG

Pantoprazole 40 mg tablet, NMSF net price of General Medicine Co. = 0.68 SDG
Pantoprazole 40mg injection, NMSF net price of Vital = 5.00 SDG

9.3 Antiemetic Medicines

9.3.1 Metoclopromide

Indications: Symptomatic treatment of nausea and vomiting, including that associated with acute migraine, delayes (but not acute) chemotherapy-induced nausea and vomiting, radiotherapy-induced nausea and vomiting, prevention of postoperative nausea and vomiting.

Cautions: Elderly, young adults (15-19 years old), and children, atopic allergy (including asthma), cardiac conduction disturbances, uncorrected electrolytes imbalance, bradycardia, may mask underlying disorders such as cerebral irritation, epilepsy, Parkinson's disease.

Contra-indications: Gastrointestinal obstruction, haemorrhage or perforation, 3–4 days after gastrointestinal surgery, phaeochromocytoma.

Side-effects: Extrapyramidal symptoms (especially in children and young adults, see introductory note above) hyperprolactinemia, galactorrhoea, gynaecomatsia, menstrual changes, very rarely cardiac conduction abnormalities following intravenous administration, depression, neuroleptic malignant syndrome, methaemoglobinemia (more severe in G6PD deficiency) also reported diarrhoea, hypotension, dyspnoea, anxiety, confusion, restlessness, drowsiness, dizziness, tremor, tardive dyskinasia on prolonged administration, visual disturbances, rash, urticaria, pruritus, oedema.

Dose: By mouth, by intramuscular injection, or by slow intravenous injection (over at least 3 minutes) adult, over 18 years, body weight over 60kg, 10mg up to 3 times daily, body weight under 60kg, max. daily dose 500micrograms/kg in 3 divided doses.

Metoclopromide 10mg tablet, NMSF net price of Sanofi Aventis (Winthrop) = 0.50 SDG
Metoclopramide10mg/2ml, NMSF net price of Ipca Laboratories Ltd = 0.64 SDG
Metoclopramide, 10mg/2ml, NMSF net price of L.B.S labrotery Ltd. = 2.07 SDG
Metoclopramide, 10mg/2ml, NMSF net price of Sanofi Aventis (Winthrop) = 3.00 SDG

9.3.2 Domperidone

Indications: Nausea and vomiting, dyspepsia, gastro-oesophageal reflux.

Cautions: Children, cardiac conduction abnormalities.

Contra-indications: Prolactinoma, if increased gastrointestinal motility harmful.

Side-effects: Rarely gastrointestinal disturbances, galactorrhoea, gynaecomastia, amenorrhoea, hyperprolactinemia, very rarely ventricular arrhythmias, agitation, drowsiness, nerveousness, seizures, extraprapyramidal effects, headache, also reported QT-interval prolongation, sudden cardiac death.

Dose: By mouth adult and child over 12 years and body weight over 35kg, 10-20mg 3-4 times daily, max. 80mg daily, child body weight up to 35kg, 250-500mcg/kg 3-4 times daily, max. 2.4mg/kg daily.

Domperidone maleate 10mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.20 SDG
Domperidone 5mg/5ml suspension (100ml), NMSF net price of Atco Laboratories Limited = 4.00 SDG

9.3.3 Promethazine

Indications: Management of postoperative and drug-induced nausea and vomiting labyrinthine disorders, motion sickness, premedication.

Contra-indications: Porphyria, child under 2 years (risk of respiratory depression).

Side-effects: Drowsiness, dizziness, sedation (paradoxical stimulation may occur, especially with high doses or in children and the elderly) headache, nightmares, confusion, psychomotor impairment, urinary retention, dry mouth,blurred vision, gastrointestinal disturbances, extrapyramidal effects, hypersensitivity reactions, rash, photosensitivity reactions, jaundice, blood disorders, cardiovascular adverse effects (after injection) venous thrombosis at site of intravenous injection, pain on intramuscular injection.

Dose: Nausea and vomiting, by mouth, adult, 25mg at night, increased to 50-75mg at night or 25mg 2-3 times daily if necessary (maximum,100mg in 24hours) mausea and vomiting, by deep intramuscular injection or by slow intravenous injection (diluted to 2.5mg/ml in water for injection) adult, 12.5-25mg, repeated at intervals of not less than 4 hours (usual maximum,100mg in 24 hours) Prevention of motion sickness, by mouth, adult, 20-25mg at bedtime on night before travel, repeated on the morning of travel if necessary, child 2-5 years, 5mg at bedtime on night before travel and also on morning of travel if necessary, child 5-10 years, 10mg at bedtime on night before travel and also on morning of travel if necessary.

Promethazine Hydrochloride 25mg tablet, NMSF net price of Citypharm Pharmaceutical Industries = 0.09 SDG
Promethazine 5mg/5ml syrup 125ml /bottle, NMSF net price of The United Pharmaceutical = 12.20 SDG
Promethazine Hydrochloride 25mg/ml (2ml) injection, NMSF net price of Greenfield Pharmaceutical (Jiangsu). Co., Ltd = 1.00 SDG

9.3.4 Granisetron

Indications: nausea and vomiting induced by cytotoxic chemotherapy, postoperative nausea and vomiting.

Cautions: QT interval prolongation.

Side-effects: constipation, diarrhoea, headache, insomnia, less commonly anorexia, dry mouth, QT interval prolongation, flushing, dizziness, arthralagia, rash, rarely movement disorder.

Dose: Nausea and vomiting induced by cytotoxic chemotherapy or radiotherapy, by mouth, 1-2mg with in 1 hour before start of treatment, then 2mg daily in 1-2 divided doses during treatment, when intravenous infusion also used, max. combined total 9mg in 24 hours.

Nausea and vomiting induced by cytotoxic chemotherapy for planned duration of 3-5 days where oral antiemetics can not be used.

Postoperative nausea and vomiting, by intravenous injection prevention, 1mg before induction of anesthesia, treatment, 1mg given as for prevention, max. 2mg in one day, child not recommended.

New Item

9.3.5 Ondansetron

Indications: moderately and severely emetogenic chemotherapy or radiotherapy, prevention and treatment of postoperative nausea and vomiting.

Cautions: susceptibility to QT interval prolongation, subacute intestinal obstruction. Adenotonsillar surgery.

Contra-indications: congenital long QT syndrome.

Side-effects: constipation, headache, flushing, injection site reactions, less commonly hiccups, hypotension, bradycardia, chest pain, arrhythmias, movement disorder, seizures, an intravenous administrations, rarely dizziness, transient visual disturbances, suppositories may cause rectal irritation.

Dose: Moderately emetogenic chemotherapy or radiotherapy, adult 18-65 years, by mouth, 8mg 1-2 hours before treatment, by recturm, 16mg 1-2 hours before treatment. Elderly over 65 years, by mouth, 8mg 1-2 hours before treatment r by rectum, 16mg 1-2 hours before treatment.

Severly emetogenic chemotherapy, adult 18-65 years by mouth 24mg 1-2 hours before treatment.

Prevention of postoperative nausea and vomiting, adult over 18 years by mouth, 16mg 1 hour before anesthesia.

Treatment of postoperative nausea and vomiting, adult over 18 years by intramuscular injection or slow intravenous injection, 4mg .

Ondansterone 4mg tablet, NMSF net price of Pharma Science = 4.30 SDG
Ondansterone 4mg tablet, NMSF net price of Cipla Ltd = 2.00 SDG
Ondansterone 8mg tablet, NMSF net price of Pharma Science = 3.50 SDG
Ondansetron HCl USP 2mg/1ml 2ml amp. NMSF net price of Hikma plc = 12.00 SDG
Ondansetron HCl USP 2mg/1ml 2ml amp, NMSF net price of Glaxo Welcome = 25.00 SDG
Ondansetron HCl USP 2mg/1ml 4ml amp, NMSF net price of Hikma plc = 17.00 SDG
Ondansetron HCl USP 2mg/1ml 4ml amp, NMSF net price of Claris Llfesciences Ltd. = 4.00 SDG

9.3.6 Cinnarizine

Indications: Vestibular disorders, such as vertigo, tinnitus, nausea, and vomiting in Meniere's disease, motion sickness.

Cautions: Epilepsy, prostatic hypertrophy, urinary retention, angle closure glaucoma and pylorodudodenal obstruction.

Contra-indications: Children and elderly.

Side-effects: Drowsiness, headache, psychomotor impairement, and antimuscarinic effects such as urinary retention, dry mouth, blurred vision.

Dose: Vesribular disorders, 30mg 3 times daily, child 5-12 years 15mg 3 times daily.

Motion sickness, 30mg 2 hours before travel then 15mg every 8 hours during journey if necessary, child 5-12 years, 15mg 2 hours before travel then 7.5mg ever 8 hours during journey if necessary.

Cinnarizin 25mg tablet, NMSF net price of Remedica = 0.22 SDG
Cinnarizin 75mg tablet, NMSF net price of Remedica = 0.55 SDG

9.3.7 Betahistine

Indications: vertigo, tinnitus and hearing loss associated with meniere's disease.

Cautions: Asthma, history of peptic ulcer.

Contra-indications: phaeochromocytoma.

Side-effects: gastrointestinal disturbances, headache, rashes and pruritis reported.

Dose: initially 16mg 3 times daily. With food, maintenance 24-48mg daily.

Betahistine Hydrochloride 8mg tablet, NMSF net price of Abbott = 0.90 SDG

9.4 Laxatives

9.4.1 Stimulant Laxative

9.4.1.1 Bisacodyl

Indication: Constipation.

Caution: Avoided in patient with intestinal obstruction.

Contra-indications: Acute surgical abdominal conditions, acute inflammatory bowel disease, severe dehydration.

Side-effects: Diarrhoea, hypokalaemia, abdominal cramp, nausea and vomiting, colitis also reported.

Bisacodyl 5mg tablet, NMSF net price of Amriya Pharma = 0.15 SDG
Bisacodyl 5mg tablet, NMSF net price of KRKA = 0.11 SDG
Bisacodyl 5mg tablet, NMSF net price of Remedica = 0.23 SDG
Bisacodyl 10mg tablet, NMSF net price of Pharco Pharmaceutical = 0.15 SDG

9.4.2 Stool Softeners:

9.4.2.1 Liquid Paraffin

Indication: Constipation.

Cautions: Avoid prolonged use, contra-indicated in children under 3 years.

Side-effects: Anal seepage of Paraffin and consequent anal irritation after prolonged use, granulomatous reactions caused by absorption of small quantities of liquid Paraffin (especially from the emulsion) lipoid pneumonia, and interference with the absorption of fat-soluble Vitamins.

Dose: Adult over 18 years, 10-30ml at night when required.

9.4.2.2 Enema

Indications: Relieve constipation or for bowel cleansing before a medical examination or procedure.

Cautions: Enemas of any kind (even plain water enemas) must never be administered when the patient is suffering abdominal pain. If insertion of the enema nozzle causes pain, the patient should not insert the nozzle any further and should not use the product.

Contra-indications: Rectal bleeding, children under two.

Side-effects: Bradycardia, abdominal pain.

Sodium Citrate Microenema 450mg/ 5ml Bottle, NMSF net price of Atco Laboratories Limited = 19.01 SDG

9.4.3 Osomotic Laxatives

9.4.3.1 Lactullose

Indications: Constipation, hepatic encephalopathy.

Caution: Lactose intolerance.

Contra-indications: Galactosaemia, intestinal obstruction.

Side-effects: Nausea, vomiting, flatulence, cramps, and abdominal discomfort.

Dose: Constipation, initially 15ml twice daily, adjusted according to response, child under 1 year 2.5ml twice daily, adjusted according to response, 5-18 years 5-20ml twice daily, adjusted according to response.

Hepatic encephalopathy, 30-50ml 3 times daily, subsequently adjusted to produce 2-3 soft stools daily.

Lactulose solution (100ml/bottle), NMSF net price of Hilton Pharma (Pvt.) Ltd. = 15.00 SDG

9.4.4 Bowel Cleansing Preparations

9.4.4.1 Acrogols (Polyethylene Glycol)

Indications: before clonic surgery, colonoscopy, or radiological examination to ensure the bowel is free of solid contents. They are not treatments for constipation.

Cautions: used with caution in patients with fluid and electrolyte disturbances. Renal function should be measured before starting treatment in patients with high risk of fluid and electrolyte disturbances. Hypovolaemia should be corrected before administration of bowel cleansing prepararions. Adequate hydration should be maintained during treatment, also should be used with caution in colitis, in children, in the elderly, or in those who are debilitated. Also be used with caution in patients with an impaired gag reflex or possibility of regurgitation or inspiration. Also in patient with heart failure.

Contra-indications: Contra-indicated in patients with gastrointestinal obstruction or perforation, gastric retention, acute severe colitis, or toxic megacolon.

Side-effects: nausea, vomiting, abdominal pain, and abdominal distention. Less frequent side effects include headache, dizziness, dehydration, and electrolyte disturbances.

Dose: Bowel evacuation before surgery, colonoscopy, or radiological examination, 2litres of recondtituted solution on the evening before procedure and 2litres of reconstituted solution on the morning of procedure, alternatively, a glass of reconstituted solution every 10-15 minutes, or by nasogastric tubee 20-30ml/minute, starting on the day before procedure until 4litres have been consumed. Treatment can be stopped if bowel motions become watery and clear. To facilitate gastric emptying, Domperidone may be given 30 minutes before starting.

Bowel evacuation for surgey, colonoscopy or radiological examination, adult over 18 years, 1litre of reconstituted solution on the evening before procedure and 1litre of reconstituted solution early on the morning of procedure, alternatively, 2litres of reconstituted solution on the evening before procedure, treatment should be completed at least 1 hour before colonoscopy.

9.5 Acute Diarrhoea

9.5.1 Anti Motility

9.5.1.1 Cophenotrope

A mixture of Diphenoxylate Hydrochloride and Atropine sulphate in the mass proportions 100 parts to 1 part respectively.

Indications: Adjunct to rehydration in acute diarrhoe, control of faecal consistency after colostomy or ileostomy.

Cautions: In patients with impaired respiratory function, hypotension, uretheral stenosis, shock, myasthenia gravis, prostatic hypertrophy, obstructive or inflammatory bowel disorders, diseases of the biliary tract, and convulsive disorders. Also young children are particularly susceptible to overdosage and symptoms may be delayed and observation is needed for at least 48 hours after ingestion, presence of subclinical doses of Atropine may give rise to Atropine side-effects in susceptible individuals or in overdosage.

Contra-indication: Should be avoided in patients with acute respiratory depression and when there is a risk of paralytic ileus. Also contra-indicated in conditions associated with raised intracrainial pressure and in head injury.

Diphenoxylate 2.5mg + Atropine 0.025mg tablets, NMSF net price of Ferozsons = 0.17 SDG

9.5.1.2 Loperamide Hydrochloride

Indications: Symptomatic treatment of acute diarrhoea, adjunct to rehydration in acute diarrhoea in adults and children over 4 years (but see notes above), chronic diarrhoea in adults only.

Acute diarrhoea: The priority in acute diarrhoea, as in gastro-enteritis, is the prevention or reversal of fluid and electrolyte depletion. This is particularly important in infants and in frail and elderly patients. Severe depletion of fluid and electrolytes requires immediate admission to hospital and urgent replacement. However, antimotility medicines are not recommended for acute diarrhoea in young children.

Contra-indications: Conditions where inhibition of peristalsis should be avoided, where abdominal distension develops, or in conditions such as active ulcerative colitis or antibiotic-associated colitis.

Side-effects: Nausea, flatulence, headache, dizziness, less commonly dyspepsia, vomiting, ab-

dominal pain, dry mouth, drowsiness, rash (rarely Stevens-Johnson syndrome, toxic epidermal necrolysis) rarely paralytic ileus, fatigue, hypertonia, urinary retention.

Dose: Acute diarrhoea, 4mg initially followed by 2mg after each loose stool for up to 5 days, usual dose 6–8mg daily, max. 16mg daily, child under 4 years not recommended, 4-8 years, 1mg 3-4 times daily for up to 3 days only, 8-12 years, 2mg 4 times daily for up to 5 days.

Chronic diarrhoea in adults, initially, 4-8mg daily in divided doses, subsequently adjusted according to response and given in 2 divided doses for maintenance, max. 16mg daily, child under 18 years.

Faecal incontinence [unlicensed indication] initially 500micrograms daily, adjusted according to response, max. 16mg daily in divided doses.

Loperamide Hydrochloride 2mg capsule, NMSF net price of Cima = 0.45 SDG

9.6 Antimotility Medicines

9.6.1 Mebeverine HCL

Indications: Adjunct in gastrointestinal disorders characterized by smooth muscle spasm.

Contra-indications: Paralytic illeus.

Side-effects: Allergic reactions.

Dose: Adult and child over 10 years 135-150mg 3 times daily preferably 20 minutes before meals.

Mebeverine 135mg tablet, NMSF net price of RAM = 0.35 SDG
Mebeverine 135mg tablet, NMSF net price of General Medicine Co. = 0.32 SDG
Mebeverine 200mg tablet, NMSF net price of Abbott = 1.34 SDG

9.6.2 Chlordiazepoxide + Clinidium Bromide

Indications: Used as adjunctive therapy in the treatment of peptic ulcer and in the treatment of the irritable bowel syndrome (irritable colon, spastic colon, mucous colitis) and acute enterocolitis.

Cautions: Decrease dose in debilitated or elderly patients, paradoxical reactions to Chlordiazepoxide have occurred (eg, excitement, stimulation, acute rage), avoid co-administration of other CNS depressants, including alcohol withdrawal symptoms may occur if abruptly discontinued after prolonged use, also should be used with caution in patients with clinical depression especially if suicidal risk may be present and in patients with impaired gag reflex or respiratory disease.

Contra-indications: Hypersensitivity, glaucoma, prostatic hypertrophy, benign bladder neck obstruction, severe respiratory depression.

Side-effects: Drowsiness, ataxia, confusion, skin eruptions, edema, menstrual irregularities, nausea, constipation, xerostomia, extrapyramidal symptoms, libido (increased/decreased), agranulocytosis, jaundice, hepatic dysfunction.

Dose: 1-2 cap. by mouth every 6-8 hr before meal and at bed time.

Clinidium Bromide 2.5mg + Chlorodizepoxide 5mg tablet, NMSF net price of Eipico = 0.53 SDG
Clinidium Bromide 2.5mg + Chlorodizepoxide 5mg tablet, NMSF net price of Pharmaland Pharmaceuticals = 0.35 SDG
Clinidium Bromide 2.5mg + Chlorodizepoxide 5mg tablet, NMSF net price of Remedica = 0.37 SDG

10 Endocrine System

10.1 Medicines Used in Diabetes

10.1.1 Insulin Injection

Indications: Diabetes mellitus, diabetic emergencies and during surgery, diabetic ketoacidosis or coma.

Side-effects: Transient oedema, hypoglycaemia in overdose, rarely hypersensitivity reactions including urticaria and rash, local reactions and lipoatrophy at injection site.

Dose: Diabetes mellitus, by subcutaneous injection, by intramuscular injection, by intravenous injection or by intravenous infusion, adult and child, according to individual requirements (see also introductory notes above).

Insulin (soluble) 100IU/ml, 10ml vial, NMSF net price of Novo Nordisk Denemark = 33.33 SDG
Insulin Zinc 100IU/ml, 10ml vial, NMSF net price of Novo Nordisk Denemark = 33.33 SDG
Insulin Mixed 100IU/ml, 10ml vial, NMSF net price of Novo Nordisk Denemark = 33.33
InsulinMixed 100IU/ml, 10ml vial, NMSF net price of Eli Lilly Export S.A = 33.33 SDG
Insulin mixed human 100IU/ml (30% soluble and 70% zinc–cartridge, NMSF net price of Novo Nordisk Denemark = 33.33 SDG
Insulin glargine (long acting) 100IU/ml in 10ml. Vial, NMSF net price of Sanofi Aventis (Winthrop) = 220.83 SDG

10.1.2 Metformin

Indications: Diabetes mellitus polycystic ovary syndrome.

Contra-indications: Renal impairment, ketoacidosis, risk of tissue hypoxia, caused by, for example, sepsis, respiratory failure, recent myocardial infarction, or hepatic impairment (withdraw treatment), use of Iodine-containing X-ray contrast media (do not restart Metformin until renal function returns to normal), use of general anesthesia (suspend Metformin on the morning of surgery and restart when renal function returns to normal), alcohol dependence, pregnancy.

Cautions: Monitor renal function before treatment and once or twice annually (more frequently in the elderly or if deterioration suspected), substitute Insulin during severe infection, trauma, surgery and pregnancy breast-feeding.

Side-effects: Anorexia, nausea and vomiting, diarrhoea (usually transient), abdominal pain, metallic taste, rarely lactic acidosis (most likely in patients with renal impairment, discontinue), decreased Vitamin B12 absorption, erythema, pruritus and urticaria, hepatitis also reported.

Dose: Diabetes mellitus, by mouth, adult and child over 10 years, initially 500mg with breakfast for at least 1 week then 500mg with breakfast and evening meal for at least 1week, then 500mg with breakfast, lunch, and evening meal or 850mg every 12 hours with or after food, usual maximum, 2g daily individed doses.

Metformin 500mg tablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.14 SDG
Metformin 500mg tablet, NMSF net price of Merck GaA = 0.53 SDG
Metformin 850mg tablet, NMSF net price of Amipharma Laboratories Ltd. = 0.22 SDG

10.1.3 Glibenclamide

Indication: Diabetes mellitus.

Contra-indications: Ketoacidosis, porphyria, breast-feeding.

Side-effects: Gastrointestinal disturbances and headache liver disorders, hypersensitivity reactions (usually only in first 6–8weeks), rarely erythema multiforme, exfoliative dermatitis, fever, and jaundice, hypoglycaemia, particularly in the elderly ,rarely blood disorders including leukopenia, thrombocytopenia, agranulocytosis, pancytopenia, haemolytic anaemia, and aplastic anaemia.

Dose: Diabetes mellitus, by mouth, adult, initially 5mg once daily with or immediately after breakfast (2.5mg in the elderly), adjusted according to response (maximum, 15mg daily).

Glibenclamide 5mgtablet, NMSF net price of Blue Nile Pharmaceutical Factory = 0.08SDG

10.1.4 Pioglitazone

Indications: Type 2 diabetes mellitus (alone or combined with metformin or a sulfonylurea, or with both, or with insulin).

Cautions: Monitor liver function , cardiovascular disease or in combination with insulin (risk of heart failure), substitute insulin during perioperative period (omit pioglitazone on morning of surgery and recommence when eating and drinking normally), increased risk of bone fractures, particularly in women, avoid in acute porphyria , risk factors for bladder cancer , elderly (increased risk of heart failure, fractures, and bladder cancer).

Contra-indications: History of heart failure, uninvestigated macroscopic haematuria, previous or active bladder cancer.

Side-effects: Gastro-intestinal disturbances, weight gain, oedema, anaemia, headache, visual

disturbances, dizziness, arthralgia, hypoaesthesia, haematuria, impotence, less commonly hypoglycaemia, fatigue, insomnia, vertigo, sweating, altered blood lipids, proteinuria, bladder cancer.

Dose: Adult over 18 years, initially 15–30mg once daily increased to 45mg once daily according to response, (elderly, initiate with lowest possible dose and increase gradually), review treatment after 3–6 months and regularly thereafter Note Dose of concomitant sulfonylurea or insulin may need to be reduced.

Pioglitazone 15mg tab, NMSF net price of Micro Labs Limited = 0.35 SDG
Pioglitazone 30mg tab, NMSF net price of Universal Industries Pharmaceutical Co. = 0.70 SDG

10.1.5 Gliclazide

Indications: Type 2 diabetes mellitus

Cautions: Sulfonyl ureas can encourage weight gain and should be prescribed only if poor control and symptoms persist despite adequate attempts at dieting, caution is needed in elderly and in paitents with G6PD deficiency

Contra-indications: In acute porphyria, and in ketoacidosis

Side-effects: Gastrointestinal disturbances, hyponatraemia, disturbance in liver function, which may rarely lead to cholestatic jaundice, hepatitis, and hepatic failure, hypersensitivity reaction can occur, rarely leucopenia, thrombocytopenia, agranulocytosis, pancytopenia, haemolytic anaemia, and a plastic anaemia.

Dose: Initially, 40-80mg daily, adjusted according to response, up to 160mg as a single dose, with break-fast, higher doses divided, max. 320mg daily.

Gliclazide 80 mg tablet, NMSF net price of IPca Laboratories Ltd = 0.25 SDG
Gliclazide 80 mg tablet, NMSF net price of Bal Pharma Limited = 0.24 SDG

10.2 Thyroid and Antithyroid Medicines

10.2.1 Levothyroxine

Indication: Hypothyroidism.

Contra-indications: Thyrotoxicosis.

Side-effects: With excessive dose angina pain, arrhythmias, palpitations, tachycardia, skeletal-muscle cramps, diarrhoea, vomiting, tremors, restlessness, excitability, insomnia, headache, flushing, sweating, excessive loss of weight and muscular weakness.

Dose: Hypothyroidism, by mouth adult, initially 50-100micrograms daily (25-50micrograms for those over 50 years) before breakfast, increased by 25-50micrograms every 3-4weeks until normal metabolism maintained, usual maintenance dose, 100-200micrograms daily, (in cardiac disease, initially 25micrograms daily or 50micrograms on alternate days, adjusted in steps of 25micrograms every 4weeks). Congenital hypothyroidism and juvenile myxoedema by mouth, neonate up to 1 month, initially 5-10micrograms/kg daily, (5micrograms/kg daily in infants and children over 1month), adjusted in steps of 25micrograms every 2-4 weeks, until mild toxic symptoms appear, then reduce dose slightly.

Levothyroxine 50mcg tablet, NMSF net price of Aspen Bad Oldesloe GmbH = 0.17SDG
Levothyroxine 100mcg tablet, NMSFnetprice of Aspen Bad Oldesloe GmbH = 0.20SDG

10.2.2 Carbimazole

Indications: Hyperthyroidism

Side-effect: Nausea, mild gastro-intestinal disturbances, taste disturbance, headache, fever, malaise, rash, pruritus, arthralgia, rarely myopathy, alopecia, bone marrow suppression (including pancytopenia and agranulocytosis.

Dose: Is given in a dose of 15 to 40mg daily, higher doses should be prescribed under specialist supervision only. This dose is continued until the patient becomes euthyroid, usually after 4 to 8weeks and the dose is then gradually reduced to a maintenance dose of 5 to 15mg. Therapy is usually given for 12 to 18 months. Children may be given carbimazole in an initial dose of 250micrograms/kg three times daily, adjusted according to response, treatment in children should be undertaken by a specialist.

Carbimazole 5mg tablet, NMSF net price of Cenexi =0.50SDG
Carbimazole 5mg tablet, NMSF net price of Remedica = 0.34 SDG

10.2.3 Propyl Thiouracil

Indications: Hyperthyroidism.

Side-effects: Nausea, rash, pruritus, arthralgia, headache, rarely alopecia, cutaneous vasculitis, thrombocytopenia, aplastic anaemia, lupus erythematosus-like syndrome, jaundice, hepatitis, hepaticnecrosis, encephalopathy, and nephritis.

Dose: Hyperthyroidism, by mouth, adult, 300-600mg daily until patient becomes euthyroid, dose may then be gradually reduced to a maintenance dose of 50-150mg daily.

Propylthiouracil 50mg tablet, NMSF net price of Greater Pharma = 0.16 SDG

10.3 Sex Hormone

10.3.1 Dydrogesterone

Indications: HRT

Cautions: In condition that may worsen the fluid retention e.g epilepsy, hypertension, migraine, asthma, or cardiac dysfunction, and in those susceptible to thromboembolism, care should is required in patient with history of depression.

Contra-indications: Should be avoided in patients with a history of liver tumours. They are also contraindicated in those with genital or breast cancer, severe arterial disease, undiagnosed vaginal bleeding and acute porphyria.

Side-effects: Menstrual disturbances, premenstrual- like syndrome, weight change, nausea, headache, dizziness, insomnia, drowsiness, depression, change in libido, also skin reactions, hirsutism and alopecia, jaundice and anaphylactoid reactions have also been reported.

Dydrogesteron 10mg tablet, NMSF net price of Abbott = 2.10 SDG

10.3.2 Norethisterone

Indications: Endometriosis, dysfunctional uterine bleeding, menorrhagia, dysmenorrhoea, postponement of menstruation.

Cautions: In condition that may worsen the fluid retention e.g epilepsy, hypertension, migraine, asthma, or cardiac dysfunction, and in those susceptible to thromboembolism, care should is required in patient with history of depression.

Contra-indications: Should be avoided in patients with a history of liver tumours. They are also contraindicated in those with genital or breast cancer, severe arterial disease, undiagnosed vaginal bleeding and acute porphyria.

Side-effects: Menstrual disturbances, premenstrual- like syndrome, weight change, nausea, headache, dizziness, insomnia, drowsiness, depression, change in libido, also skin reactions, hirsutism and alopecia, jaundice and anaphylactoid reactions have also been reported.

Dose: Endometriosis, by mouth, 10-15mg daily for 4-6 months or longer, starting on day 5 of cycle Dysfunctional uterine bleeding, menorrhagia, by mouth, 5mg 3 times daily for 10 days at arrest bleeding, to prevent bleeding, to prevent bleeding 5mg twice daily from 19 to 26.

Dysmenorrhoea, by mouth, 5mg 3 times daily from day 5 to 24 for 3-4 cycles.

Premenstrual syndrome, by mouth, 5mg 2-3 times daily from day 19 to 26 for several cycles.

Postponement of menstruation, by mouth, 5mg 3 times daily starting 3 days before expected onset (menstruation occurs 2-3 days after stopping).

Norethisterone 5mg tablet, NMSF net price of Duopharma = 0.70 SDG
Norethisterone 5mg tablet, NMSF net price of Remedica = 0.68 SDG

10.3.3 Testosterone

Injection (oily), testosterone enantate 250mg/ml, 1ml amp.

Indications: Hypogonadism, Breast cancer.

Cautions: Cardiac impairment, elderly, ischaemic heart disease, hypertension, epilepsy, migraine, diabetes mellitus, skeletal metastases (risk of hypercalcaemia), undertake regular examination of the prostate and breast during treatment, monitor full blood count, lipid profile and liver function, pre-pubertal boys.

Contra-indications: Breast cancer in men, prostate cancer, history of primary liver tumours, hypercalcaemia, nephrotic syndrome.

Side-effects: Prostate abnormalities and prostate cancer, headache, depression, gastro-intestinal bleeding, nausea, vomiting, cholestatic jaundice, changes in libido, gynaecomastia, polycythaemia, anxiety, irritability, nervousness, asthenia, paraesthesia, hypertension, electrolyte disturbances including sodium retention with oedema and hypercalcaemia, weight gain, increased bone

growth, muscle cramps, arthralgia, androgenic effects such as hirsutism, male-pattern baldness, seborrhoea, acne, pruritus, excessive frequency and duration of penile erection, precocious sexual development and premature closure of epiphyses in pre-pubertal males, suppression of spermatogenesis in men and virilism in women, rarely liver tumours, sleep apnoea also reported, with buccal tablets and gel, local irritation and allergic reactions, and taste disturbances.

Dose: By slow intramuscular injection, hypogonadism, initially 250mg every 2–3 weeks, maintenance 250mg every 3–6 weeks Breast cancer, 250mg every 2–3 weeks.

New Item

10.3.4 Mesterolone

Indications: Androgen deficiency and male infertility associated with hypogonadism.

Cautions: Cardiac impairment, elderly, ischaemic heart disease, hypertension, epilepsy, migraine, diabetes mellitus, skeletal metastases, monitor full blood count, lipid profile and liver function, pre-pubertal boys.

Contra-indications: Breast cancer in men, prostate cancer, and history of primary liver tumours, hypercalcaemia and nephritic syndrome.

Side-effects: Prostate cancer, headache, depression, gastrointestinal bleeding, nausea, vomiting, cholestatic jaundice, change in libido, gynaecomastia, polycythaemia, anxiety, irritability, nervousness, asthenia, paraesthesia, hypertension, electrolyte disturbances including sodium retention with oedema and hypercalcaemia, weight gain, increased bone growth, muscle cramps, arthralgia, androgenic effects such as hirsutism, excessive frequency and duration of penile erection, precocious sexual development and premature closure of epiphyses in pre-pubertal males, suppression of spermatogenesis in men and virilism in women, rarely liver tumours, sleep apnoea also reported, with buccal tablets and gel, local irritation and allergic reactions, and taste disturbances.

Dose: Androgenic deficiency and male infertility associated with hypogonadism, 25mg 3-4 times daily for several months, reduced to 50-75mg daily in divided doses for maintenance, child not recommended.

New Item

10.3.5 Finasteride

Indications: Benign prostatic hyperplasia, male-pattern baldness in men.

Cautions: Obstructive uropathy.

Side-effects: Testicular pain, hypersensitivity reactions, male breast cancer also reported.

Dose: 5mg daily, review treatment at 3-6 months and then every 6-12 months.

Finastride 5mg tab, NMSF net price of Cipla Ltd = 0.36 SDG

Finastride 5mg tab, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 2.30 SDG

10.3.6 Human Chorionic Gonadotrophin, HCG

Indications: Treatment of infertility in women with proven hypopituitarism or who have not responded to Clomifene, or in superovulation treatment for assisted conception (such as in vitro fertilisation). Also occasionally used in the treatment of hypogonadotrophic hypogonadism and associated oligospermia.

Contra-indications: Androgen-dependent tumours.

Side-effects: Oedema (particularly in males reduce dose), headache, tiredness, mood changes, gynaecomastia, local reactions, may aggravate ovarian hyperstimulation, multiple pregnancy.

Dose: By subcutaneous or intramuscular injection, according to patient's response.

Human Chorionic Gonadotrophin (HCG) 5000 unit powder for inj./VIAL with solvent, NMSF net price of IBSA InstituteBiochimique = 67.00 SDG New item

Human Chorionic Gonadotrophin (HCG) 5000 unit powder for inj./VIAL with solvent, NMSF net price of Msd Idea Ag Weystrasse = 67.00 SDG

10.3.7 Goserelin

Indications: Locally advanced prostate cancer as an alternative to surgical castration, adjuvant treatment to radiotherapy or radical prostatectomy in patients with high-risk localized or locally advanced prostate cancer, metastatic prostate cancer, advanced breast cancer, endometriosis, endometrial thinning, uterine fibroids, assisted reproduction.

Cautions: Patients with metabolic bone disease

because reduced bone mineral density can occur. The injection site should be rotated, diabetes, hypertension, depression, risk of ureteric obstruction and spinal cord compression in men.

Contra-indications: Undiagnosed vaginal bleeding.

Side-effects: Transient changes in blood pressure, heart failure, myocardial infarction, paraesthesia, rarely hypercalcaemia.

Dose: breast cancer and prostate cancer by subcutaneous injection into anterior abdominal wall. 3.6mg every 28 days Prostate cancer, by subcutaneous injection into anterior abdominal wall, 10.8mg every 12 weeks.

Goserelin (as acetate) 3.6mg for S.C prefilled syring, NMSF net price of Asterazenca = 750.00 SDG

10.3.8 Patrenteral Progestogen only Contraceptives

10.3.8.1 (Medroxyprogesterone Acetate)

Indications: Contraception.

Cautions: Possible risk of breast cancer, history during pregnancy of pruritus or of deterioration of otosclerosis, disturbances of lipid metabolism.

Contra-indications: History of breast cancer but can be used after 5 years if no evidence of disease and non-hormonal contraceptive methods unacceptable.

Side-effects: Injection site reactions, with Medroxyprogesterone acetate injection, weight gain reported. Also associated with a small increased risk of cervical cancer.

Dose: Dose by deep intramuscular injection, 150mg with in first 5 days of cycle or with in first 5 days after parturition (delay until 6 weeks after parturition if breast-feeding), for long term contraception, repeated every 12 weeks (if interval greater than 12 weeks and 5 days, rule out pregnancy before next injection and advice patient to use additional contraceptive measures (e.g.barrier) for 14 days after the injection).

New Item

10.4 Anterior Pituitary Hormones

10.4.1 Somatropin

(Recombinant Human Growth Hormone)

Indications: See under Dose.

Contra-indications: Evidence of tumour activity (complete antitumour therapy and ensure intracranial lesions inactive before starting), not to be used after renal transplantation or for growth promotion in children with closed epiphyses (or near closure in Prader-Willi syndrome), severe obesity or severe respiratory impairment in Prader-Willi syndrome.

Side-effects: Headache, funduscopy for papilloedema recommended if severe or recurrent the adache, visual problems, nausea and vomiting occur if papilloedema confirmed consider benign intracranial hypertension (rare cases reported), fluid retention 2 (peripheral oedema), arthralgia, myalgia, carpal tunnel syndrome, paraesthesia, antibody formation, hypothyroidism, insulin resistance, hyperglycaemia, hypoglycaemia, reactions at injection site, leukaemia in children with growth hormone deficiency also reported.

Dose: Gonadal dysgenesis (Turner Syndrome), by subcutaneous injection, 45–50micrograms/kg daily or 1.4mg/m2 daily deficiency of growth hormone in children, by subcutaneous or intramuscular injection, 23–39micrograms/kg daily or 0.7–1mg/m2 daily Growth disturbance in short children born small for gestational age whose growth has not caught up by 4 years or later, by subcutaneous injection, 35micrograms/kg daily or 1mg/m2 daily. Prader-Willi Syndrome, by subcutaneous injection in children with growth velocity greater than 1cm/year, in combination with energy-restricted diet, 35micrograms/kg daily or 1mg/m2 daily, max. 2.7mg daily chronic renal in sufficiency in children (renal function decreased to less than 50%), by subcutaneous injection, 45–50micrograms/kg daily or 1.4mg/m2 daily (higher doses may be needed) adjusted if necessary after 6 months adult growth hormone deficiency, by subcutaneous injection, initially 150–300micrograms daily, gradually increased if required to max. 1mg daily, use minimum effective dose (requirements may decrease with age) SHOX deficiency in children, by subcutaneous injection, 45–50micrograms/kg daily.

Somatropin 15IU/1.5ml, NMSF net price of Novo Nordisk Health Care Ag = 200.00 SDG

10.4.2 Desmopressin

Indications: Diabetes insipidus.

Contra-indications: Cardiac insufficiency and

other conditions treated with diuretics, psychogenic polydipsia and polydipsiain alcohol dependence fluid retention, and hyponatraemia (in more serious cases with convulsions) on administration without restricting fluid intake, stomach pain, headache, nausea, vomiting, allergic reactions, and emotional disturbance in children also reported, epistaxis, nasal congestion, rhinitis with nasal spray.

Dose: By mouth (as Desmopressin acetate) adult and child initially 300micrograms daily (in 3 divided doses), maintenance, 300-600micrograms daily in 3 divided doses, range 0.2-1.2mg daily Primary nocturnal enuresis, adult (under 65 years) and child over 5 years 200micrograms at bedtime, only increased to 400micrograms if lower dose not effective, withdraw for at least 1 week for reassessment after 3 months Postoperative polyuria or polydipsia, adjust dose according to urine osmolality. Sublingually (as Desmopressin base) diabetes insipidus, treatment, adult and child initially 180micrograms daily in 3 divided doses, range 120-720micrograms daily. Primary nocturnal enuresis, adult (under 65 years) and child over 5 years 120micrograms at bedtime, only increased to 240micrograms if lower dose not effective, withdraw for at least 1 week for reassessment after 3 months Polyuria or polydipsia after hypophysectomy, adjust dose according to urine osmolality. Intranasally (as Desmopressin acetate). Diabetes insipidus, diagnosis, adult and child 20micrograms (limit fluid intake to 500ml from 1 hour before to 8 hours after administration). Diabetes insipidus, treatment, adult 10-40micrograms daily (in 1-2 divided doses), child 5-20micrograms daily, infants may require lower doses. Nocturia associated with multiple sclerosis (when other treatments have failed) adult (under 65 years) 10-20micrograms at bedtime) dose not to be repeated within 24 hours. Renal function testing (empty bladder at time of administration and limit fluid intake to 500ml from 1 hour before until 8 hours after administration) adult 40 micrograms, infant under 1 year 10micrograms (restrict fluid intake to 50% at next 2 feeds to avoid fluid overload), child 1-15 years 20micrograms. Mild to moderate haemophilia and Von Willebrand's disease, adult 300micrograms (one 150micrograms pray into each nostril) 30 minutes before surgery or when bleeding, may be repeated at intervals of 12 hours (or at intervals of at least 3 days if self-administered). Fibrinolytic response testing, adult 300micrograms (one 150micrograms spray in to each nostril), blood sampled after 1 hour for fibrinolytic activity. By injection (as Desmopressin acetate). Diabetes insipidus, diagnosis (subcutaneous or intramuscular) adult and child 2micrograms (limit fluid intake to 500ml from 1 hour before to 8 hours after administration). Diabetes insipidus, treatment (subcutaneous, intramuscularor intravenous), adult 1-4micrograms daily, infant and child 400nanograms. Renal function testing (empty bladder at time of administration and Limit fluid intake to 500ml from 1 hour before until 8 hours after administration) (subcutaneous or intramuscular), adult and child 2micrograms, infant 400nanograms (restrict fluid intake to 50% at next 2 feeds). Mild to moderate haemophilia and Von Willebrand's disease, (subcutaneous or intravenous), adult and child over 1 month 300nanograms/kg as a single dose immediately before surgery or after trauma, may be repeated at intervals of 12 hours Fibrinolytic response testing, (subcutaneous or intravenous), adult and child 300nanograms/kg, blood sampled after 20 minutes for fibrinolytic activity. Lumbar-puncture-associated headache, consult product literature.

Desmopressin100mcg/ml, 5ml nasal spray, NMSF net price of Cipla Ltd = 45.00 SDG.

Desmopressin100mcg/ml, 2.5ml nasal spray, NMSF net price of Ferring Pharmaceuticals = 170.00 SDG

Desmopressin oral lyophilisates as acetate 120 microgram tablet, NMSF net price of Ferring Pharmaceuticals = 10.50 SDG

Dessmopresin 4mcq/1ml amp, NMSF net price of Ferring Pharmaceuticals = 37.00 SDG

10.4.3 Terlipressin Acetate

Indications: Bleeding from oesophageal varices.

Cautions: Elderly, uncontrolled hypertension, vascular disease, heart disease, history of QT interval prolongation, concomitant use of medicines that prolong the QT-interval, arrhythmia, respiratory disease, septic shock, electrolyte and fluid disturbances.

Side-effects: Abdominal cramps, diarrhoea, hypertension, hypotension, peripheral ischaemia, pallor, arrhythmia, bradycardia, headache, less commonly nausea, vomiting, hot flushes, angina, myocardial infarction, tachycardia, intestinal ischaemia, bronchospam, respiratory failure, pulmonary oedema, convulsions, hyponatremia, rarely dyspnoea, very rarely stroke, hyperglycaemia, also reported heart failure, skin necrosis

Dose: 2mg every 4 hours until bleeding controlled max. Duration 48 hours.

Terlipressin Acetate 1mg powder for i.v. inj, NMSF net price of Ferring Pharmaceuticals = 150 SDG

10.5 Hypothalamic and Pituitary hormones and anti-estrogens

10.5.1 Bromocriptine

Indications: Treatment of galactorrhoea, and treatment of prolactinomas, also it is inhibit the release of growth hormone and sometimes used in the treatment of acromegaly, Parkinson disease.

Cautions: Paitents with history of peptic ulcer, particularly in acromegalic patients, in hyperprolactinaemia should be established, also should be in caution in patients with Raynaud's Syndrome and cardiovascular disease, caution is also advised in patients with history of seious mental disorders and in those with acute porphyria, monitor for pituitary enlargement, particularly during pregnancy, monitor visual field to detect secondary field loss in macroprolactinoma, contraceptive advice if appropriate.

Contra-indications: Hypertension in postpartum women or in puerperium, should not used in patients with hypersensitivity to ergot alkaloid.

Side-effects: Nasal congestion, less commonly vomiting, postural hypotension, fatigue, dizziness, dry mouth, also particularly with high doses, confusion, psychomotor excitation, hallucinations, rarely diarrhoea, gastrointestinal bleeding, gastric ulcer, abdominal pain, tachycardia, arrhythmia, insomnia, psychosis, visual disturbances, tinnitus.

Dose: Prevention or suppression of lactation, 2.5mg on day 1 or daily for 2-3 days, then 2.5mg twice daily for 14 days.

Hypogonadism, galactorrhoea, infertility, initially 1- 1.25mg at bed time, increased gradually, usual dose 7.5mg daily divided doses, increased if necessary to max. 30mg daily, usual dose in fertility without hyperprolactinoma, initially 2.5mg twice daily.

Acromegaly, initially 1-1.25mg at bed time, increased gradually to 5mg every 6 hours.

Prolactinoma, initially, 1- 1.25mg at bedtime, increased gradullay to 5mg every 6 hours.

Child under 15 years not recommended.

Bromocriptine 2.5mg tablet, NMSF net price of Medochemie = 0.80 SDG

Bromocriptine 2.5mg tablet, NMSF net price of Codal Synto = 1.15 SDG

10.6 Medicines Affecting Bone Metabolism

10.6.1 Zoledronic Acid

Indications: Prophylaxis and treatment of osteoporosis and corticosteroid-induced osteoporosis.

Contra-indications: Women of child-bearing potential.

Side-effects: Hypophosphataemia, anaemia, influenza-like symptoms including bone pain, myalgia, arthralgia, fever and rigors, gastrointestinal disturbances, atrial fibrillation, headache, dizziness, conjunctivitis, renal impairment (rarely acute renal failure), less commonly anorexia, taste disturbance, dry mouth, stomatitis, chest pain, hypertension, hypotension, dyspnoea, cough, paraesthesia, tremor, anxiety, lethargy, sleep disturbance, blurred vision, weight gain, pruritus, rash, sweating, muscle cramps, haematuria, proteinuria, urinary frequency, hypersensitivity reactions (including angioedema), asthenia, peripheral oedema, thrombocytopenia, leucopenia, hypomagnesaemia, hypokalaemia, also injection-site reactions, rarely bradycardia, confusion, hyperkalaemia, hypernatremia, pancytopenia, osteonecrosis of the jaw.

Zoledronic Acid 800microgm/ml, 5ml vial, NMSF net price of Novartis Pharma Services Incorporation = 875.00 SDG

10.7 Corticosteroids

Side-effects: Overdosage or prolonged use can exaggerate some of the normal physiological actions of corticosteroids leading to mineralocorticoid

and glucocorticoid side-effects. Mineralocorticoid side-effects include hypertension, sodium and water retention, and potassium and calcium loss. They are most marked with Fludrocortisone, but are significant with Cortisone, Hydrocortisone, Corticotropin, and Tetracosactide (Tetracosactrin). Mineralocorticoid actions are negligible with the high potency glucocorticoids, Betamethasone and Dexamethasone, and occur only slightly with methyl Prednisolone, Prednisone, and Triamcinolone. Glucocorticoid side-effects include diabetes and osteoporosis, which is a danger, particularly in the elderly, as it can result in osteoporotic fractures for example of the hiporvertebrae, in addition high doses are associated with a vascular necrosis of the femoral head. Muscle wasting (proximal myopathy) can also occur. Corticosteroid therapy is also weakly linked with peptic ulceration and perforation, there is no conclusive evidence that the use of enteric-coated preparations of Prednisolone reduces the risk of peptic ulceration. High doses of corticosteroids can cause Cushing's syndrome, with moon face, striae, and acne, it is usually reversible on withdrawal of treatment, but this must always be gradually tapered to avoid symptoms of acute adrenal insufficiency in children, administration of corticosteroids may result in suppression of growth. For the effect of corticosteroids given in pregnancy. Side-effects can be minimized by using lowest effective dose for minimum period possible. Other side-effects include: gastro-intestinal effects: dyspepsia, abdominal distension, acute pancreatitis, oesophageal ulceration and candidiasis, musculoskeletal effects: muscle weakness, vertebral and long bone fractures, tendon rupture, endocrine effects: menstrual irregularities and amenorrhoea, hirsutism, weight gain, hypercholesterolaemia, hyperlipidaemia, negative nitrogen and calcium balance, increased appetite, increased susceptibility to and severity of infection, reactivation of dormant Tuberculosis, neuropsychiatric effects: psychological dependence, insomnia, increased intracranial pressure with papilloedema in children (usually after withdrawal), aggravation of schizophrenia, aggravation of epilepsy, ophthalmic effects: glaucoma, papilloedema, posterior subcapsular cataracts, corneal or sclera thinning and exacerbation of ophthalmic viral or fungal disease, increased intra-ocular pressure, exophthalmos, also impaired healing, petechiae, ecchymoses, facial erythema, suppression of skin test reactions, urticaria, hyperhidrosis, skin atrophy, bruising, telangiectasia, myocardial rupture following recent myocardial infarction, congestive heart failure, leucocytosis, hyperglycaemia, thromboembolism, nausea, malaise, hiccups, headache, vertigo.

10.7.1 Betamethasone

Indications: Suppression of inflammatory and allergic disorders, congenital adrenal hyperplasia, ear, eye, nose, oral ulceration.

Dose: By mouth, usual range 0.5–5mg daily, see also Administration (above) by intramuscular injection or slow intravenous injection or infusion, 4-20mg, repeated up to 4 times in 24 hours, child, by slow intravenous injection, up to 1 year 1mg, 1-5 years 2mg, 6-12 years 4mg, repeated up to 4 times in 24 hours according to response.

Betamethasone 0.1% (as valerate) cream 15gm/tube, NMSF net price of General Medicine Co.= 5.46 SDG

Betamethasone 0.1% Ointment (15gm/tube), NMSF net price of Gulf Pharmaceutical Industries = 5.00 SDG

10.7.2 Calcipotriol + Betamethasone

Indications: Stable plaque psoriasis.

Cautions: In patients with generalized pustular or erythrodermic exfoliative psoriasis (enhanced risk of hypercalcaemia), avoid excessive exposure to sunlight and sun lamps.

Contra-indications: Avoided in patient with calcium metabolism disorder.

Side-effects: Local skin reactions (itiching, erythema, burning, paraesthesia, dermatitis), also photosensitivity, dry skin, rarly facial or perioral dermatitis.

New Item

10.7.3 Dexamethasone

Indications: Suppression of inflammatory and allergic disorders, diagnosis of Cushing's disease, congenital adrenal hyperplasia, cerebral oedema associated with malignancy, croup nausea and vomiting with chemotherapy rheumatic disease, eye.

Dose: By mouth, usual range 0.5–10mg daily, child 10–100micrograms/kg daily. by intramuscular injection or slow intravenous injection or infusion, see under preparations.

Dexamethasone 1.5mg tablet, NMSF net price of Salah Medical Preparation Factory = 0.74 SDG

Dexamethasone Sodium phosphate 4mg/ml, NMSF net price of Merck KGaA =3.00 SDG

Dexamethasone Sodium phosphate 4mg/ml, NMSF net price of Geofman Pharmaceuticals = 1.50 SDG

Dexamethason 0.5mg/5ml Syrup (100ml/Bottle), NMSF net price of Arab Drug Co = 7.00 SDG

10.7.4 Clobetasol propionate

Indications: Short term treatment only of severe resistant inflammatory skin disorders such as recalcitrant eczemas unresponsive to less potent corticosteroids, psoriasis.

Cautions: Avoid prolonged use of a topical corticosteroid on the face. In children avoid prolonged use and use potent or very potent corticosteroids under specialist supervision, extreme caution is required in dermatoses of infancy including nappy rash- treatment should be limited to 5- 7 days.

Contra-indications: Topical corticosteroids are contra-indicated in untreated bacterial, fungal, or viral skin lesions, in acne, in rosacea, and in perioral dermatitis, potent corticosteroid are contra-indicated in wild spreed plaque psoriasis.

Side-effects: Mild and moderately potent topical corticosteroids are associated few side effects but care is required in the use of potent and very potent corticosteroids. Absorption can rarely cause adrenal suppression and even Cushing's syndrome.

Dose: Apply thinly 1-2 times daily for to 4 weeks, max 50g of 0.05% preparation per week.

Clobetazole propionate 0.05% Ointment, NMSF net price of Gulf Pharmaceutical Industries = 8.00 SDG

Clobetazole propionate 0.05% Ointment, NMSF net price of Marcyrl Pharmaceutical = 8.95 SDG

Clobetazole propionate 0.05% Ointment, NMSF net price of The United Pharmaceutical = 10.00 SDG

Clobetazole propionate 0.05% Ointment, NMSF net price of General Medicine Co. = 5.46 SDG

10.7.5 Methyl Prednisolone

Indications: Suppression of inflammatory and allergic disorders, severe inflammatory bowel disease, cerebral oedema associated with malignancy, see also notes above, rheumatic disease skin.

Cautions: Children and adolescents, elderly, frequent monitoring required if history of tuberculosis, hypertension, recent myocardial infarction, congestive heart failure, diabetes mellitus including family history, osteoporosis, glaucoma, ocular herpes simplex risk of corneal perforation, severe affective disorders, epilepsy, peptic ulcer, hypothyrodisim, history of steroid myopathy, ulceravtive, colitis, diverticulitis, recent intestinal anastomoses, thromboembolic disorders, mythania gravis.

Conta-indications: Systemic infection, avoid live virus vaccines in those receiving immunosuppressive doses (serum antibody response diminished).

Dose: By mouth, usual range 2-40mg daily. By intramuscular injection or slow intravenous injection or infusion, initially 10-500mg, graft rejection, up to 1g daily by intravenous infusion for up to 3 days.

MethylPrednisolone Sodium Succsinate 1g injection, NMSF net price of Troikaa Pharmace = 75.00 SDG

MethylPrednisolone Sodium Succsinate1g injection, NMSF net price of Troikaa Pharmaceutical India = 58.16 SDG

MethylPrednisolone Sodium succsinate 500mg injection, NMSF net price of Troikaa Pharmaceuticals = 55.00 SDG

MethylPrednisolone Sodium succsinate 500mg injection, NMSF net price of Troikaa Pharmaceutical India = 40.92 SDG

10.7.6 Triamcinolone

Indications: Suppression of infalammatory and allergic disorders, rheumatic disease, skin.

Cautions: Children and adolescents, elderly, frequent monitoring required if history of Tuberculosis, hypotension, recent myocardial infarction, congestive heart failure, diabetes mellitus including family history osteoporosis, glaucoma, ocular herpes simples-risk of corneal perforation, severe affective disorders, epilepsy, peptic ulcer, hypothyroidism, history of steroid myopathy, ulcerative colitis, diverticulitis, recent intestinal

anastomoses, thromboembolic disorders, myasthenia gravis.

Contra-indications: Systemic infection, avoid live virus vaccines in those receiving immunosuppressive doses.

Side-effects: Diabetes and osteoporosis, vascular necrosis of the femoral head, muscle wasting, Cushing's syndrome, with moon face, striae, and acne, growth suppression, gastrointestinal effects, musculoskeletal effects, neuropsychiatric effects, ophthalmic effect, congestive heart failure, thromboembolism and headache.

Dose: By deep intramuscular injection, into gluteal muscle, 40mg of Acetonide for depot effect, repeated at intervals according to the patient's response, max. single dose 100mg.

Triamcinolone acetonide 40mg/ml, 1ml ampoule, NMSF net price of Zafa Pharmaceutical Laboratories Ltd. = 3.55 SDG
Nystatin + Neomycin + Gramicidin + Triamcinolone 100,000IU + 2.5mg + 0.25mg + 1mg (15g) cream , NMSF net price of Gulf Pharmaceutical Industries = 8.00 SDG

10.8 Obstetrics, Gynecological and Urinary Tract Infection

10.8.1 Ergometrine

Indications: Used to induce absorption or induce or augment labour and to minimize blood loss from the placental site.

Cautions: Cardiac disease, hypertension, multiple pregnancy, acute porphyria.

Contra-indications: Induction of labour, first and second stages of labour, vascular disease, severe cardiac disease, sepsis, severe hypertension, eclampsia.

Side-effects: Nausea, vomiting, abdominal pain, chest pain arrhythmias, palpitation, hypertension, vasoconstriction, dyspnoea, pulmonary oedema, headache, dizziness, tinnitus, rash, very rarely myocardial infarction.

Dose: By intramuscular injection, 1ml, by intravenous injection, no longer recommended.

Ergometrine maleate 0.5mg/1ml for i.m., i.v. use, NMSF net price of Panpharma (Rotex-Medica) = 4.00 SDG
Methylergometrine 0.2mg/ml injection, NMSF net price of Novartis Pharma Services Incorporation = 5.50 SDG

11 Antidotes and Other Substances used in Poisonings

11.1 Non-specific

11.1.1 Activated Charcoal

Indication: Treatment of acute poisoning.

Contra-indications: Poisoning by hydrocarbons with high potential for harm if aspirated, poisoning by corrosive substances (may prevent visualization of lesions caused by the poison).

Side-effects: Black stools, vomiting, constipation or diarrhoea, pneumonitis (due to aspiration).

Dose: Poisoning (reduction of absorption), by mouth, as soon as possible after ingestion of poison, adult, 50-100g as a single dose, infant, 1g/kg as a single dose, child 1-12 years, 25g as a single dose (50g in severe poisoning). Poisoning (active elimination), by mouth, adult, 50g every 4 hours (in case of in tolerance 25g every 2 hours), infant, 1g/kg every 4-6 hours, child over 1 year, 25-50g every 4-6 hours.

Compounded charcoal tablet, NMSF net price of F. Trenka = 0.70 SDG

11.2 Specific

11.2.1 Acetylcysteine

Indication: Paracetamol overdosage.

Side-effects: Hypersensitivity-like reactions may be managed by reducing infusion rate or suspending infusion until reaction has settled (specialist advice may be needed), rash may be managed with an Antihistamine, for example Chlorphenamine, and acute asthma with a short-acting beta 2-agonist, such as Salbutamol.

Dose: Paracetamol overdosage, by intravenous infusion, adult and child, initially 150mg/kg over 15 minutes, then 50mg/kg over 4 hours, then-100mg/kg over 16 hours.

Adminstration dilute requisite dose in glucose intravenous infusion solution, 5% as follows: adult and child over 12 years, initially 200ml given over 15 minutes, then 500ml over 4 hours, then 1 litre over 16 hours: child under 12 years with a body weight over 20kg, initially 100ml given over 15 minutes, then 250ml over 4 hours, then 500ml over 16 hours, child under 12 years with a bodyweight under 20kg, initially 3ml/kg given over 15 minutes, then 7ml/kg over 4 hours, then 14ml/kg over 16 hours.

Acetylcysteine 200mg/ml, 5ml for inj, NMSF net price of Neon Laboratories Ltd = 200.00 SDG
Acetylcysteine 200mg/ml, 10ml for inj, NMSF net price of Martindale = 30.00 SDG

11.2.2 Naloxone

Indicatoin: Opioid overdosage, postoperative respiratory depression.

Side-effects: Nausea, vomiting, and sweating (may also be due to opioid withdrawal).

Dose: Overdosage of opioids, by intravenous injection, adult, 0.4-2mg repeated at intervals of 2-3 minutes up to a maximum of 10mg, question diagnosis if respiratory function does not improve, child, 10micrograms/kg, a subsequent dose of 100micrograms/kg may be given if no response.

Naloxone HCl 0.4mg/ml, NMSF net price of Fresenius Kabi = 3.50 SDG
Naloxone HCl 0.4mg/ml, NMSF net price of Bodene = 4.00 SDG

11.2.3 Folinic Acid (Calcium Folinate)

Indications: Used to counteract the folate-antagonist action of Methotrexate and thus speed recovery from Methotrexate - induced mucositis or myelosuppression, also used in Methotrexate overdose, together with other measures to maintain fluid and electrolyte balance, and to manage possible renal failure.

Cautions: Avoid simultaneous administration of Methotrexate, not indicated for pernicious anaemia or other megaloblastic anaemias caused by Vitamin B12 deficiency.

Contra-indications: Intrathecal injection.

Side-effects: Rarely pyrexia after parenteral use, insomnia, agitation, and depression after high doses.

Dose: Prevention of Methotrexate induced adverse effects, usually started 12-24 hours after start of Methotrexate infusion, repeated every 6 hours for 24 hours.

Calcium Folinate (Leucovorin Calcium) 50mg inj, NMSF net price of Fresenius Kabi = 25.00 SDG
Calcium Folinate (Leucovorin Calcium) 50mg inj, NMSF net price of Ebewe Pharma = 40.00 SDG
Calcium Folinate (Leucovorin Calcium) 50mg inj, NMSF net price of Hospira = 51.10 SDG
Calcium Folinate (Leucovorin Calcium) 50mg inj, NMSF net price of Korea United Pharm INC. = 28.75 SDG
Calcium Folinate (Leucovorin Calcium) 50mg inj, NMSF net price of Pharmedic Laboratories (Pvt) Ltd. = 14.80 SDG

11.2.4 Sodium Thiosulfate

Indications: In conjunction with sodium nitrate for cyanide poisoning.

Dose: By intravenous injection over 10 minutes (as Sodium thiosulfate injection 500mg/ml), 12.5g, dose may be repeated in severe cyanide poisoning if Dicobalt edentate not available, child 400mg/kg (max. 12.5g), dose may be repeated in severe cyanide poisoning if Dicoblat edentate not available.

New Item

11.2.5 Flumazenil

Indications: Reversal of sedative effects of Benzodiazepines in Anaesthetic, intensive care, and clinical procedures, overdosage with Benzodiazepines.

Contra-indications: Life-threatening condition (e.g. raised intracranial pressure, status epilepticus) controlled by Benzodiazepines.

Side-effects: Nausea and vomiting, less commonly palpitation, anxiety, fear, also reported transient hypertension, tachycardia, flushing, agitation, convulsions (particularly in those with epilepsy), dizziness, sensory disturbance, chills, sweating.

Dose: Anesthesia and clinical procedures, by intravenous injection, 200micrograms over 15 seconds, then 100micrograms at 60-second intervals if required, usual dose range, 300-600micrograms, max. total dose 1mg, child 1 month-18 years. Intensive care, by intravenous injection, 300micrograms over 15 seconds, then 100micrograms at 60-second intervals if required, max. total dose 2mg, then if drowsiness recurs either, by intravenous injection, 300micrograms, or by intravenous infusion, 100-400micrograms/hour, adjusted according to response, child 1 month-18 years.

Flumazenil 1mg/ml, 5ml Ampoule, NMSF net price of F.Hoffmann-La Roche Ltd = 200.00 SDG

11.2.6 Mesna

Indications: Haemorrhagic cystitis is a common manifestation of urothelial toxicity which occurs with the Oxazaphosphorines, Cyclophosphamide and Ifosfamide, it is caused by the metabolite acrolein. Mesna reacts specifically with this metabolite in the urinary tract, preventing toxicity. Mesna is used routinely (preferably by mouth) in patients receiving Ifosfamide, and in patients receiving Cyclophosphamide by the intravenous route at a high dose (e.g. more than 2g) or in those who experienced urothelial toxicity when given Cyclophosphamide previously.

Contra-indications: Hypersensitivity to thiol-containing compounds.

Side-effect: Nausea, vomiting, colic, diarrhoea, fatigue, headache, limb and joint pains, depression, irritability, rash, hypotension and tachycardia, rarely hypersensitivity reactions (common in patients with auto-immune disorders).

Dose: Calculated according Oxazaphosphorine (Cyclophosphamide or Ifosfamide) treatment consult product literature.

Mesna (Sodium Mercaptoethane Sulfonate) 400mg/4ml for inj, NMSF net price of Baxter Ag = 26.2 SDG

Mesna (Sodium Mercaptoethane Sulfonate) 400mg/4ml for inj, NMSF net price of Biochem Pharmaceutical India = 11.00 SDG

Mesna (Sodium Mercaptoethane Sulfonate) 400mg/4ml for inj, NMSF net price of Baxter Oncology GMBH = 27.87 SDG

Mesna (Sodium Mercaptoethane Sulfonate) 400mg/4ml for inj, NMSF net price of Naprod Lifescience = 8.00 SDG

Mesna 400mg tab, NMSF net price of Baxter AG = 42.87 SDG

Mesna 400mg tab, NMSF net price of Baxter Oncology GMBH = 45.60 SDG

11.2.7 Pralidoxime Chloride

Indications: Adjunct to Atropine in the treatment of poisoning by Organophosphorus insecticide or nerve agent.

Cautions: Myasthenia gravis.

Contra-indications: Poisoning with Carbamates or with Organophosphorus compounds without anticholinesterase activity.

Side-effects: Drowsiness, dizziness, disturbances of vision, nausea, tachycardia, headache, hyperventilation, and muscular weakness.

Dose: Intravenous infusion, adult and child initially 30mg/kg over 20 minutes, followed by 8mg/kg/hour, usual max.12g in 24 hours.

Pralidoxime Chloride, NMSF net price = New item

11.2.8 Desferrioxamine

Indications: Acute iron poisoning, chronic iron overload, aluminium overload.

Side-effects: Hypotension (especially when given too rapidly by intravenous injection), disturbances of hearing and vision (including lensopacity and retinopathy), injection-site reactions, gastrointestinal disturbances, asthma, fever, headache, arthralgia and myalgia, very rarely anaphylaxis, Acute Respiratory Distress Syndrome, neurological disturbances (including dizziness, neuropathy, and paraesthesia), Yersinia and mucormycosis infections, rash, renal impairment, and blood dyscrasias.

Dose: By continuous intravenous infusion, adult and child up to 15mg/kg/hour, reduced after 4-6 hours, max.80mg/kg in 24 hours.

Desferrioxamine 500mg/vial, NMSF net price of Novartis Pharma Services Incorporation = 31.00 SDG

11.2.9 Digibind

Indications: Digoxin-specific antibody fragments are indicated for the treatment of known or strongly suspected Digoxin or other cardiacglycoside over dosage when measures beyond the withdrawal of the cardiacglycoside and correction of any electrolyte abnormalities are felt to be necessary.

Digibind, NMSF net price = New item

11.2.10 Protamine Sulfate

Indications: Antidote to overdosage with Heparin sodium.

Side-effect: Nausea, vomiting, lassitude, flushing, hypotension, bradycardia, dyspnoea, allergic reactions including angioedema and anaphylaxis.

Dose: Heparin overdose, by intravenous injection over approximately 10 minutes, adult, 1mg neutralizes 80-100IU Heparin sodium when given within 15 minutes, if longer time, less Protamine is needed as Heparin is rapidly excreted.

Protamine sulfate 10mg/ml for inj, 5ml vial, NMSF net price of CP Pharmaceutica = 76.00 SDG

Protamine sulfate 10mg/ml for inj, 5ml vial, NMSF net price of Wockhardt (U.K) = 35.00 SDG

12 Oxytocics

12.1 Ergometrine Maleate for I.M injection 0.5mg/ml, 1ml ampoule

Indications: Prevention and treatment of postpartum and post-abortion haemorrhage in emergency situations and where Oxytocin not available.

Contra-indications: Induction of labour, first and second stages of labour, vascular disease, severe cardiac disease especially angina pectoris, severe hypertension, severe renal and hepatic impairment, sepsis, eclampsia.

Cautions: Cardiac disease, hypertension, hepatic impairment renal impairment multiple pregnancy, porphyria.

Side-effects: Nausea, vomiting, headache, dizziness, tinnitus, abdominal pain, chest pain, palpitations, dyspnoea, bradycardia, transient hypertension, vasoconstriction, stroke, myocardial infarction and pulmonary oedema also reported.

Dose: Prevention and treatment of postpartum haemorrhage, by intramuscular injection, adult, 200micrograms when the anterior shoulder is delivered or immediately after birth. Excessive uterine bleeding, by slow intravenous injection adult, 250-500microgram when the anterior shoulder is delivered or immediately after birth.

Ergometrine Maleate 0.5mg/1ml, NMSF net price of Panpharma (Rotex- Medica) = 4.00 SDG

12.2 Misoprostol 200mcg scored vaginal tablet

Indications: Induction of labour, medical termination of intrauterine pregnancy of up to 63 days gestation with Mifepristone.

Contra-indications: Induction of labour. Placenta praevia or unexplained vaginal bleeding during pregnancy, ruptured membranes, major cephalopelvic disproportion or fetal malpresentation, history of cesarean section or major uterine surgery, untreated pelvic infection, fetal distress, grand multiparas and multiple pregnancy, history of difficult or traumatic delivery.

Cautions: Induction of labour conditions where hypotension might precipitate severe complications (for example, cerebrovascular disease or cardiovascular disease). History of cesarean section or major uterine surgery, grandmultiparas (risk of rupture).

Side-effects: Uterine hyperstimulation, uterine rupture, fetal distress, less commonly in obstetric setting diarrhoea, abdominal pain, dyspepsia, flatulence, nausea and vomiting, rash, dizziness.

Dose: Induction of labour, by vagina, adult, initially 25micrograms, repeated after 6 hours if necessary, if still no response, increase to 50micrograms every 6 hours for up to 4 doses.

NOTE. Should it be necessary to continue induction of labour with Oxytocin, administration of Oxytocin should be avoided within 8 hours of using Misoprostol medical termination of intrauterine pregnancy of up to 63 days gestation, by vagina, adult misoprostol, 800micrograms 36–48 hours after Mifepristone, 200mg as a single dose by mouth (unless abortion already complete) and individual observed for at least 6 hours (or until bleeding or pain at acceptable level) with follow-up visit 10–15 days later to verify complete expulsion (if treatment fails essential that pregnancy terminated by another method).

Administration: For medical termination of pregnancy, oral tablets may be administered vaginally if a suitable vaginal preparation is not available, for induction of labour, low-dose vaginal tablets should be used, but if these are not available, 100-microgram oral tablets [not included on the 15th WHO Model List] can be divided to the required dose and administered vaginally.

Misoprostol 200mcg scored vaginal tablet, NMSF net price of Sigma Pharmaceutical Industries = 4.50 SDG

12.3 Oxytocin

Indications: Routine prevention and treatment of postpartum and post-abortion haemorrhage, induction of labour.

Contra-indications: Hypertonic uterine contractions, mechanical obstruction to delivery, fetal distress, any condition where spontaneous labour or vaginal delivery in advisable, avoid prolonged administration in oxytocin resistant uterine inertia, in severe pre-eclamptic toxaemia, or in severe cardiovascular disease, major cephalopelvic disproportion.

Cautions: Induction or enhancement of labour in presence of borderline cephalopelvic disproportion (avoid if significant), mild to moderate pregnancy-associated hypertension or cardiac disease, age over 35 years, history of low-uterine segment cesarean section, avoid tumultuous labour if fetal death or meconium-stained amniotic fluid (risk of amniotic fluid embolism) occurs, water intoxication and hyponatremia (avoid large volume infusions and restrict fluid intake), caudal block anesthesia (risk of severe hypertension due to enhanced vasopressor effect of sympathomimetics).

Side-effects: Uterine spasm, and uterine hyperstimulation (usually with excessive doses, may cause fetal distress, as phyxia and death, or may lead to hypertonicity, titanic contractions, soft-tissue damage, or uterine rupture), water intoxication and hyponatremia (with high doses and large-volume infusions), nausea, vomiting arrhythmias, rash and anaphylactoid reactions also reported.

Dose: Induction of labour, by intravenous infusion adult, initially 0.001–0.002IU/minute increased in 0.001–0.002IU/minute increments at intervals of 30 minutes until up to 3–4 contractions occur every 10 minutes, maximum rate, 0.02IU/minute.

NOTE: The dose shown above is suitable for use in hospital where equipment to control the infusion rate is available, alternative recommendations may be suitable for other settings.

Oxytocin 10IU/ml , NMSF net price (16.66mcg/ml), NMSF net price of Panpharma (Rotex-Medica) = 2.50 SDG

12.4 Clomifene Citrate (Clomiphene Citrate)

Indications: Anovulatory infertility.

Cautions: Polycystic Ovary Syndrome (cysts may enlarge during treatment, also risk of exaggerated response to usual doses), Ovarian Hyperstimulation Syndrome, uterine fibroids, ectopic pregnancy, incidence of multiple births increased (consider ultrasound monitoring), visual symptoms (discontinue and initiate ophthalmological examination).

CSM advice:

The CSM has recommended that Clomifene should not normally be used for longer than 6 cycles (possibly increased risk of ovarian cancer).

Contra-indications: Ovarian cysts, hormone-dependent tumours or abnormal uterine bleeding of undetermined cause.

Side-effects: Visual disturbances (withdraw), ovarian hyperstimulation (withdraw), hot flushes, abdominal discomfort, occasionally nausea, vomiting, depression, insomnia, breast tenderness, headache, intermenstrual spotting, menorrhagia, endometriosis, convulsions, weight gain, rashes, dizziness, hair loss.

Clomiphene Citrate 50mg tab, NMSF net price of RAM Pharmaceuticals = 1.20 SDG
Clomiphene Citrate 50mg tab, NMSF net price of Codal Synto = 1.04 SDG
Clomiphene Citrate 50mg tab, NMSF net price of Remedica = 1.19 SDG

13 Immunologicals

13.1 Immunoglobulins

13.1.1 Anti-D Immunoglobulin (human)

Indications: Prevention of formation of antibodies to rhesus-positive blood cells in rhesus-negative patients.

Contra-indications: Known hypersensitivity to anti-D immunoglobulin.

Cautions: Rhesus-positive patients receiving treatment for blood disorders, rhesus- negative patients with anti-D antibodies in their serum. Rubella vaccine may be administered in the postpartum period at the same time as anti-D immunoglobulin, but only if separate syringes and contralateral sites are used. If blood is transfused, the antibody response to the vaccine may be inhibited (measure rubella antibodies after 8 weeks and revaccinate if necessary).

Side-effects: Nausea, vomiting, diarrhoea, abdominal pain, hypotension, hypertension, headache, fever, malaise, asthenia, drowsiness, dizziness, back pain, arthralgia, myalgia, pruritus, rash, sweating, injection site pain anaphylaxis, dyspnoea, hypotension, and urticaria, (for side-effects associated with intravenous immunoglobulins).

Dose: Following birth of a rhesus-positive infant to arhesus-negative mother, by intramuscular injection, adult, 250micrograms immediately or within 72 hours of birth (see also introductory note above). Following any potentially sensitizing episode (for example, amniocentesis, still birth), by intramuscular injection adult, up to 20 weeks' gestation, 250micrograms per episode (after 20 weeks, 500micrograms) immediately or within 72 hours (see also introductory note above). Following Rho-D incompatible blood transfusion, by intramuscular injection, adult, 10–20micrograms/ml transfused rhesus-positive blood.

Monoclonal Anti-Rho-D immunoglobulin 300mcg/2ml (1500iu) for i.v., NMSF net price of CSL Behring = 225.00 SDG

13.1.2 Antitetanus Immunoglobulin

Indications: Post-exposure prophylaxis and treatment of tetanus infection.

Cautions: IgA deficiency, interference with live virus vaccines.

Side-effects: Injection site swelling and pain, rarely anaphylaxis.

Dose: Post-exposure prophylaxis, by intramuscular injection 250units, increased to 500 units if more than 24hours have elapsed or there is risk of heavy contamination or following burns.

Anti-Tetanus Immunoglobulin 250IU powder for inj, NMSF net price of CSL BSL Behring GmbH / Germany=75.00SDG

13.1.3 Diphtheria Antitoxin

Indications: Passive immunization in suspected cases of diphtheria.

Cautions: Initial test dose to exclude hypersensitivity, observation required after full dose Epinephrine (Adrenaline) and resuscitation facilities should be available.

Side-effects: Anaphylaxis with urticaria, hypotension, dyspnoea, and shock, serum sickness up to 12 days after injection.

Dose: Passive immunization in suspected diphtheria (see Precautions), by intramuscular injection, adult and child, 10000-30000IU in mild to moderate cases, 40000-100000IU in severe cases (doses of more than 40000IU should be given in divided doses, the first portion by intramuscular injection, followed by the bulk of the dose by intravenous injection after an interval of 0.5–2 hours).

Diphtheria Antitoxin 10000IU, NMSF net price of Vins Bioproducts Ltd-India = 405.00 SDG

13.1.4 Human normal Immunoglobulin

Indications: Normal immunoglobulin (containing 10%–18%) is administered by intramuscular injection for the protection of susceptible contacts against hepatitis A virus (infectious hepatitis), measles and, to a lesser extent, rubella. Injection of immunoglobulin produces immediate protection lasting several weeks. Normal immunoglobulin (containing 3%–12% protein) for intravenous administration is used as replacement therapy for patients with congenital agammaglobulinaemia and hypogammaglobulinaemia, and for the short-term treatment of idiopathic thrombocytopenic purpura and Kawasaki Syndrome, it is also used for the prophylaxis of infection following bone-marrow transplantation and in children with symptomatic HIV infection who have recurrent bacterial infections. Normal immunoglobulin for replacement therapy may also be given intramuscularly or subcutaneously, but intravenous formulations are normally preferred. Intravenous immunoglobulin is also used in the treatment of Guillain-Barré Syndrome as an alternative to plasma exchange.

Cautions: Hypo-or a gamma globulinaemia with or without IgA deficiency, interference with live virus vaccines. Intravenous use thrombophilic disorders, or risk factors for arterial or venous thromboembolic events, obesity, ensure adequate hydration and renal insufficiency.

Contra-indications: Patients with selective IgA deficiency who have known antibody against IgA.

Side-effects: Nausea, diarrhoea, chills, fever, headache, dizziness, arthralgia, myalgia, musclespasms, low back pain, rarely hypotension,

anaphylaxis, cutaneous skin reactions, aseptic meningitis, acute renal failure, also reported with intravenous use injection site reactions, abdominal pain and distension, blood pressure fluctuations, haemolytic anaemia, thromboembolic events including myocardial infarction, stroke, pulmonary embolism, and deep vein thrombosis.

Dose: Antibody titres can vary widely between normal immunoglobulin preparations from different manufacturers—formulations are not interchangeable, patients should be maintained on the same formulation through out long-term treatment to avoid adverse effects.

Human Normal Immunoglobulin 5gm/100ml for i.v. inj.with 100ml diluents, NMSF net price of CSL Behring AG = 700.00 SDG

Human Normal Immunoglobulin 5gm/100ml for i.v. inj.with 100ml diluents, NMSF net price of LFB Bio Medicament = 700.00 SDG

Human Normal Immunoglobulin 5gm/100ml for i.v. inj.with 100ml diluents, NMSF net price of Octapharma = 700.00 SDG

Human normal Immunoglobulin 5gm/50ml for i.v use, NMSF net price of CSL Behring AG = 700.00 SDG

13.1.5 Hepatitis B Specific Immunoglobulin

Indication: Prophylaxis against hepatitis B infection.

Cautions: IgA deficiency, interference with live virus vaccines which should therefore only be given at least 3 weeks before or 3 months after an injection of normal immunoglobulin.

Side-effects: Injection site reactions, less frequently, buccal ulceration, glossitis, abdominal pain, chest pain, dyspnoea, anaphylaxis, tremor, dizziness, headache, arthralgia, for side-effects associated with intravenous immunoglobulin.

Dose: Disease-specific hepatitis B immunoglobulin ('HBIG') is available for use in association with hepatitis B vaccine for the prevention of infection in laboratory and other personnel who have been accidentally inoculated with hepatitis B virus, and in infants born to mothers who have become infected with this virus in pregnancy or who are high-risk carriers. Hepatitis B immunoglobulin will not inhibit the antibody response when given at the same time as hepatitis B vaccine but should be given at different sites. An intravenous and subcutaneous preparation of hepatitis B-specific immunoglobulin is licensed for the prevention of hepatitis B recurrence in HBV-DNA negative patients who have under gone liver transplantation for liver failure caused by the virus. Prevention of hepatitis B re-infection more than 6 months after liver transplantation in stable HBV-DNA negative patients starting 2–3 weeks after last dose of intravenous hepatitis B immunoglobulin by subcutaneous injection, adult body-weight under 75kg 500 units once weekly, increased if necessary up to 1000units once weekly, body-weight over 75kg 1000units once weekly by intravenous infusion, after exposure to hepatitis B virus-contaminated material-consult product literature Prevention of transmitted infection at birth-consult product literature Prevention of hepatitis B in haemodialysed patients, prophylaxis against re-infection of transplanted liver-consult product literature.

HepatitisB specific Immunoglobulin 100U/ml, 2ml, NMSF net price of CSL Behring GmbH / Germany = 300.00 SDG

13.2 Vaccines

13.2.1 Rabies Vaccine

Indications: Immunisation against rabies.

Cautions: Most individuals can safely receive the majority of vaccines. Vaccination may be postponed if the individual is suffering from an acute illness, however, it is not necessary to postpone immunisatioin patients with minor illnesses without fever or systemic upset. See also Predisposition to Neurological Problems, below. For individuals with bleeding disorders, see route of administration, below. If alcohol or disinfectant is used for cleansing the skin it should be allowed to evaporate before vaccination to prevent possible inactivation of live vaccines.When 2 or more vaccines are required they should be given simultaneously at different sites, preferably in a different limb, if more than one injection is to be given in the same limb, they should be administered at least 2.5cm apart. When 2 live vaccines can not be given at the same time, they should be separated by an interval of at least 4 weeks.

Contra-indications: Vaccines are contra-indicated in those who have a confirmed anaphylactic reaction to a preceding dose of a vaccine containing the same antigens or vaccine component

(such as antibacterials in viral vaccines). The presence of the following excipients in vaccines and immunological products has been noted under the relevant entries:

Gelatin	Penicillins
Gentamicin	Polymyxin B
Kanamycin	Streptomycin
Neomycin	Thiomersal

Hypersensitivity to egg with evidence of previous anaphylactic reaction, contra-indicates influenza vaccine (prepared in hens'eggs), tick-borne encephalitis vaccine, and yellow fever vaccine. Live vaccines may be contra-indicated temporarily in individuals who are: Immunosuppressed, pregnant.

Dose: Pre-exposure prophylaxis, by intramuscular injection in deltoid region or anterolateral thigh in infants, 1ml on days 0, 7, and 21 or 28, for those at continued risk give a single reinforcing dose 1 year after the primary course is completed and booster doses every 3-5 years, for those at intermittent risk give booster doses every 2-5 years Post-exposure prophylaxis, by intramuscular injection in deltoid region or anterolateral thigh in infants, 1ml.

Rabies vaccine single dose solution 1ml/amp, (Human diploid cell), NMSF net price of Zydus Cadila Healthcare = 60.00 SDG

Rabies vaccine single dose powder for injection (vero cell), NMSF net price of Sanofi Aventis (France) = 65.00 SDG

Rabies vaccine single dose powder for injection (Purified Duck Embryo), NMSF net price of Cadilla Healthcare Ltd. = 65.00 SDG

Rabies immunoglobulin 150IU/ml 2ml amp. , NMSF net price of CSL-Behring Gmbh Germany = 300.00 SDG

13.2.2 Influenza Vaccine

Indications: Annual immunization against seasonal influenza, immunization against influenza during a pandemic.

Cautions: Most individuals can safely receive the majority of vaccines. Vaccination may be postponed if the individual is suffering from an acute illness, however, it is not necessary to postpone immunization in patients with minor illnesses without fever or systemic upset. For individuals with bleeding disorders, see route of administration, below. If alcohol or disinfectant is used for cleansing the skin it should be allowed to evaporate before vaccination to prevent possible inactivation of live vaccines. When 2 or more vaccines are required they should be given simultaneously at different sites, preferably in a different limb, if more than one injection is to be given in the same limb, they should be administered at least 2.5cm apart See also Cautions under individual vaccines.

Contra-indications: Vaccines are contra-indicated in those who have a confirmed anaphylactic reaction to a preceding dose of a vaccine containing the same antigens or vaccine component (such as antibacterials in viral vaccines). The presence of the following excipients in vaccines and immunological products has been noted under the relevant entries:

Gelatin	Penicillins
Gentamicin	Polymyxin B
Kanamycin	Streptomycin
Neomycin	Thiomersal

Hypersensitivity to egg with evidence previous anaphylactic reaction, contra-indicates influenza vaccine tick-borne encephalitis vaccine, and yellow fever vaccine. Live vaccines may be contra-indicated temporarily in individuals who are: immunosuppressed, pregnant.

Side-effects: Injection of a vaccine may be followed by local reactions such as pain, inflammation, redness, and lymphangitis. An in duration or sterile abscess may develop at the injection site. Gastro-intestinal disturbances, fever, headache, irritability, loss of appetite, fatigue, myalgia, and malaise are among the most commonly reported side-effects. Other side-effects include influenza-like symptoms, dizziness, paraesthesia, asthenia, drowsiness, arthralgia, rash, and lymphadenopathy. Hypersensitivity reactions, such as bronchospasm, angioedema, urticaria, and anaphylaxis, are very rare but can be fatal.

Dose: By intramuscular injection, adult and child over 13 years, 0.5ml as a single dose, child 6 months-3 years, 0.25-0.5ml, 3-13 years 0.5ml for children 6 Months to 13 years who have not received seasonal influenza vaccine previously, repeat after 4-6 weeks.

Influenza vaccine suspension of inactivated Influanza virus 0.5ml prefilled Syringe, NMSF net price of Sanofi Pasteur = 35.00 SDG
Influenza vaccine suspension of inactivated Influanza virus 0.5ml prefilled Syringe, NMSF net price of Qualipharma (Sanofi) = 35.00

13.2.3 Hepatitis B Vaccine

Indications: Active immunization against hepatitis B.

Cautions: Diabetes mellitus, chronic renal failure.

Dose: Primary immunization of children against hepatitis B (3-dose schedule), by intramuscular injection, child, 1 dose of 0.5ml given between 6 weeks and 15 years of age, followed by 2 doses, each of 0.5 ml given at intervals of 4 weeks, alternatively, 1 dose of 0.5 ml at birth, followed by 2 doses, each of 0.5 ml, given at 6 and 14 weeks of age. Primary immunization of children against hepatitis B (4-doses schedule), by intramuscular injection, child, 1 dose of 0.5ml at birth, followed by 3 doses, each of 0.5 ml, at 6,10, and 14 weeks of age.

Hepatitis B vaccine 20µg/ml, 5ml vial for I.M inj, NMSF net price of Serum Institute India = 10.00 SDG
Hepatitis B vaccine 20µg/ml, 5ml vial for I.M inj, NMSF net price of Glaxo Welcome = 43.00 SDG

13.2.4 Meningococcal Polysaccharide A and C, or A,C,W 135, and Y Vaccines

Indications: Active immunization against meningitis and septicaemia caused by N. Meningitidis serogroups A and C or serogroups A, C, W 135 and Y.

Cautions: Most individuals can safely receive the majority of vaccines. Vaccination may be postponed if the individual is suffering from an acute illness; however, it is not necessary to postpone immunization in patients with minor illnesses without fever or systemic upset. For individuals with bleeding disorders, see route of administration, below. If alcohol or disinfectant is used for cleansing the skin it should be allowed to evaporate before vaccination to prevent possible inactivation of live vaccines. When 2 or more vaccines are required (and are not available as a combined preparation), they should be given simultaneously at different sites, preferably in a different limb, if more than one injection is to be given in the same limb, they should be administered at least 2.5cm apart. When 2 live vaccines can not be given at the sametime, they should be separated by an interval of at least 4 weeks.

Contra-indications: Vaccines are contra-indicated in those who have a confirmed anaphylactic reaction to a preceding dose of a vaccine containing the same antigens or vaccine component (such as antibacterials in viral vaccines). The presence of the following excipients in vaccines and immunological products has been noted under the relevant entries.

Gelatin	Penicillins
Gentamicin	Polymyxin B
Kanamycin	Streptomycin
Neomycin	Thiomersal

Side-effects: Rarely symptoms of meningitis reported (but no evidence that the vaccine causes meningococcal C meningitis). Powder for injection, in activated polysaccharide antigens of neisseria.

Dose: Immunization against infection by N. Meningitidis is (serogroups A and C, or A, C, W135, and Y), by subcutaneous injection, adult and child, 0.5 ml as a single dose.

Meningococcal polysaccharide vaccine group A+C vial 10dose, NMSF net price of Sanofi Pasteur France = 165.00 SDG
Meningococcal polysaccharide vaccine group A, C, Y and W135 combined 10 dose/vial and 6ml vial of diluents, NMSF net price of Sanofi Pasteur U.S.A = 480 SDG
Meningococcal polysaccharide vaccine group A, C, Y and W135 combined 10 dose/vial and 6ml vial of diluents, NMSF net price of Qualipharma = 480 SDG

13.2.5 Yellow Fever Vaccine

Indications: Active immunization against yellow fever.

Contra-indication: Not recommended for infants under months of age.

Dose: Immunization of children against yellow fever, by deep subcutaneous or intramuscular injection, infant at 9–12 months, 0.5ml as a single dose. Immunization of travelers and other at-risk individuals against yellow fever, by deep subcutaneous or intramuscular injection, adult and child over 9 months, 0.5 ml as a single dose.

Side-effects: See introductory notes, also headache, myalgia, weakness, very rarely encephalitis (infants more susceptible), viscera tropic disease, multiple organ failure (the elderly more susceptible).

Yellow fever vaccine powder for suspension for inj. 10 dose vail, NMSF net price of Sanofi Pasteur France = 250.00 SDG
Yellow fever vaccine powder for suspension for inj 10 dose /vail, NMSF net price of Qualipharma (Sanofi) = 250.00 SDG

13.2.6 Pneumococcal Vaccine

Indications: Active immunization against Streptococcus pneumoniae.

Cautions: Most individuals can safely receive the majority of vaccines. Vaccination may be postponed if the individual is suffering from an acute illness, however, it is not necessary to postpone immunization in patients with illnesses without fever or systemic upset. See also Predisposition to Neurological Problems, below for individuals with bleeding disorders, see route of administration, below. If alcohol or disinfectant is used for cleansing the skin it should be allowed to evaporate before vaccination to prevent possible inactivation of live vaccines. When 2 or more vaccines are required (and are not available as a combined preparation), they should be given simultaneously at different sites, preferably in a different limb, if more than one injection is to be given in the same limb, they should be administered at least 2.5cm apart. When 2 live vaccines cannot be given at the sametime, they should be separated by an interval of at least 4 weeks.

Contra-indications: Vaccines are contra-indicated in those who have a confirmed anaphylactic reaction to a preceding dose of a vaccine containing the same antigens or vaccine component (such as antibacterials in viral vaccines). The presence of the following excipients in vaccines and immunological products has been noted under the relevant entries.

Gelatin	Penicillins
Gentamicin	PolymyxinB
Kanamycin	Streptomycin
Neomycin	Thiomersal

Hypersensitivity to egg with evidence previous anaphylactic reaction, contra-indicates influenza vaccine tick-borne encephalitis vaccine, and yellow fever vaccine.

Dose: Primary immunization against infection by Streptococcus pneumonia (Heptavalent conjugate vaccine), by intramuscular injection, infant, 3 doses, each of 0.5ml, at 6, 10, and 14 weeks of age alternatively 3 doses, each of 0.5ml, at 2, 4, and 6 months of age, are inforcing dose of 0.5ml can be given at 12–15 months of age child 1–5 years, 0.5ml as a single dose.

Pneumomococal polysaccaride vaccine 0.5ml, NMSF net price of Sanofi Pasteur = 75.00 SDG

14 Cholinesterase Inhibitors

14.1 Neostigmine Metilsulphate

Indications: Myasthenia gravis, reversal of non-depolarizing muscle relaxants administered during surgery, post operative non-obstructive urinary retention.

Contra-indications: Recent intestinal or bladder surgery, mechanical intestinal or urinary tract obstruction, after Suxamethonium, pneumonia, peritonitis.

Cautions: Asthma, urinary tract infections, cardiovascular disease including arrhythmias (especially bradycardia, vagotonia, recent myocardial infarction or atrioventricular block).

Side-effects: Increased salivation, nausea and vomiting, abdominal cramps, diarrhoea, signs of overdosage include bronchoconstriction, increased bronchial secretions, lacrimation, excessive sweating, involuntary defecation and micturition, miosis, nystagmus, bradycardia, heart block, arrhythmias, hypotension, agitation, excessive dreaming, and weakness eventually leading to fasciculation and paralysis, thrombophlebitis reported, rash associated tablet (Bromide salt) formulations.

Dose: Myasthenia gravis, by mouth as Neostigmine bromide, adult, initially 15–30mg at suitable intervals through out the day (usual

duration of action 2-4 hours), gradually increased until desired response is obtained, usual total daily dose within range, 75-300 mg, given at appropriate intervals when high doses are required (doses above 180mg daily are not usually well tolerated) initially 1-2mg every 4 hours, 30 minutes before feeds, child up to 6 years, initially 7.5mg, child 6-12 years, initially 15mg, usual total daily dose, 15-90mg given in divided doses at appropriate intervals. Myasthenia gravis, by subcutaneous or intramuscular injection, adult, 1-2.5mg as required, usual total daily dose, 5-20mg, neonate, 50-250micrograms every 4 hours, 30 minutes before feeds (not usually required beyond 8 weeks of age), child, 200-500micrograms as required. Reversal of non- depolarizing block, by intravenous injection over 1 minute, adult, 2.5mg, followed if necessary by supplements of 500micrograms to maximum total dose of 5mg, child, 40micrograms/kg (titrated using peripheral nerve stimulator). Postoperative urinary retention, by subcutaneous or intramuscular injection, adult, 500micrograms (catheterization required if urine not passed within 1hour).

Neostigmine MetilSulphate 2.5mg/ml for inj, NMSF net price of Laboratories Renaudin = 3.00 SDG

14.2 Pyridostigmine Bromide

Indication: Myasthenia gravis.

Contra-indications: Recent intestinal or bladder surgery, mechanical intestinal or urinary tract obstruction, after Suxamethonium, pneumonia, peritonitis.

Cautions: Asthma, urinary tract infection, cardiovascular disease including arrhythmias(especially bradycardia or atrioventricular block), hyperthyroidism, hypotension, peptic ulcer, epilepsy, parkinsonism, avoid intravenous injection.

Side-effects: Muscarinic effects generally weaker than those associated with Neostigmine, and include increased salivation, nausea and vomiting, abdominal cramps, and diarrhoea, signs of overdosage include bronchoconstriction, increased bronchial secretions, lacrimation, excessive sweating, involuntary defecation and micturition, miosis, nystagmus, bradycardia, heart block, arrhythmias, hypotension, agitation, excessive dreaming, and weakness eventually leading to fasciculation and paralysis, thrombophlebitis, rash associated with tablet (Bromide salt) formulations.

Dose: Myasthenia gravis, by mouth, adult, initially 30–120mg at suitable intervals throughout the day, gradually increased until desired response is obtained, usual total daily dose within range, 0.3-1.2g, given at appropriate intervals when high doses are required (doses above 450mg daily are not usually advisable in order to avoid acetylcholine receptor down regulation) child up to 6 years, initially 30mg, child 6-12 years, initially 60mg, usual total daily dose, 30-360mg given in divided doses at appropriate intervals. Myasthenia gravis, by intramuscular injection, adult, 2mg every 2-3 hours, neonate, 50-150micrograms daily, before feeds (but Neostigmine usually preferred) child 1-12mg daily, given in divided doses at appropriate intervals.

Pyridostigmine bromide 60mg tablet, NMSF net price of Troikaa Pharmaceutical India = 1.00 SDG

14.3 Physostigmine Salicylate

Indications: Physostigmine is used to treat myasthenia gravis, glaucoma, Alzheimer's disease and delayed gastric emptying. It has been shown to improve the short term memory recently, it has begun to be used in the treatment of orthostatic hypotension because it is a tertiary amine (and thus does not hydrogen bond, making it more hydrophobic), it can cross the blood-brain barrier, and Physostigmine Salicylate is used to treat the central nervous system effects of Atropine, Scopolamine and other anticholinergic drug overdoses. Physostigmine is the antidote of choice for Datura Stramonium poisoning. It is also an antidote for Atropa belladonna poisoning the same as for Atropine. It has been also used as an antidote for poisoning with GHB as well, but is poorly effective and often causes additional toxicity, so is not a recommended treatment.

Cautions: Because of the possibility of hypersensitivity in an occasional patient, Atropine Sulfate injection should always be at hand since it is an antagonist and antidote for Physostigmine.

Contra-indications: Physostigmine Salicylate injection should not be used in the presence of asthma, gangrene, diabetes, cardiovascular disease, mechanical obstruction of the intestine or urogenital tract or any vagotonic state, and in patients receiving choline esters and depolarizing neuromuscular blocking agents (Decamethonium, Duccinylcholine).

For post-anesthesia, the concomitant use of Atropine with Physostigmine Salicylate is not recommended, since the Atropine antagonizes the action of Physostigmine.

Side-effects: An overdose can cause cholinergic syndrome. Other side-effects may include nausea, vomiting, diarrhoea, anorexia, dizziness, headache, stomach pain, sweating, dyspepsia and seizures.

Dose: Post Anesthesia Care 0.5 to 1.0mg intramuscularly or intravenously. Dosage may be repeated at intervals of 10 to 30 minutes if desired patient response is not obtained. Pediatric dosage recommended dosage is 0.02mg/kg, intramuscularly or by slow intravenous injection, no more than 0.5mg per minute. If the toxic effects persist, and there is no sign of cholinergic effects, the dosage may be repeated at 5 to10 minute intervals until a therapeutic effect is obtained or a maximum of 2mg dosage is attained.

Physostigmine Salicylate, NMSF net price = New item

15 Antiasthmatics and Medicines for Chronic Obstructive Pulmonary Disease

15.1 Beclomethasone

Indications: Chronic asthma not controlled by short-acting beta 2-adrenoceptor agonists.

Cautions: Active or quiescent Tuberculosis, systemic therapy may be required during periods of stress or when airway obstruction or mucus prevent drug access to smaller airways, not for relief of acute symptoms, monitor height of children receiving prolonged treatment, if grow is slowed, review therapy, interactions.

Side-effects: Oropharyngeal candidosis, cough, and dysphonia (usually only with high doses), adrenal suppression, growth retardation in children and adolescents, impaired bone metabolism, glaucoma, and cataract (with high doses, but less frequent than with systemic corticosteroids), paradoxical bronchospasm (requires discontinuation and alternative therapy but if mild, may be prevented by inhalation of beta 2-adrenoceptor agonist or by transfer from aerosol to powder inhalation), rarely urticaria, rash, and angioedema, very rarely anxiety, sleep disorders, and behavioural changes. Candidosis can be reduced by the use of a spacing device, rinsing the mouth with water after inhalation may also help to prevent candidosis.

Dose: Chronic asthma, by aerosol inhalation (standard-dose inhaler), adult, 200micrograms twice daily or 100micrograms 3–4 times daily (in more severe cases, initially 600–800micrograms daily), child, 50–100micrograms 2–4 times daily or 100–200micrograms twice daily. Chronic asthma, by aerosol inhalation (high-dose inhaler), adult, 500micrograms twice daily or 250micrograms 4 times daily, if necessary may be increased to 500micrograms 4 times daily, child, not recommended.

Beclomethasone 50micrograms per dose (dipropionate) inhalation (aerosol), NMSF net price of Cipla Ltd = 47.00 SDG
Beclomethasone dipropionate IP 100µg/metered dose Suspended in propellant HFA 134a, NMSF net priceof Cipla Ltd = 15.00 SDG
Beclomethasone 250micrograms = New items

15.2 Budesonide

Indications: Prophylaxis of asthma, croup.

Cautions: Paradoxical bronchospasm, the potential for paradoxical bronchospasm (calling for discontinuation and alternative therapy) should be borne in mind mild bronchospasm may be prevented by inhalation of a short-acting $beta_2$ agonist beforehand (or by transfer from an aerosol inhalation to a dry powder inhalation).

Side-effects: Inhaled corticosteroids have considerably fewer systemic effects than oral corticosteroids, but adverse effects have been reported.

High doses of inhaled corticosteroids used for prolonged periods can induce adrenal suppression. Inhaled corticosteroids have been associated with adrenal crisis and coma in children, excessive doses should be avoided. Consider giving a 'steroid

card' to support communication of the risks associated with treatment, and specific written advice to consider corticosteroid replacement during an episode of stress, such as severe intercurrent illness or an operation, to patients using greater than maximum licensed doses of inhaled corticosteroids. Use of other corticosteroid therapy (including topical) or concurrent use of medicines which inhibit corticosteroid metabolism should be taken into account when assessing systemic risk.

High doses of inhaled corticosteroid have been associated with lower respiratory tract infections, including pneumonia, in older patients with chronic obstructive pulmonary disease.

Bone mineral density may be reduced following long-term inhalation of higher doses of corticosteroids, predisposing patients to osteoporosis. It is therefore sensible to ensure that the dose of an inhaled corticosteroid is no higher than necessary to keep a patient's asthma under good control.

In children, growth restriction associated with systemic corticosteroid therapy does not seem to occur with recommended doses of inhaled therapy, although initial growth velocity may be reduced, there appears to be no effect on achieving normal adult height. However, the height and weight of children receiving prolonged treatment with inhaled corticosteroid should be monitored annually, if growth is slowed, referral to a paediatrician should be considered. Large-volume spacer devices should be used for administering inhaled corticosteroids in children less than 15 years, they are also useful in older children and adults, particularly if high doses are required. Spacer devices increase airway deposition and reduce oropharyngeal deposition.

A small risk of glaucoma with prolonged high doses of inhaled corticosteroids has been reported. Hoarseness, dysphonia, throat irritation, and candidiasis of the mouth or throat may occur with inhaled corticosteroids. Paradoxical bronchospasm has been reported very rarely. Anxiety, depression, sleep disturbances, behavioural changes including hyperactivity, irritability, and aggression have been reported, hyperglycaemia, cataracts, skin thinning and bruising have also been reported, Candidiasis, the risk of oral candidiasis can be reduced by using a spacer device with the corticosteroid inhaler rinsing the mouth with water after inhalation of a dose may also be helpful. Antifungal oral suspension or oral gel can be used to treat oral candidiasis without discontinuing therapy

Budesonide aerosol inhalation 200microgram/metered dose, NMSF net price of Astrazenca = 52.70 SDG

Budesonide aerosol inhalation 400microgram/metered dose, NMSF net price of Astrazenca = 70.00 SDG

15.3 Ipratropium Bromide

Indications: Chronic asthma, chronic obstructive pulmonary disease.

Cautions: Prostatic hypertrophy, glaucoma (standard doses unlikely to be harmful but reported with nebulized drug, particularly in association with nebulized salbutamol, care needed to protect patient's eyes from drug powder or nebulized drug), medical supervision necessary for first dose of nebulized solution (risk of paradoxical bronchospasm).

Side-effects: Occasionally dry mouth, rarely urinary retention and constipation, tachycardia and atrial fibrillational so reported.

Dose: Chronic asthma, chronic obstructive pulmonary disease, by aerosol inhalation, adult, 20-40 micrograms, 3-4 times daily, child up to 6 years, 20 micrograms 3 times daily, child 6-12 years, 20-40 micrograms 3 times daily. Chronic obstructive pulmonary disease, by inhalation of nebulized solution, adult, 250-500micrograms 3-4 times daily. Adjunct in acute bronchospasm, by inhalation of nebulized solution, adult, 500micrograms repeated as required, child up to 6 years, 125-250micrograms, maximum, 1mg daily, child 6-12 years 250micrograms, maximum,1mg daily.

Ipratropium bromide 250mcg/metered dose inhalation (aerosol), NMSF net price Pharma Science = 6.00 SDG

15.4 Terbutaline

Indications: Asthma and other conditions associated with reversible airway obstruction, premature labour.

Cautions: Hyperthyrodisim, cardiovascular disease, arrhythmias, diabetes.

Side-effects: Tremor, nervous tension, headache, headache, musclecramp, palpitation, tachycardia, arrhythmias, peripheral vasodilation, myocardial ischaemia, disturbances of sleep and behavior, pa radoxicalbronchospasm,urticaria, angioedema, hypotension, and collapse.

Dose: By mouth initially 2.5mg 3 times daily for 1-2 weeks, then up to 5mg 3 times daily, child 1 month-7 years 75mcg/kg 3 times daily, 7-15 years 2.5mg 2-3 times daily.

By subcutaneous or slow intravenous injection, 250- 500mcg/kg to a max. of 300mcg.

By continuous intravenous infusion as a solution containing 3-5mcg/ml, 90-300mcg/hour for 8-10 hours, child 1 month-18 years, initially 2-4mcg/kg as a loading dose, then 1-10mcg/kg/hour according to response and heart rate.

By inhalation of powder, adult and child over 5 years, 500mcg for persistent symptoms up to 4 times daily.

By inhalation of nebulised solution, 5-10mg 2-4 times daily additional doses may be necessary in severe acute asthma, child under 5 years 5mg 2-4 times daily, 5-12 years 5-10mg 2-4 times daily

Terbutaline 1.5mg/5ml Syrup (100ml/Bottle), NMSF net price of Medpharma Pharmaceuticals = 17.00 SDG

15.5 Salbutamol

Indications: Prophylaxis and treatment of asthma.

Cautions: Hyperthyroidism, myocardial insufficiency, arrhythmias, susceptibility to QT interval prolongation, hypertension, pregnancy (high doses should be given by inhalation because parenteral use can affect the myometrium and possibly cause cardiac problems.

Side-effects: Hypokalaemia after high doses arrhythmias, tachycardia, palpitations, fine tremor (usually hands), and muscle cramps, headache, insomnia, behavioural disturbances in children, paradoxical bronchospasm, urticaria, and angioedema also reported slight pain on intramuscular injection.

Dose: Chronic asthma (when inhalation is ineffective) by mouth, adult, 2-4mg, 3-4 times daily in some patients up to a maximum of 8mg 3-4 times daily child under 2 years, 100micrograms/kg 4 times daily, child 2-6 years,1-2mg 3-4 times daily child 6-12 years, 2mg 3-4 times daily. Severe acute bronchospasm, by slow intravenous injection adult 250micrograms, repeated if necessary. Relief of acute bronchospasm, by aerosol inhalation adult, 100-200micrograms (1-2 puffs) child, 100micrograms(1puff) increased to 200micrograms(2puffs) if necessary, by intramuscular or subcutaneous injection, adult, 500micrograms repeated every 4 hours if necessary. Prophylaxis of exercise-induced bronchospasm, aerosol inhalation, adult, 200micrograms (2puffs), child, 100micrograms (1puff) increased to 200 micrograms (2puffs) if required. Chronic asthma (as adjunct in stepped treatment), by aerosol inhalation, adult, 100-200 micrograms (1-2puffs) up to 3-4 times daily child100micrograms (1puff) 3-4 times daily, increased to 200micrograms (2puffs) 3-4 times daily if necessary. Severe acute asthma, chronic bronchospasm (unresponsive to conventional treatment), by inhalation of nebulized solution, adult and child over 18months ,2.5mg repeated up to 4 times daily, may be increased to 5mg if necessary (medical assessment should be considered since alternative therapy may be indicated), child under 18 months, clinical efficacy uncertain (transient hypoxaemia may occur-consider oxygen supplementation).

Salbutamol 100micrograms (as sulfate) per dose Inhalation (aerosol), NMSF net price of Glaxo Wellcome = 20.00 SDG

Salbutamol 2mg/5ml Oral liquid, NMSF net price of Glaxo Wellcome = 10.00 SDG

Salbutamol (as sulfate) 5mg/ml respirator solution for use in nebulizers, NMSF net price of glaxo Wellcome = 15.00 SDG

Salbutamol tablet 2mg, NMSF net price of Gulf Pharmaceuticals Industries = 0.11 SDG

Salbutamol tablet 4mg (as sulfate), NMSF net priceof Cima = 0.11 SDG

15.6 Aminophylline

Indications: Reversible airways obstruction, severe acute asthma.

Cautions: Cardiac arrhythmias or other cardiac

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disease, hypertension, hyperthyroidism, pepticulcer, epilepsy, elderly, fever, hypokalaemia risk, avoid in acute porphyria monitor plasma-Theophylline concentration dose adjustment may be necessary if smoking started or stopped during treatment.

Side-effects: Allergy to Ethylenediamine can cause urticaria, erythema, and exfoliative dermatitis, hypotension, arrhythmias, and convulsions especially if given rapidly by intravenous injection.

Dose: 250-500mg every 12 hours, child 6-12 years 125-250mg every 12 hours.

Aminophylline 250mg for inj. 10ml Ampoule, NMSF net price of Laboratories Renaudin = 4.00 SDG

16 Cough Preparations

16.1 Pholcodine

Indications: Dry cough.

Cautions: Asthma, chronic, persistent, or productive cough.

Contra-indications: Chronic bronchitis, chronic obstructive pulmonary disease, bronchiectasis, paients at risk of respiratory failure.

Side-effects: Nausea, vomiting, constipation, sputum retention, drowsiness, dizziness, excitation, confusion and rash.

Dose: 10ml 3-4 times daily, child 6-12 years 2.5-5ml.

New Item

16.2 Ketotifen

Indications: Allergic rhinitis.

Cautions: Should be used in caution in prostatic hypertrophy, urinary retention, susceptibility to angle closure glaucoma, and pyloroduodenal obstruction, also caution may be required in epilepsy.

Contra-indications: In children and eldery should be avoided in acute porphyria but some are thought to be safe.

Side-effects: Drowsiness is a significant side-effect with most of the older Antihistamines although paradoxical stimulation may occur rarely, especially with high doses or in childrens few days of treatment and is considerably less of a problem with the newer Antihistamines. Side-effects that are more common with the older Antihistamines include headache, psychomotor impairment, and antimuscarinic effects such as urinary retention, dry mouth, blurred vision, and gastrointestinal disturbances. Other rare side effects offs include hypotension, palpitation, arythmias, extrapyramidal effects, dizziness, confusion, depression, sleep disturbances, tremor, convulsions, hypersensitivity reactions (angioedema, and anaphylaxis, rashes, and photosensitivity reactions), blood disorders, liver dysfunction, and angel-closure glaucoma.Also excitation, irritability, nervousness, less commonly, cystitis, rarely weight gain, very rarely Stevens-Johnson Syndrome.

Dose: 1mg twice daily with food increased if necessary to 2mg twice daily, initial treatment in readily sedated patients 0.5-1mg at night, child 3 years and over, 1mg twice daily.

Ketotifen 1mg/5ml, 100ml syrup, NMSF net price of Tabuk Pharmaceuticals Co.Ltd = 8.62 SDG
Ketotifen 1mg/5ml, 100ml syrup, NMSF net price of The United Pharmaceutical = 8.22 SDG

17 Eye Preperations

17.1 Flurometholone

Indications: inflammation of the eye.

Cautions: avoid use the medicine if there is any allergy to it, medical history is important especially for eye infection, recent eye surgery, cataract, open angle glaucoma, myopia, diabetes. Also driving should be avoided after taking the medicine.

Side-effects: stinging, burning, blurred vision, eye discharge, swelling, redness, headache, dizziness, rash, itching, trouble breathing.

Dosing: Place one drop of suspension between the lower eyelids and eyeball two to four times a day. During the first 24-48 hours, the frequency of dosing may be increased to one drop every 4 hours.

Flurometholone 1%, 10ml eye drops, NMSF net price of Jamjoom = 9.45 SDG
Flurometholone 1%, 10ml eye drops, NMSF net price of Diamond Pharma = 3.50 SDG

17.2 Hyperpropyl methylcellulose 0.3% + dextran 1%

Indications: Symptomatic relief of ocular dryness due to the use of contact lenses, dust & pollution.

Cautions: Check with physician if eye pain, changes in vision, continued redness, irritation, if present symptons continue or become worse.

Contra-Indications: Hypersensitivity to the components.

Dose: Instill 1-2 drops when required.

New Item

17.3 Hypromellose + dextran 70 (0.3% + 0.1%)

Indications: Relieve dry, irritated eyes. Common causes for dry eyes include wind, sun, heating/air conditioning, computer use/reading, and certain medications.

Side-effects: Blurred vision, burning, stinging, irritation, eye pain, change in vision, eye redness and irritation, allergic reaction.

Dose: Instill 1 or 2 drops in the affected eye(s) as needed.

New Item

17.4 Ofloxacin + Prednisolone + tetrahydrzolin

Indications: For corticosteroid responsive inflammatory conditions of the conjunctiva, cornea, and the anterior segment of the eye where bacterial infection or risk of bacterial infection exist.

New Item

17.5 Sodium chromoglicate

Indications: Allergic conjunctivitis. Seasonal keratoconjunctivitis.

Side-effects: Burning and stinging.

Dose: Adult and child apply eye drops 4 times daily.

Na Chromoglycate 2% Eye Drops, 10ml bottle, NMSF net pice of Amman Pharma. Industries Co. = 6.00 SDG
Na chromoglycate 4% Eye Drops (10ml/Bottle), NMSF net pice of Amman Pharma. Industries Co. = 8.00 SDG

17.6 Lodoxamide

Indications: Allergic conjunctivitis.

Side-effects: Burning, stinging, itching, blurred vision, tear production disturbance, and ocular discomfort, less commonly flushing, nasal dryness, dizziness, drowsiness, headache, blepharitis and keratitis.

Dose: Adult and child over 4 years apply 4 times daily improvement of symtoms may sometimes require treatment for up to 4 week.

New Item

17.7 Dexamethasone+ Neomycin + polymyxin B

Indications: Indicated for steroid-responsive inflammatory eye conditions in which Dexamethasone is indicated & where bacterial infection or a risk of bacterial infection exists.

Cautions: Monitor intraocular pressure if used for more than 10 days, prolonged use of topical antibacterial agents may give rise to overgrowth of non-susceptible organisms including fungi, also prolonged use of corticosteroids may result in glaucoma with damage to the optic nerve, defects in visual acuity and fields of vision and in posterior subcapsular cataract formation, prolonged use may also suppress the host immune response and thus increase the hazard of secondary ocular infections. Various ocular diseases and long-term use of topical corticosteroids have been known to cause corneal and scleral thinning, possibly leading to perforation, acute purulent infections of the eye may be masked or activity enhanced by the presence of corticosteroid medication.

Contra-indications: Viral diseases of the cornea and conjunctiva, including epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, and varicella. Also contra-indicated mycobacterial infection of the eye and fungal diseases of ocular structures.

Side-effects: blurred vision, cataract, raised intraocular pressure, stinging, conjunctival haemorrhage, glaucoma, vitreous detachment, hives, rash, itching, and eye pain.

Dose: for ophthalmic suspension instill 1-2drops to affected eye(s) every 4-6 hr, may use hourly in severe disease follow by taper for discontinuation.

For ophthalmic ointment apply ribbon (~0.5-in) to affected eye(s) in conjunctival sac every 4-6 hr or as adjunct to suspension.

Patient should be re-evaluated if no improvement after 2 days.

Polymyxin B + Neomycin + Dexamethasone - 1mg + 1.15mg + 6.78mg, 5ml/bottle eye drop, NMSF net price of Alcon, = 20.00 SDG
Polymyxin B + Neomycin + Dexamethasone - 1mg + 1.15mg + 6.78mg, 5ml/bottle eye drop, NMSF net price of Atco Labortories Limied, = 13.77 SDG
Dexamethasone 1mg +Neomycin 3500I.U. + Polymycin 6000IU/gm, 3.5gm eye Ointment, NMSF net price of Alcon, = 12.22 SDG

17.8 Tobramycin + Dexamethasone

Indications: Ocular Inflammation & bacterial infection.

Cautions: Bacterial keratitis reported from inadvertent contamination of multiple dose ophthalmic solution, immuno-suppression resulting from prolonged use of steroid use may result in secondary bacterial and fungal infections, steroids may also mask symptoms of infections and enhance existing ocular infections, ocular hypertension and/or glaucoma reported with prolonged corticosteroid use. Discontinue use if sensitivity reaction to Tobramycin develops. Corticosteroid use following cataract surgery may delay healing

Contra-indications: Epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, varicella, and many other viral diseases of the cornea and conjunctiva, myco-bacterial infection of the eye, fungal diseases of ocular structures, hypersensitivity to a component of the medication.

Dose: Ophthalmic suspension: 1-2drops to affected eye(s) every 4-6 hr, if needed, may increase frequency to every 2 hr during the first 24-48 hr, then taper to less frequent intervals.

Ophthalmic ointment: Apply small amount (ie, -0.5-in ribbon) to conjunctival sac(s) every 6-8 hr.

Tobramycin 0.3%+Dexamethasone 0.1%, 5ml eye drops, NMSF net price of Jamjoom = 13.00 SDG

17.9 Brinzolamide + Timolol

Indications: Adjunct to beta blockers or prostaglandin analogues or used alone in raised intra-ocular pressure in ocular hypertension and in open angel glaucoma if beta blocker alone inadequate or inappropriate.

Cautions: Systemic absorption follows topical application.

Contra-indication: Hyperchloremic acidosis.

Side-effect: Local irritation, taste disturbance, less commonly nausea, dyspepsia, dry mouth, chest pain, epistaxis, haemoptysis, dyspnoea, rhinitis, pharyngitis, bronchitis, paraesthesia, depression, dizziness, headache, dermatitis, alopecia, corneal erosion.

Dose: Apply twice daily for raised intra-ocular pressure in open-angel glaucoma or ocular hypertension when beta blocker alone adequate.

Brinzolamide 10mg/ml + Timolol 5mg/ml, 5 ml eye drops, NMSF net price of Alcon = 66.20 SDG

17.10 Dorzolamide

Indications: Raised intra-ocular pressure in ocular hypertension, open-angle glaucoma, pseudo-exfoliative glaucoma either as adjunct to Beta-blocker or used alone in patients unresponsive to Beta-blockers or if Beta-blockers contra-indicated.

Cautions: Systemic absorption follows topical application, history of renal calculi, chronic corneal defects, low endothelial cell count, history of intra-ocular surgery.

Contra indications: Hyperchloremic acidosis, Sulfonamide hypersensitivity.

Side-effects: Nausea, bitter taste, headache, asthenia, ocular irritation, blurred vision, lacrimation, conjunctivitis, superficial punctuate keratitis, eyelid inflammation, less commonly iridocyclitis, rarely dry mouth, dizziness, paraesthesia, urolithiasis, eyelid crusting, transient myopia, corneal oedema, epistaxis, throat irritation, contact dermatitis, Stevens-Johnson syndrome, toxic epidermal necrolysis.

Dorzolamide HCl 2% eye drops, NMSF net price of Jamjoom = 32.00 SDG
Dorzolamide HCl 2% + Timolol maleate 0.5% eye drops, NMSF net price of Jamjoom = 49.00 SDG
Dorzolamide HCl 2% + Timolol maleate 0.5% eye drops, NMSF net price of Diamond Pharma. = 45.41 SDG

17.11 Phenylephrine Hydrochloride

Indication: Mydriasis.

Cautions: Corneal epithelial damage, ocular hyperaemia, susceptibility to angel- closure glaucoma, diabetes, cerebral arteriosclerosis, asthma.

Contra-indications: 10% strength in children and elderly, cardiovascular disease, hypertension, aneurysms, thyrotoxicosis.

Side-effects: Blurred vision, photophobia, systemic effects include palpitations, tachycardia, extrasystoles, arrhythmias, hypertension, also reported coronary artery spasm, myocardial infarction (usually after use of 10% strength in patients with pre-existing cardiovascular disease).

Dose: Adult apply 1 drop before procedure, dose may be reported after 60 minutes if necessary, child apply 1 drop before proceduce.

New Item

17.12 Tropicamide

Indications: Treatment of anterior uveitis, usually as an adjunct to corticosteroids

Cautions: Darkly pigmented iris is more resistant to papillary dilatation and caution should be exercised to avoid overdosage. Mydriasis can precipitate acute angel closure glaucoma in a few patients, usually aged over 60 years and hypermetropic (long-sighted), who are predisposed to the condition because of a shallow anterior chamber.

Tropicamide eye drop 1%, 5ml/Bott, NMSF net price of Alcon = 35.00 SDG

Side-effects: Ocular side effects of mydriatics and cycolegics include transient stinging and raised intraocular pressure, on prolonged administration, local irritation, hyperemia, oedema, and conjunctivitis can occur. Contact dermatitis can occur with the antimuscarinic mydriatic, medicines.

18 Ear, Nose and Oropharynx Preperations

18.1 Fumetasone pivalate with clioquinol

Indication: Eczematous inflammation of otitis externa.

Cautions: Prolonged use of topical corticosteroid ear preparations should be avoided.

Contra-indications: Corticosteroid ear preparations should be avoided in the presence of an untreated ear infection. If infection is present, the corticosteroid should be used in combination with suitable anti-infective, iodine sensitivity.

Side-effects: Local sensitivity reaction may occur.

Dose: Adult and child over 2 years apply 2-3 drops into the ear twice daily for 7-10 days.

Note Clioquinol stains skin and clothing.

Flumesthasone pivalate + Clioquinol (0.02% + 1%) 7.5ml/bottle ear drop, NMSF net price of Famar S,A Athens = 41.13 SDG

18.2 Carbamide peroxide ear drop

Indications: Softening, loosening, & removing excessive ear wax.

Cautions: Do not use if ear drainage, discharge, pain, irritation, or rash occurs, if dizziness occur consult healthcare professional, do not use if perforation or injury of ear drum exists or after ear surgery unless directed to do so, do not generally use for more than 4 days, not for use as OTC medication for patients less than 2 years.

Contra-indications: Perforated tympanic membrane, discharge or pain, irritation or rash in the ear, use in eye.

Side-effects: Hypersensitivity, minor irritation, rash, redness, super-infection.

Dose: Instill 5-10drops in ear canal twice daily, not to exceed use beyond 4 days, keep drops in ear for several minutes by tilting the head sideways and placing cotton in ear, kit comes with ear syringe.

New Item

18.3 Sodium Bicarbonate

Indications: Removal of ear wax.

Side-effects: Dryness of the ear canal.

Dose: If the wax is hard and impacted, the drops can be used twice daily for several days and this may reduce the need for mechanical removal of the wax.

New Item

18.4 Salicylates

Indications: Mild oral and perioral lesions.

Cautions: Not to be applied to dentures- leave at least 30 minutes before re-insertion of dentures, frequent application, especially in children, may give rise to salicylate poisoning.

Contra-indications: Children under 16 years due to risk of Reye's syndrome.

Side-effects: Transient local burning sensation.

Dose: Adult and child over 16 years, apply ½ inch of gel with gentle massage not more thsn every 3 hours.

Salicylates cream, NMSF net price of Gulf Pharmaceutical Industries = 4.00 SDG

19 Solutions Correcting Water, Electrolyte And Acid Base Disturbances

19.1 Oral

19.1.1 Oralrehydration salts

(Glucose: 75mEq sodium: 75mEq or mmol/l chloride: 65mEq or mmol/l).

Potassium: 20mEq or mmol/l citrate: 10mmol/l osmolarity: 245mOsm/l glucose: 13.5g/l sodium chloride: 2.6g/l potassium chloride 1.5g/l trisodiumcitrate dihydrate + 2.9g/l. + trisodium citrate dihydrate may be replaced by sodium hydrogencarbonate (sodium bicarbonate) 2.5g/L. However, as the stability of this latter formulation is very poor under tropical conditions, it is only recommended when manufactured for immediate use.

Glucose salt solution

Sodium chloride	2.6 g/litre of clean water
Sodium citrate [dihydrate]	2.9 g/litre of clean water
Potassium chloride	1.5 g/litre of clean water
Glucose(anhydrous)	13.5 g/litre of clean water

When glucose and sodium citrate are not available, they may be replaced by

Sucrose(common sugar)	27 g/litre of clean water
Sodium bicarbonate	2.5 g/litre of clean water

Indication: Dehydration from acute diarrhoea.

Caution: Renal impairment.

Side-effects: Vomiting hypernatremia and hyperkalaemia result from over dose in renal impairment or administration of too concentrated a solution).

Dose: Fluid and electrolyte loss in acute diarrhoea, by mouth, adult 200–400ml solution after every loose motion, infant and child, according to Plans A, B,or C.

Plan A: No dehydration. Nutritional advice, increased fluid intake (in the form of soup, rice, water and yoghurt, or even just water), and zinc supplementation at home are usually sufficient. However, for infants aged under 6 months who have not yet started, oral rehydration solution must be taking solids resented before offering milk. Mother' smilk or dried cow' smilk must be given without any particular restrictions. In the case of mixed breast-milk formula feeding, the contribution of breast-feeding should be increased. Parents should be informed about the circumstances in which they should seek further advice.

Plan B: Moderate dehydration. Whatever the child's age, a 4-hour treatment plan is used to avoid short-term problems. It is recommended that parents are shown how to give approximately 75ml/kg of oral rehydration solution (in small amounts and at regular intervals) over a 4-hour period. It is suggested that parents should be observed to see how they cope at the beginning of the treatment. A larger amount of solution can be given if the child continues to have frequent stools. In the event of vomiting, rehydration must be discontinued for 10 minutes and then resumed at a slower rate. In young children breastfeeding should be continued on demand, older children should receive milk and nutritious food as normal after completing the 4 hours of oral rehydration. The child's status must be reassessed after 4 hours to decide on the most appropriate subsequent treatment. Zinc supplementation should begin as soon as the child can eat and has completed 4 hours of oral rehydration. Oral rehydration solution should continue to be offered once dehydration has been controlled, for as long as the child continues to have diarrhoea.

Plan C: Severe dehydration. Hospitalization is necessary, but the most urgent priority is to start rehydration. In hospital(or else where), if the child can drink, oral rehydration.

Solution must be given pending, and even during, intravenous infusion (20ml/kg every hour by mouth before infusion, then 5ml/kg every hour by mouth during intravenous rehydration).For intravenous supplementation, it is recommended that a compound solution of sodium lactate (or, if this is unavailable, sodium chloride, 0.9% solution) is administered at a rate adapted to the child's age (infant under 12 months 30ml/kg over 1 hour then 70ml/kg over 5 hours, child over 12 months, 30ml/kg over 30 minutes then 70ml/kgover2.5hours).

O.R.S (Oral Rehydration Salt), NMSF net price of Ajanta Pharma Company = 0.71 SDG
O.R.S (Oral Rehydration Salt), NMSF net price of Humavet -International Drug = 1.20 SDG

19.2 Parenteral

Solutions of electrolytes are given intravenously, to meet normal fluid and electrolyte requirements or to replenish substantial deficits or continuing losses, when the patient is nauseated or vomiting, or is otherwise unable to take adequate amounts by mouth.

19.2.1 Glucose

Indications: Fluid replacement without significant electrolyte deficit, treatment of hypoglycaemia.

Cautions: Diabetes mellitus (may require additional Insulin).

Side-effects: Glucose injections, especially if hypertonic, have a low pH and may cause venous irritation and thrombophlebitis, fluid and electrolyte disturbances, oedema or water intoxication (on prolonged administration or rapid infusion of large volumes of isotonic solutions). Hyperglycaemia(on prolonged administration of hypertonic solutions).

Dose: Fluid replacement, by infusion, adult and child, determined on the basis of clinical and, whenever possible, electrolyte monitoring. Treatment of hypoglycaemia, by intravenous infusion of 50% glucose solution into a large vein, adult, 25ml.

Dextrose anhydrous or monohydrate 5% in water solution for i.v. infusion 500ml with air vent set, NMSF net price of Pharmaceutical Solutions industry = 6.00 SDG
Dextrose anhydrous or monohydrate 5% in water solution for i.v. infusion 500ml with airvent set, NMSF net priceof Egypt Otsuka Pharmaceuticals = 6.00 SDG
Dextrose 10% in water solution for i.v. infusion with airvent set 500ml bottle, NMSF net price of Pharmaceutical Solutions Industry = 6.00 SDG
Dextrose anhydrous or monohydrate 50%in water solution 20ml bottle, NMSF netprice of Pharmaceutical Solution Industry = 3.00SDG
Dextrose anhydrous or monohydrate 50% in water solution 20ml bottle, NMSF net price of Egypt Otsuka Pharmaceuticals = 3.00 SDG
Dextrose anhydrous or monohydrate 5% in water solution for i.v. infusion. , NMSF net price 50ml with airvent set injection = New Item
Dextrose anhydrous or monohydrate 5% in water solution for i.v infusion, NMSF net price 100ml-with air vent set = New Item
Dextrose anhydrous or monohydrate 5% in water solution for i.v. infusion, NMSF net price250ml with air vent set=New Item

19.2.2 Glucose with Sodium chloride

Indications: Fluid and electrolyte replacement.

Cautions: Restrict in take in impaired renal function, cardiac failure, hypertension, peripheral and pulmonary oedema, and toxemia during pregnancy.

Dose: Fluid replacement, by intravenous infusion, adult and child, determined on the basis of clinical and when ever possible, electrolyte monitoring.

Side-effects: Administration of large doses may give rise to oedema.

Dextrose anhydrous or monohydrate 5% in sodium chloride 0.18% solution for i.v. infusion 500ml of Pharmaceutical Solution Industry, NMSF net price = 6.00 SDG.
Dextrose anhydrous or monohydrate 5% in sodium chloride 0.45% solution for i.v. infusion 500ml with airvent set of Pharmaceutical Solution Industry, NMSF net price = 6.00 SDG.
Dextrose anhydrous or monohydrate 5% in sodium chloride 0.45% solution for i.v. infusion 100ml with airvent set of Pharmaceutical Solution Industry, NMSF net price =New Item.
Dextrose anhydrous or monohydrate5%in sodium chloride 0.18% solution for i.v. infusion 100ml with airvent set set of Pharmaceutical Solution Industry, NMSF net price = 3.00 SDG.
Dextrose anhydrous or monohydrate 5% in sodium chloride 0.18% solution for i.v. infusion 250ml with airvent set , NMSF net price = New Item.

Solutions Correcting Water, Electrolyte And Acid Base Disturbances

Dextrose anhydrous or monohydrate 5% in sodium chloride 0.45% solution for i.v. infusion 250ml with airvent set , NMSF net price=New Item.
Dextrose anhydrous or monohydrate 5% in sodium chloride 0.45% solution for i.v. infusion 50ml with airvent set , NMSF net price=New Item.
Dextrose anhydrous or monohydrate 5% in sodium chloride 0.18% solution for i.v. infusion 50ml with airvent set of Pharmaceutical Solution Indusrty, NMSF net price = 3.00 SDG.

19.2.3 Sodium chloride

Indications: Electrolyte and fluid replacement.

Cautions: Restrict in take in impaired renal function, cardiac failure, hypertension, peripheral and pulmonary oedema, and toxemia during pregnancy.

Side-effects: Administration of large doses may give rise to Sodium accumulation and oedema.

Dose: Fluid and electrolyte replacement, by intravenous infusion, adult and child, determined on the basis of clinical and, when ever possible, electrolyte monitoring (see also introducetory note above).

Sodium chloride 0.9% solution for i.v. infusion 500ml with airvent set, NMSF net price of Pharmaceutical Solution Industry= 6.00 SDG.
Sodium chloride 0.9% solution for IV infusion 500ml with airvent set , NMSF net price of Egypt Otsuka Pharmaceuticals = 6.00SDG.
Sodium chloride 0.9% solution for i.v. infusion , NMSF net price 50ml with airvent se t= 2.695784 SDG.
Sodium chloride 0.9% solution for i.v. infusion , NMSF net price 100ml with airvent Set = 2.9403SDG
Sodium chloride 0.9% solution for IV infusion , NMSF net price 250ml with air vent set=4.214392SDG.
Hypertonic Saline 3% 500 ml bottle with IV set, NMSF net price= 10.00SDG.
Sodium chloride13.4%, NMSF net price ampoules=New item

19.2.4 Potassium Chloride

Indications: Electrolyte imbalance, see also oral potassium supplements.

Cautions: For intravenous infusion the concentration of solution should not usually exceed 3g (40mmol/litre), specialist advice and ECG monitoring.

Contra-indications: Plasma-potassium concentration above 5mmol/litre.

Side-effects: Rapid infusion toxic to heart.

Dose: By slow intravenous infusion, depending on the deficit or the daily maintenance requirements.

Potassium Chloride 150mg/ml inj, 10ml ampoule, NMSF net price of Pharmaceutical Solution Industries = 3.00 SDG

19.2.5 Magnesium Sulphate injection 50% in 10ml

Indications: Hypomagnesaemia, since magnesium is secreted in large amounts in the gastrointestinal fluid, excessive losses in diarrhoea, stoma or fistula are the most common causes of hypomagnesaemia, deficiency may also occur in alcoholism or as a result of treatment with certain medicines. Hypomagnesaemia causes secondary hypocalcaemia, and also hypokalaemia and hyponatremia. Symptomatic hypomagnesaemia is associated with a deficit of 0.5–1mmol/kg, up to 160mmolmg2 + over up to 5 days may be required to replace the deficit (allowing for urinary losses). Magnesium is given initially by intravenous infusion or by intramuscular injection of magnesium sulphate, the intramuscular injection is painful. Plasma magnesium concentration should be measured to determine the rate and duration of infusion and the dose should be reduced in renal impairment.To prevent recurrence of the deficit, magnesium may be given by mouth in a dose of 24 mmolmg2 + daily in divided doses ,suitable preparations are magnesium glycerophosphate tablets or liquid. For maintenance (e.g., in intravenous nutrition), parenteral doses of magnesium are of the order of 10–20mmolMg2+daily(often about 12mmolmg2 + daily).

Cautions: Severe hypomagnesaemia administer initially via controlled infusion device (preferably syringe pump), monitor blood pressure, respiratory rate, urinary output and forsigns of over dosage (loss of patellar reflexes, weakness, nausea, sensation of warmth, flushing, drowsiness, double vision, and slurred speech.

Side-effects: Generally associated with hypermagnesemia, nausea, vomiting, thirst, flushing of skin, hypotension, arrhythmias, coma, respiratory depression, drowsiness, and confusion, loss

of tendon reflexes, muscle weakness, colic and diarrhoea following oral administration.

Dose: Hypomagnesaemia, arrhythmias, prevention of seizures in pre-eclampsia [unlicensed indication], initially by intravenous injection over 5–15minutes, 4g followed by intravenous infusion, 1g/hour for 24 hours, if seizure occurs, additional dose by intravenous injection, 2g.Treatment of seizures and prevention of seizure recurrence in eclampsia, initially by intravenous injection over 5–15 minutes, 4g, followed by intravenous infusion, 1g/hour for 24 hours after seizure or delivery, which ever is later, if seizure recurs, increase the infusion rate to 1.5–2 g/hour or give an additional dose by intravenous injection, 2g. For intravenous injection concentration of magnesium sulphate should not exceed 20% (dilute 1 part of magnesium sulphate injection 50% with at least 1.5 parts of water for injections).

Magnesium Sulphate 50% 10ml Ampoule, NMSF net price of Pharmaceutical Solution Industry= 5.00 SDG
Magnesium Sulphate 100mg/ml in 5ml Amp. NMSF net price of Pharmaceutical Solution Industry = 3.00 SDG

19.3 Miscellaneous

19.3.1 Water for injection

Uses: In preparations intended for parenteral administration and in other sterile preparations.

Water for injection 5ml Amp. NMSF net price of Egypt Otsuka Pharmaceuticals = 0.45 SDG
Water for injection 5ml Amp. NMSF net price of Euromed Laboratories Phil, Inc = 0.45 SDG
Water for injection 5mlAmp, NMSF net price of Pharmaceutical Solution Industries = 0.50 SDG
Water for injection 10ml Amp. = New item

20 Dermatological Preparations

20.1 Benzoyl Peroxide

Indications: Acne vulgaris.

Cautions: Avoid contact with eyes, mouth, mucous membranes, and broken skin, may bleach fabrics and hair, avoid excessive exposure to sunlight.

Side-effects: Skin irritations (reduce frequency or suspend use until irritation subsides and re-introduce at reduced frequency).

Dose: Apply 1–2 times daily preferably after washing with soap and water, start treatment with lower-strength preparations.

Note: May bleach clothing.

20.2 Adapalene

Indications: Mild to moderate acne.

Cautions: Topical retinoids should be avoided in severe acne involving large areas. Contact with eyes, nostrils, mouth and mucous membranes, eczematous, broken or suburned skin should be avoided. These medicines should be used with caution in sensitive areas such as neck, and accumulation in angles of the nose should be avoided. Exposure to UV light (including sunlight, solariums) should be avoided, if sun exposure is unavoidable, an appropriate sunscreen or protective clothing should be used. Use of retinoids with abrasive cleansers, comedogenic or astringent cosmetics should be avoided. Allow peeling to subside before using atopical retinoid, alternating a preparation that causes peeling with a topical retinoid may give rise to contact dermatitis.

Side-effects: Local irritations include burning, erythema, stinging, pruritis, dry or peeling skin. Increased sensitivity to UVB light or sunlight occurs. Temporary changes of skin pigmentation with Tretinoin have been reported. Eye irritation and oedema and blistering or crusting of skin has been reported rarely.

Dose: Adult and child over 12 years, apply thinly once daily in the evening.

Adapalene 0.1%, 15g topical gel, NMSF net price of Glenmark Pharma. = 20.00 SDG

20.3 Tretinoin

(Tretinoin is the acid form of Vitamin A).

Indications: Malignant disease.

Cautions: See Adaptalene above.

Contra-indications: Personal or familial history of non-melanoma skin cancer, rosacea, perioral dermatitis.

Side-effects: See Adaptalene above.

Dose: Apply thinly 1-2 times daily.

Retinoic acid 0.5%, 30g cream, NMSF net price of Jamjoom = 19.25 SDG

20.4 Urea

Indications: For hyperkeratotic conditions such as dry, rough skin, xerosis, ichthyosis, skin cracks and fissures, dermatitis, eczema, psoriasis, keratoses, and calluses.

Cautions: Ischaemic skin necrosis reported with high concentration or irrigation, not for use near the eye.

Contra-indications: Hypersensitivity, viral skin disease.

Doses Apply topically to affected skin every day or every 8-12hr.

New Item

20.5 Fluocinolone Acetonide

Indications: Inflammatory skin disorders such as eczemas, psoriasis.

Cautions: Should avoid contact with the eye, pregnancy, should be limited to the least amount with children, and should be used with care in patients with severe renal failure.

Contra-indications: Hypersensitivity to any of its components, weeping or ulcerative dermal injuries, and Tuberculosis and syphlitic.

Side-effects: Burning, itching, irritation, redness and secondary infection in rare case.

Dosing: Apply to the affected area as a thin film (1-2) times daily or as prescription of the doctor.

Fluocinolone 0.025%, 15gm cream, NMSF net price of Glenmark Pharmac = 6.00 SDG

20.6 Calamine Lotion

Indications: Pruritis.

Contra-indications: Avoid application prior to x-ray (zinc oxide may affect outcome of x-ray)

Calamine lotion 15% (100ml/Bottle), NMSF net price of Bell Sons = 8.40 SDG

20.7 Silver Sulfadiazine

Indications: Prophylaxis and treatment of infection in burn wounds, as an adjunct to short term treatment of infection in leg ulcers and pressure sores, as an adjunct to prophylaxis of infection in skin graft donor sites and extensive abrasions, for conservative management of finger-tip injuries.

Cautions: G6PD deficiency may inactivate enzymatic debriding agents- concomitant use may be inappropriate, for large amounts.

Contra-indications: Sensitivity to Sulfonamides, not recommended for neonates.

Side-effects: Allergic reactions including burning, itching and rashes, argyria reported following prolonged use, leucopenia reported (monitor blood levels).

Dose: Burns, apply daily or more frequently if very exudative, leg ulcers or pressure sores, apply daily or on alternate days (not recommended if ulcer very exudative), finger tip injuries, apply every 2-3 days.

Note: Apply with sterial applicator.

Sulphadiazine 1% cream (30g/Tube), NMSF net price of Nile Co. = 4.50 SDG
Sulphadiazine 1% cream (30g/Tube), NMSF net price of Philadelephia = 7.56 SDG

21 Genito-urinary Medicines

21.1 Medicines used in Urological Pain

21.1.1 Potassium Citrate

Indications: Relief of discomfort in mild urinary tract infections, alkalinisation of urine.

Cautions: Cardiac diease.

Side-effect: hyperkalaemia on prolonged high dosage, mild dieresis.

Dose: 10ml, 3 times daily well diluted with water proprietary brands of potassium citrate are on sale to the public for the relief of discomfort in mild urinary-tract infections.

Potassium Citrate effervecent powder sachet, NMSF net price of Humavet Medicines = 0.81 SDG

21.2 Medicines used in erectile dysfunctions

21.2.1 Sildenafil

Indications: Erectile dysfunction, pulmonary hypertension.

Cautions: Should be used with caution in cardiovascular disease, left ventricular outflow obstruction, anatomical deformation of penis, and in those with a predisposition to priapism. Concomitant treatment with phosphodisterase type 5 inhibitor and an alpha blocker can increase the risk of postural hypotension- initiate treatment with phosphodiestrase type 5 inhibitor (at low dose) only once the patient is stable on the alpha-blocker. Also bleeding disorders or active peptic ulceration.

Contra-indications: Contra-indicated in patients receiving nitrates, in patients in whom vasodilation or sexual activity are inadvisable, or in patients with a previous history of non-arteritic anterior ischaemic optic neuropathy. Also contraindicated in patients have hypotension, recent stroke, unstable angina, myocardial infarction, and hereditary degenerative retinal disorders.

Side-effects: Dyspepsia, nausea, vomiting, headache, flushing, dizziness, myalgia, back pain, visual disturbances and nasal congestion. Less common side-effects painful red eye, palpitation, tachycardia, hypotension, hypertension, epistaxis. Other side-effects reported rarely include syncope, hypersensitivity reactions, and priapism. Serious cardiovascular events (including arrhythmia, unstable angina, and myocardial infarction), seizures, sudden hearing loss, and retinal vascular occlusion have been reported. Also less commonly chest pain, drowsiness, hypoaesthesia, vertigo, tinnitus, dry mouth, fatigue, rarely cerebrovascular accident and aterial fibrillation.

Dose: Adult over 18 years initially 50mg approximately 1 hour before sexual activity, subsequent doses adjusted according to response to 25-100mg as a single dose as needed, max. 1 dose in 24 hours (max. single dose 100mg).

Note: Onset of effect may be delayed if taken with food.

Sildenafil 50mg tablets, NMSF net price of Azal Pharmaceuticals = 0.86 SDG

22 Disinfectants and Antiseptics

22.1 Antiseptics

22.1.1 Chlorhexidine

Indications: Antiseptic disinfection of clean instruments.

Cautions: Aqueous solutions (which are susceptible to microbial contamination should be freshly prepared appropriate measures required to prevent contamination during storage or dilution), instruments with cemented glass components (avoid preparations containing surface active agents), irritant (avoid contact with middle ear, eyes, brain, and meninges), not for use in body cavities alcoholic solutions not suitable before diathermy syringes and needles treated with Chlorhexidine (rinse thoroughly with sterile water or saline before use), inactivated by cork (use glass, plastic or rubber closures), alcohol-based solutions are flammable.

Side-effects: Occasional skin sensitivity and irritation.

Administration: Antiseptic (pre-operatives kind is infection and hand washing), adult and child,use 0.5% solution in alcohol (70%) or 2 or 4% detergent solution to the skin area.Antiseptic(wounds, burns, and other skin damage), adult and child apply 0.05% aqueous solution directly to the affected area. Disinfection of clean instruments, immerse for at least 30 minutes in 0.05% solution containing sodium nitrite 0.1% (to inhibit metal corrosion). Emergency disinfection of clean instruments, immerse for 2 minutes in 0.5% solution in alcohol(70%).

Chlorohexidine 3% + Cetrimide 3% solution, NMSF net price of Yamani Medical Product Factory = 66.70 SDG
Chlorohexidine gluconate 0.125g (200ml) mouth wash, NMSF net price of Yamani Medical Product Factory = 8.625 SDG

22.1.2 Ethanol

Ethanol is a representative disinfectant and antiseptic.Various agents can serve as alternatives.

Indications: Disinfection of skin prior to injection, vene puncture or surgical procedures.

Cautions: Flammable avoid broken skin, patients have suffered severe burns when diathermy has been preceded by application of alcoholic skin disinfectants.

Side-effects: Skin dryness and irritation with frequent application.

Administration: Disinfection of skin, adult and child apply undiluted solution directly to the skin area.

Ethanol Solution, NMSF net price of LIT = 4.812 SDG

Ethanol 5liter, NMSF net price of Modern Distillery Co. Ltd = 67.28 SDG

22.1.3 Povidone Iodine

Also known as Polyvidone-iodine.

Polyvidone-iodine is a representative antiseptic. Various agents can serve as alternatives.

Indications: Antiseptics kind is infection.

Contra-indications: Avoid regular or prolonged use in patients with thyroid disorders or those taking Lithium,avoid regular use in neonates, avoid in very low- birth-weight infants.

Cautions: Pregnancy and breast-feeding broken skin and renal impairment.

The application of Polyvidone-iodine to large wounds or severe burns may produce systemic adverse effects such as metabolic acidosis, hypernatraemia, and impairment of renal function.

Side-effects: Irritation of skin and mucous membranes, may interfere with thyroid function tests, systemic effects (see under Precautions).

Administration: Pre and post-operative skin disinfection adult and child, apply undiluted solution to the skin area. Antiseptic adult and child, apply undiluted solution to the affected area, twice daily.

Povidoneiodine 7.5%Solution 500ml, NMSF net price of Yamani Medical Product Fctory = 26.00 SDG
Povidoneiodine 10% Solution 120ml, NMSF net price of Yamani Medical Product Fctory = 10.35 SDG
Povidoneiodine 10% Solution 500ml, NMSF net price of Yamani Medical Product Fctory = 26.00 SDG
Povidoneiodine 10% Solution 100ml bottle, NMSF net price of Ageeb Pharmaceutical Laboratories = 7.48 SDG

22.1.4 Potassium Permanganate

Indications: cleansing and deodorizing suppurating eczematous reactions and wounds.

Cautions: irritant to mucus membrane.

Dose: Wet dressings or baths, approx. 0.01% solution, note stains skin and clothing.

Potassium permanganate solution 0.1% in water, to be diluted 1 in 10 to provide a 0.01% (1 in 10000) solution.

Solution tablets, for preparation of topical solution, potassium permanganate 400mg. note (1 tablet dissolved in 4litres of water provides a 0.01% (1 IN 10000) solution.

New Item

22.2 Disinfecants

22.2.1 Oxidisers and dyes

22.2.1.1 Hydrogen peroxide

Indications: Skin disinfectant.

Cautions: Large or deep wounds, avoid on healthy skin and eyes, bleaches fabric, incompatible with products containg iodine or potassium permanganate.

Dose: Superficial bacterial skin infection, apply 2-3 times daily for up to 3 weeks.

Hydrogen peroxide 6% w/v 200ml solution, NMSF net price of Bell Sons & Co. (Druggists) Ltd = 11.00 SDG

22.2.2 Preparations for warts and calluses

22.2.2.1 Formaldehyde

Indications: Warts.

Cautions: Significant peripheral neuropathy, patients with diabetes at risk of neuropathic ulcers, impaired peripheral circulation, protect surrounding skin and avoid broken, not suitable for application to face, anogenital region, or large areas.

Side-effects: Skin irritation, skin ulceration (with high concentration).

Dose for warts, particularly plantar warts, apply twice daily.

Formaldehyde solution 35% with Methanol as stabilizer in 30 iter gallon (Formalin), NMSF net price of Capital Egypt = 270 SDG

22.2.2.2 Glutaraldehyde

Indications: warts, particulary plantar warts.

Cautions: protect surrounding skin, not for application to face, mucosa, or anogenital areas.

Side-effects: Rashes, skin irritation, statins skin brown.

Dose: apply twice daily.

Glutraldehyde 2.5% solution, 5liters in gallon, NMSF net price of Dr. Schumacher = 88.37 SDG

22.2.3 Benzyl Benzoate

Indications: Scabies.

Cautions: Children (not recommended), avoid contact with eyes and mucous membranes, do not use on broken or secondarily infected skin

Breast-feeding Suspend feeding until product has been washed off.

Side-effects: Skin irritation, burning sensation especially on genitalia and excoriations, occasionally rashes.

Dose: Apply over the whole body, repeat without bathing on the following day and wash off 24 hours later, a third application may be required in some cases.

Note Not recommended for children dilution to reduce irritant effect also reduces efficacy. Some manufacturers recommend application to the body but to exclude the head and neck. However, application should be extended to the scalp, neck, face, and ears.

Benzyl benzoate25% lotion, NMSF net price of Bell Sons & Co. (Druggists) Ltd = 5.74 SDG

23 Diagnostic Agents

23.1 Phenyl ephedrine + tropicamide

Indications: Inflammatory conditions of the uveal tract also can be use for diagnostic purpose, and preoperative use.

Cautions: Use with caution when administered with, or up to 21 days after administration of MAO inhibitors as exaggerated adrenergic effects may result. The pressor response of adrenergic agents may also be potentiated by Tricyclic antidepressants.

Contra-indications: Hypersensitivity to any of the components, narrow angles or narrow angle glaucoma.

Dose: 1-2 drops three to four times or as required.

New Item

23.2 Diagnostic Agents:

1. Tuberculin diluted 2IU/0.1ml in 2ml vail (Tuberculin PPD) (mantoux test).

   Tuberculin test 5IU/0.1ml, 2ml vial (Mantoux test) of Bulbio Pharmaceutical, NMSF net price = 99.00 SDG
   Tuberculin diluted 2IU/0.1ml in 2ml vail (Tuberculin PPD) (Mantoux test) of Bulbio Pharmaceutical, NMSF net price = 99.00 SDG
   Tuberculin diluted 2IU/0.1ml in 2ml vail (Tuberculin PPD) (mantoux test) of Span Diagnostic LTD, NMSF net price = 75.00 SDG

2. Anti-A sera test 10ml, Avidity : 10 seconds , Titration : (1/128)

   Monoclonal Anti-A sera test/10ml of Rpid Labs, NMSF net price = 12.50 SDG
   Monoclonal Anti-A sera test/10ml of Biorex -(Fortress) -U.K, NMSF net price = 16.56 SDG

3. Anti A1 lectin sera, Volume : 5ml , Avidity : 15 seconds , Titration : (1/128) , All anti sera should be : Specific reactive with corresponding Ags Free of microbial contamination. Labelled with standard information. Anti D should be poly colonal (IgG+IgM).

   Monoclonal Anti-A1 lectin sera test in 5ml of Rpid Labs, NMSF net price = 22.50 SDG
   Monoclonal Anti-A1 lectin sera test in 5ml of Biorex - (Fortress) -U.K, NMSF net price = 56.00 SDG

4. Anti B sera 10ml, Avidity: 10 seconds, Titration : (1/128).

   Monoclonal Anti-B sera test 10ml of Rpid Labs, NMSF net price = 12.50 SDG
   Monoclonal Anti-B sera test 10ml of Biorex -(Fortress) -U.K, NMSF net price = 16.60 SDG

5. Anti-D sera test 10ml: Avidity of anti D(IgM+IgG): 30-60 seconds, Avidity of anti D(IgG only): directly after addition of AHG, Titration of anti D(IgM+IgG): (1/8), Titration of anti D(IgG only): (1/132).

   Anti-D sera test 10ml (IgG only) of Rpid Labs, NMSF net price = 22.00 SDG
   Monoclonal Anti D sera type 1gG/1gM Blend (Anti-Rh) of Biorex -(Fortress) -U.K, NMSF net price = 27.00 SDG

6. Monoclonal Anti-(C.D.E) Sera 10ml

   Monoclonal Anti-(C.D.E) Sera 10ml of Rpid Labs, NMSF net price = 420.00 SDG

Monoclonal Anti-(C.D.E) Sera 10ml of Biorex -(Fortress) -U.K, NMSF net price = 371.00 SDG

7. HIV ELISA KITS: The solid phase of the test kit should be standard micro plate ELISA coated with HIV I, II, including subgroup (O) recombinant and /or synthetic peptide antigens. The assay should detect HIV-1 (all subtypes) and II antibodies and P24 Antigen.The assay should be able to detect antibodies to HIV I/II during early sero-conversion period. Evidence based sero-conversion data should be from WHO accredited.The assay should include reactive and non-reactive controls with each kit. All reagents and accessories necessary to perform the test should also be included. The kit should have a shelf life of minimal 12 months (at ambient temperature) at the port of discharge of consignee's end whichever is applicable.Adequate literature provided with each kit: Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry dates should be provided with each kit.The kit procured should have an approval of the National Health Laboratory (A copy of the Certificate).The assay should have at least a sensitivity of 99.8%, specificity of 99% (Ag + ab) (Forth Generation).

HIV Elisa test of Dia. Pro, NMSF net price = 268.00 SDG
HIV Elisa test of Ams UK Ltd, NMSF net price = 432.00 SDG
HIV Elisa test of Biorex Diagnostic, NMSF net price = 431.25 SDG

8. HCV ELISA test kits: The solid phase of the test kit should be standard micro plate (96 wells) ELISA coated with recombinant/ synthetic peptide antigens for core, NS3, NS4, and NS5. The assay should be at least fourth generation ELISA, approved by accredited centers by WHO.The assay should be able to detect HCV Ab of al geno-types. The assay should include reactive and non-reactive controls with each kit. All reagents and accessories necessary to perform the test should also be included.The kit should have a shelf life of minimal 12 months (at ambient temperature) at the port of discharge of consignee's end whichever is applicable. Adequate literature provided with each kit: Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry date should be provided with each kit. The kit procured should have an approval of the National Health Laboratory (A copy of the Certificate).The assay should have at least sensitivity of 99.8%, specificity of 99.8%. The kit size should be 96 wells and be strip plate format.

HCV Elisa of Dia. Pro, NMSF net price = 268.00 SDG
HCV Elisatest of Biorex Diagnostic, NMSF net price = 432.00 SDG

9. Syphilis ELISA Test kits: The solid phase of the test kit should be standard micro plate (96 wells) ELISA coated with Treeponema palladium extract antigen.The test should be able to detect total.Human antibodies to Treonema palladium. The assay should include reactive and non-reactive controls with each kit. All reagents and accessories necessary to perform the test should also be included.The kit should have a shelf life of minimal 12 months (at ambient temperature) at the port of discharge of consignee's end whichever is applicable. Adequate literature provided with each kit: Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry date should be provided with each kit. The kit procured should have an approval of the National Health Laboratory (A copy of the Certificate) should be provided with each. The assay should have at least: Sensitivity of 99.8%, specificity of 99.8%.The kit size should be 96 wells and the strip plate format.

Syphilis Elisa of Dia. Pro, NMSF net price = 268.00 SDG
Syphilis Elisa of Bio-rad - UK, NMSF net price = 207.00 SDG
Syphilis Elisa of Biorex - (Fortress) -U.K, NMSF net price = 354.20

10. HIV Simple/Rapid test Kits: The solid phase of the test kit should be coated with synthetic/recombinant HIV I, HIV II including HIV I subtype(O)The assay should be able to detect HIV I & HIV II antibodies by immune-enzymatic/agglutination/any other acceptable principle.The product should be able to detect antibodies of HIV I & HIV II during early sero-conversion period.The product should include reactive and non-reactive controls and all reagents and accessories necessary to perform the test.The kit should have a half life of minimal 12 months at the port of discharge of consignee's end whichever is applicable. The kit procured should have an approval of the National Health Laboratory (A copy of the Certificate).The assay should have at least a sensitivity of 99.8%, specificity of 99%. Adequate literature provided with each kit: Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry dates should be provided with each kit.The total procedure time should not be more than 30 minutes.The kit should enable performing a single test at a time.The packing size should not be more than 50 tests per kit.

HIV Rapid test of Biorex - (Fortress) -U.K, NMSF net price = 5.00 SDG
HIV Rapid testof Biorex U.K, NMSF net price = 4.50 SDG

11. HCV Simple/Rapid test kits : The solid phase of the test kit should be coated with monoclonal/synthetic peptide antigens for core, NS3, NS4, and NS5.The assay should be able to detect HCV to all geo-types.The assay should include reactive and non-reactive controls with each kit. All reagents and accessories necessary to perform the test should also be included. The kit should have a shelf life of minimal 12 months at the port of discharge of consignee's end whichever is applicable. Adequate literature provided with each kit. Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry dates should be provided with each kit. The kit procured should have an approval of the National Health Laboratory (A copy of the Certificate).The total procedure time should not be more than 30 minutes..The kit should enable performing a single test at a time.The packing size should not be more than 50 tests per kit.

HCV Rapid test of Humasis, NMSF net price = 5.00 SDG
HCV Rapid test of Biorex - (Fortress) -U.K, NMSF net price = 4.83 SDG
HCV Rapid test of Biorex U.K, NMSF net price = 4.00 SDG
HCV Rapid test of CTK, NMSF net price = 3.80 SDG
HCV Rapid test of Standard diagnostic, NMSF net price = 3.50 SDG
HCV Rapid test of Turk lab, NMSF net price = 4.00 SDG

12. HBs AG Simple/Rapid test kits: The solid phase of the test kit should be coated with monoclonal antibodies (Anti-HBs).The assay should be able to detect HBs AG to all sub-types. The assay should include reactive and non-reactive controls with each kit. All reagents and accessories necessary to perform the test should also be included. The kit should have a shelf life of minimal 12 months at the port of discharge of consignee's end whichever is applicable. Adequate literature provided with each kit: Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry dates should be provided with each kit. The kit procured should have an approval of the National Health Laboratory (a copy of the Certificate). The assay should have at least a sensitivity of 99.8% (detects less than 1mg/ml), specificity of 99%.The total procedure time should not be more than 30 minutes. The kit should enable performing a single test at a time.The packing size should not be more than 50 test per kit.

HBS Rapid test of Humasis, NMSF net price = 3.00 SDG
HBS Rapid test of Biorex - (Fortress) -U.K, NMSF net price = 2.53 SDG
HBS Rapid test of Biorex U.K, NMSF net price = 3.00 SDG
HBS Rapid test of Standard diagnostic Korea, NMSF net price = 3.00 SDG

HBS Rapid test of Turk lab, NMSF net price = 4.00 SDG

13. Syphilis Rapid test: The solid phase of the test kit should be a serological chromatographic or agglutination test using recombinant antigen. The assay should include reactive and non-reactive controls with each kit. All reagents and accessories necessary to perform the test should be included. The kit should have a shelf life of minimal 12 months at the port of discharge of consignee's end which ever is applicable Adequate literature provided with each kit: Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry date should be provided with each kit.The kit procured should have an approval of the National Health Laboratory (A copy of the certificate).The assay should have at least a sensitivity of 99.8 %, specificity of 99.8 %. The total procedure time should not be more than 30 minutes.The kit should enable performing a single test at time. The packaging size should not be more than 50 tests per kit.

Syphilis Rapid test of Humasis, NMSF net price = 5.08 SDG
Syphilis Rapid test of Biorex - (Fortress) U.K, NMSF net price = 2.53 SDG
Syphilis Rapid test of Biorex U.K, NMSF net price = 2.00 SDG
Syphilis Rapid test of Standard diagnostic Korea, NMSF net price = 4.00 SDG
Syphilis Rapid test of Turk lab, NMSF net price = 4.00 SDG

14. HBs Ag ELISA: The solid phase of the test kit should be standard micro plate (90 wells) ELISA coated with monoclonal antibodies. The assay should be at least fourth generation ELISA approved by accredited centers by WHO.The assay should be able to detect HBs Ag of all sub-types. The assay should include reactive and non-reactive controls with each kit. All reagents and accessories necessary to perform the test should also be included.The kit should have a shelf life of minimal 12 months (at ambient temperature) at the port of discharge of consignee's end whichever is applicable. Adequate literature provided with each kit: Methodologies, validity criteria, performance characteristics, storage conditions, manufacturing date, expiry dates, should be provided with each kit. The kit procured should have an approval of the National Health Laboratory (a copy of the Certificate).The assay should have at least sensitivity of 99.8% (detects less than 0.1 mg/ml of both ad and ay subtypes of HBs AG), specificity of 99.8%. The kit size should be 96 wells and be strip plate format.

HBs Ag Elisa test ofAms UK Ltd, NMSF net price = 345.00 SDG
HBs Ag Elisa test of Bio-Rad France, NMSF net price = 337.00 SDG
HBs Ag Elisa test of Biorex Diagnostic, NMSF net price = 160.00 SDG
HBs Ag Elisa test of BiorexUK, NMSF net price = 161.00 SDG
HBs Ag Elisa test of Diosorin - Murex, NMSF net price = 300.00 SDG

15. Coombs Reagent (AHG): Poly specific AHG which contain IgG Abs+C3b complement factor. Free of antimicrobial contamination specific reactive with sensitized cells only. Labeling contain in minimum.Poly specific information, production date, expiration date not less than two years from production date.

Anti-human globulin coombs in 5ml vial of Rapid Labs, NMSF net price = 30.00 SDG
Anti-human globulin coombs in 5ml vial of Biorex - (Fortress) -U.K, NMSF net price = 14.00 SDG
Anti-human globulin coombs in 10ml vialof Biorex UK, NMSF net price = 23.00 SDG
Anti-human globulin coombs in 10ml vial of Biorex - (Fortress) -U.K, NMSF net price = 16.50 SDG

16. Anti-D sera test 10ml (IgG only) polyspecific

Anti-D sera test 10ml (IgG only) of Rpid Labs, NMSF net price = 125.50 SDG

17. Factor II deficient plasma

Factor II deficient plasma of Stago Diagnostica, NMSF net price = 63.80SDG

18. Factor V deficient plasma

Factor V deficient plasma of Stago Diagnostica, NMSF net price = 48.33SDG

19. Factor VII deficient plasma

Factor VII deficient plasma of Helena, NMSF net price = 328.00 SDG

20. Factor VII deficient plasma

Factor VII deficient plasma of Stago Diagnostica, NMSF net price = 1600.00SDG

21. Factor VIII deficient plasma

Factor VIII deficient plasma of Stago Diagnostica, NMSF net price = 850.00SDG

22. Factor IX deficient plasma

Factor IX deficient plasma of Stago Diagnostica, NMSF net price =219.11SDG

23. Factor X deficient plasma

Factor X deficient plasma of Stago Diagnostica, NMSF net price =137.00SDG

24. Factor XI deficient plasma

Factor XI deficient plasma of Helene, NMSF net price = 253.00 SDG

25. Factor XI deficient plasma

Factor XI deficient plasma of Stago Diagnostica, NMSF net price =2000.00 SDG

26. Factor XII deficient plasma

Factor XII deficient plasma of Helene, NMSF net price = 356.50 SDG

27. Factor XII deficient plasma

Factor XII deficient plasma of Stago Diagnostica, NMSF net price =2000.00 SDG

24 Consumable

1. ½ Circle curved round bodied double needle 8, 16mm diameter 220micron on monofilament polypropylene suture size 3/0 (90cm)

Polypropylene monofilament suture size 3/0 (90cm) ½circle round bodied 8mm, 16mm double needle of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 31.00 SDG
Polypropylene monofilament suture3/0 (90cm) ½circle round bodied 8mm, 16mm double needle of China MEHECO Corporation Industries, NMSF net price , NMSF net price = 9.00 SDG
Polypropylene monofilament suture size 3/0 (90cm) ½circle round bodied 8mm, 16mm double needle of SUTURES INDIA PVT, NMSF net price = 10.00 SDG

2. ½ Circle reverse cutting ٢١mm needle on ٧٥cm black braided silk suture size 3/0

Black Braided Silk suture size 3/0 (75cm), ½ Circle reverse cutting 26mm needle of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

3. ½ Circle reverse cutting heavy 40mm needle on 1m black polyamide 6 monofilament suture size (0)

Polyamide (Black) suture size 0 (1M)½ circle round bodied heavey needle 40mm of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 12.00 SDG
Polyamide (Black) suture size 0 (1M) ½ circle round bodied heavey needle 40mm of Beromed GMBH hospital, NMSF net price = 20.00 SDG
Polyamide (Black) suture size 0 (1M) ½ circle round bodied heavey needle 40mm of China MEHECO Corporation Industries, NMSF net price = 1.40 SDG
Polyamide (Black) suture size 0 (1M) ½ circle round bodied heavey needle 40mm of SMI A.G, NMSF net price = 3.00 SDG
Polyamide (Black) suture size 0 (1M)½ circle round bodied heavey needle 40mm of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

4. ½ Circle reverse cutting needle 25mm on 75cm black breided silk suture size (2/0)

Silk blak braided suture size 2/0 (75cm) ½ circle reverse cutting 25mm needle of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 9.00 SDG
Silk blak braided suture size 2/0 (75cm) ½ circle reverse cutting 25mm needle of China Meheco corporation, NMSF net price = 1.50 SDG
Silk blak braided suture size 2/0 (75cm) ½ circle reverse cutting 25mm needle of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

5. ½ Circle reverse cutting needle 37mm length on polyamide non absorbable uncoated monofilament suture 90cm size (3/0)

   New Item

6. ½ Circle round bodied 17mm coated braided synthetic absorbent polyglactic acid suture size (5/0)

   ½ Circle round bodied 17mm coated polyglactic acid suture size (5/0) of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 19.00 SDG
   ½ Circle round bodied 17mm coated polyglactic acid suture size (5/0) of SUTURES INDIA PVT, NMSF net price = 8.00 SDG

7. ½ Circle round bodied 17mm coated braided synthetic absorbent polyglactic acid suture size (6/0)

   ½ Circle round bodied 17mm coated polyglactic acid suture size (6/0) of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 20.00 SDG
   ½ Circle round bodied 17mm coated polyglactic acid suture size (6/0) of SUTURES INDIA PVT, NMSF net price = 9.50 SDG

8. ½ circle round bodied double needles 26mm on monofilament polypropylene suture 90cm size (0)

   Polypropylene monofilament suture 0 (90cm)½circle round bodied 26mm double needle of China MEHECO Corporation Industries, NMSF net price = 3.30 SDG

9. ½ Circle round bodied heavy 40mm needle on 1M black polyamide 6 monofilament suture size (0)

   Polyamide (Black) suture size 0 (1M)½ circle round bodied heavey needle 40mm of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 12.00 SDG
   Polyamide (Black) suture size 0 (1M) ½ circle round bodied heavey needle 40mm of Beromed GMBH hospital, NMSF net price = 20.00 SDG
   Polyamide (Black) suture size 0 (1M) ½ circle round bodied heavey needle 40mm of China MEHECO Corporation Industries, NMSF net price = 1.40 SDG
   Polyamide (Black) suture size 0 (1M) ½ circle round bodied heavey needle 40mm of SMI A.G, NMSF net price = 3.00 SDG
   Polyamide (Black) suture size 0 (1M) ½ circle round bodied heavey needle 40mm of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

10. ½ Circle round bodied heavy 50mm needle on 1M black polyamide 6 monofilament suture size (1)

    Polyamide (Black) suture 1 (1M)½circle round bodied heavey 50mm needle of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 14.00 SDG
    Polyamide (Black) suture 1 (1M) ½circle round bodied heavey 50mm needle of Beromed GMBH hospital, NMSF net price = 20.00 SDG
    Polyamide (Black) suture 1 (1M) ½circle round bodied heavey 50mm needle of China MEHECO Corporation Industries, NMSF net price = 1.40 SDG
    Polyamide (Black) suture size 1 (1M) ½circle round bodied heavey 50mm needle of SMI A.G, NMSF net price = 2.50 SDG
    Polyamide (Black) suture size 1 (1M) ½circle round bodied heavey 50mm needle of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

11. ½ Circle rounded 40mm taper needle on 75cm polyglycolic acid braided coated absorbable size 2

    Polyglycolic acid coated braided suture size 2 (75cm) ½circle round bodied 40mm needle of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 22.00 SDG
    Polyglycolic acid coated braided suture size 2 (75cm) ½circle round bodied
    40mm needle of CNTIC Trading Co. Ltd., NMSF net price = 7.50 SDG
    Polyglycolic acid coated braided suture size 2 (75cm) ½circle round bodied 40mm needle of China Meheco corporation, NMSF net price = 7.00 SDG
    Polyglycolic acid coated braided suture size 2 (75cm) ½circle round bodied 40mm needle of SUTURES INDIA PVT, NMSF net price = 7.50 SDG

12. ½ Circle rounded bodied 25mm needle, on 75cm black brafided silk suture size (2 /0)

    Silk black braided suture size 2/0 (75cm)-½ circle round bodied 25mm needle of Beromed GMBH hospital, NMSF net price = 17.00 SDG
    Silk black braided suture size 2/0 (75cm)-½ circle round bodied 25mm needle of CNTIC trading Co. , NMSF net price = 1.50 SDG
    Silk black braided suture size 2/0 (75cm)-½ circle round bodied 25mm needle of China Meheco, NMSF net price = 1.50 SDG
    Silk black braided suture size 2/0 (75cm)-½ circle round bodied 25mm needle of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

13. ½ Circle rounded bodied 30mm needle on 75cm violet polyglactic 910 coated braided suture size (2)

    ½ Circle rounded bodied 30mm needle on 75cm polyglactic 910 size (2) of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 23.00 SDG
    ½ Circle rounded bodied 30mm needle on 75cm polyglactic 910 size (2) of SUTURES INDIA PVT, NMSF net price = 7.80 SDG

14. ½ Circle rounded bodied 30mm needle on 75cm violet polyglactic 910 coated braided suture size (0)

    ½ Circle rounded bodied 30mm needle on 75cm polyglactic size (0) of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 19.00 SDG
    ½ Circle rounded bodied 30mm needle on 75cm polyglactic size (0) of SUTURES INDIA PVT, NMSF net price = 7.00 SDG

15. ½ Circle rounded bodied 30mm needle on 75cm violet polyglactic 910 coated braided suture size (1)

    ½ Circle rounded bodied 30mm needle on 75cm polyglactic 910 size (1) of B. Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 19.00 SDG
    ½ Circle rounded bodied 30mm needle on 75cm polyglactic 910 size (1) of SUTURES INDIA PVT, NMSF net price = 7.80 SDG

16. ½ Circle rounded bodied 30mm needle on 75cm violet polyglactic 910 coated braided suture size (3/ 0)

    ½ Circle rounded bodied ۳۰mm needle on ۷۵cmpolyglactic ۹۱۰ suture size (۰/۳) of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 18.50 SDG
    ½ Circle rounded bodied ۳۰mm needle on ۷۵cm polyglactic ۹۱۰ suture size (۰/۳) of SUTURES INDIA PVT, NMSF net price = 7.00 SDG

17. ½ Circle rounded bodied 30mm needle on 75cm violet polyglactic 910 coated braided suture size (2/ 0)

    violet polyglactic 910 coated braided suture size 2/0 (75cm) ½circle round bodied 30mm needle of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 20.00 SDG
    Violet polyglactic 910 coated braided suture size 2/0 (75cm) ½circle round
    Bodied 30mm needle of CNTIC Trading Co. Ltd - China, NMSF net price = 7.00 SDG
    Violet polyglactic 910 coated braided suture size 2/0 (75cm) ½circle round bodied 30mm needle of China Meheco corporation, NMSF net price = 7.00 SDG
    Violet polyglactic 910 coated braided suture size 2/0 (75cm) ½circle round bodied 30 mm needle of SUTURES INDIA PVT, NMSF net price = 6.50 SDG

18. ½ Circle rounded bodied 30mm needle on 75cm violet polyglactic 910 coated braided suture size (4/ 0)

    Polyglactic 910 violet coated braided suture size 4/0 (75cm) ½circle round bodied 30mm needle of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 18.00 SDG
    Polyglactic 910 violet coated braided suture size 4/0 (75cm) ½circle round bodied 30mm needle of CNTIC Trading Co. Ltd - China, NMSF net price = 7.00 SDG
    Polyglactic 910 violet coated braided suture size 4/0 (75cm) ½circle round bodied 30mm needle of China Meheco corporation, NMSF net price = 6.50 SDG

Polyglactic 910 violet coated braided suture size 4/0 (75cm) ½circle round bodied 30mm needle of SMI A.G, NMSF net price = 5.40 SDG
Polyglactic 910 violet coated braided suture size 4/0 (75cm) ½circle round bodied 30mm needle of SUTURES INDIA PVT, NMSF net price = 7.50 SDG

19. ½ Circle rounded bodied 30mm needle, on 75cm chromic catgut suture size (0)

Chromic catgut suture size 0 (75cm)½ circle round bodied 30mm needle of CNTIC Trading Co. Ltd - China, NMSF net price = 3.25 SDG
Chromic catgut suture size size 0 (75cm) ½ circle round bodied 30mm needle of SMI A.G, NMSF net price = 3.39 SDG
Chromic catgut suture size size 0 (75cm)½ circle round bodied 30mm needle of SUTURES INDIA PVT, NMSF net price = 4.00 SDG

20. ½ Circle rounded bodied 30mm needle, on 75cm chromic catgut suture size (1)

Chromic catgut suture size 1 (75cm)½ circle round bodied 30mm needle of KDM MEDICAL GMBH, NMSF net price = 2.11 SDG
Chromic catgut suture size 1 (75cm)½ circle round bodied 30mm needle of SUTURES INDIA PVT, NMSF net price = 4.50 SDG

21. ½ Circle rounded bodied 30mm needle, on 75cm chromic catgut suture size (2/0)

Chromic catgut suture size 2/0 (75cm), ½ circle round bodied 30mm needle of SMI A.G, NMSF net price = 3.00 SDG
Chromic catgut suture size 2/0 (75cm), ½ circle round bodied 30mm needle of SUTURES INDIA PVT, NMSF net price = 4.00 SDG

22. ½ Circle rounded bodied 30mm needle, on 75cm chromic catgut suture size (4/0)

Chromic catgut suture 4/0 (75cm)½ circle round bodied 30mm needle of SUTURES INDIA PVT, NMSF net price = 5.00 SDG

23. ½ Circle rounded bodied 40mm needle on 75cm black braided silk suture size (2)

Chromic catgut suture size 2 (75cm)½ circle round bodied 50mm needle of SUTURES INDIA PVT, NMSF net price = 5.00 SDG

24. ½ Circle rounded bodied 40mm needle on 75cm violet polyglycollic 910 coated braided suture size (3)

½ Circle rounded bodied needle 30mm on polyglycolic acid size (3) of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 52.00 SDG

25. ½ Circle rounded bodied 40mm needle, on 75cm coated braided polygycollic acid suture size (1)

Polyglycolic acid coated braided suture size 1 (75cm)½ circle round bodied 40mm needle of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 19.00 SDG
Polyglycolic acid coated braided suture 1 size (75cm)½ circle round bodied 40mm needle of CNTIC Trading Co. Ltd. , NMSF net price = 6.50 SDG
Polyglycolic acid coated braided suture size 1 (75cm) ½ circle round bodied 40mm needle of China Meheco corporation, NMSF net price = 6.50 SDG
Polyglycolic acid coated braided suture size 1 (75cm) ½ circle round bodied 40mm needle of SUTURES INDIA PVT, NMSF net price = 6.50 SDG

26. ½ Circle rounded bodied 50mm needle on 75cm black braided silk suture size (1)

Silk black braided suture size 1 (50m) of SUTURES INDIA PVT, NMSF net price = 55.00 SDG

27. ½ Circle rounded bodied 50mm needle on 75cm chromic catgut suture size (2)

Chromic catgut suture size 2 (75cm)½ circle round bodied 50mm needle of SUTURES INDIA PVT, NMSF net price = 5.00 SDG

28. ½ Circle rounded bodied needle 30mm on polyglycolic acid absorbable coated suture size (3)

½ Circle rounded bodied needle 30mm on polyglycolic acid size (3) of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 52.00 SDG

29. ½ Circle rounded bodied taper 40mm needle on 100cm polypropylene suture size (1)

Polypropylene monofilament suture size 1 (1M) ½circle round bodied 40mm needle of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 27.00 SDG
Polypropylene monofilament suture size 1 (1M) ½circle round bodied 40mm needle of China MEHECO Corporation Industries, NMSF net price = 3.60 SDG
Polypropylene monofilament suture size 1 (1M) ½circle round bodied 40mm needle of SUTURES INDIA PVT, NMSF net price = 5.00 SDG
Polyglycolic acid coated braided suture size 0 (70cm) ½ circle round bodied 40mm needle of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 18.50 SDG
Polyglycolic acid coated braided suture size 0 (70cm) ½ circle round bodied 40mm needle of CNTIC Trading Co. Ltd - China, NMSF net price = 5.75 SDG
Polyglycolic acid coated braided suture size 0 (70cm) ½ circle round bodied 40mm needle of China MEHECO Corporation Industries, NMSF net price = 5.75 SDG
Polyglycolic acid coated braided suture size 0 (70cm) ½ circle round bodied 40mm needle of SMI A.G, NMSF net price = 6.50 SDG
Polyglycolic acid coated braided suture size 0 (70cm) ½ circle round bodied 40mm of SUTURES INDIA PVT, NMSF net price = 6.00 SDG

30. ½ Circle reverse cutting 40mm needle on 75cm black braided silk suture size (0)

Silk black braided suture size 0 (75cm), ½ circle reverse cutting 40mm needle of SMI, NMSF net price = 5.25 SDG

31. ½ Circle reverse cutting 40mm needle on 75cm black braided silk suture size (1)

Black Braided Silk suture size 1 (75cm), ½ Circle reverse cutting 40mm needle of SUTURES INDIA, NMSF net price = 2.25 SDG

32. ½ Circle reverse cutting 40mm needle on 75cm black braided silk suture size (2)

½ Circle reverse cutting 40mm needle on 75cm black braided silk suture size (2) of SUTURES INDIA, NMSF net price = 3.00 SDG

33. ½ Circle reverse cutting 45mm needle on 75cm polyprolene suture size (2)

Polypropylene suture size 2 (75cm), ½ circle reverse cutting 45mm needle of SMI, NMSF net price = 6.00 SDG

34. ½ Circle reverse cutting 18mm needle on 75cm polyprolene suture size (4/0)

Polyprolene suture size 4/0 (75cm), ½ Circle reverse cutting 18mm needle of SMI, NMSF net price = 6.30 SDG

35. ½ Circle reverse cutting 26mm needle on 75cm polypropylene suture size (3/0)

Polypropylene suture size 3/0 (75cm), ½ Circle reverse cutting 26mm needle of SMI, NMSF net price = 6.00 SDG

36. ½ Circle reverse cutting 35mm needle on 75cm polyglycolic acid suture size (2/0)

Polyglycolic acid suture size 2/0 (75cm), ½ Circle reverse cutting 35mm needle of SUTURES INDIA, NMSF net price = 5.75 SDG

37. ½ Circle reverse cutting 35mm needle on 75cm polyprolene suture size (2/0)

Polypropylene suture size 2/0 (75cm), ½ Circle round bodied taper point 35mm needleof SMI, NMSF net price = 6.00 SDG

38. ½ Circle reverse cutting 40mm needle on 75cm polyamide suture size (1)

Polyamide suture size 1 (75cm), ½ Circle reverse cutting 40mm needle of SUTURES INDIA, NMSF net price = 3.10 SDG

39. ½ Circle reverse cutting 40mm needle on 75cm polyglycolic acid suture size (0)

Polyglycolic acid suture size 0 (75cm), ½ circle reverse cutting 40mm needle of SUTURES INDIA PVT, NMSF net price = 5.75 SDG
Polyglycolic acid suture size 0 (75cm), ½ circle reverse cutting 40mm needle of China Meheco corporation, NMSF net price = 6.00 SDG

40. ½ Circle reverse cutting 40mm needle on 75cm polyglycolic acid suture size (1)

    Polyglycolic acid suture size 1 (75cm), ½ Circle reverse cutting 40mm needle of SUTURES INDIA, NMSF net price = 6.50 SDG

41. ½ Circle reverse cutting 40mm needle on 75cm polypropylene suture size (0)

    New Item

42. ½ Circle reverse cutting 40mm needle on 75cm polypropylene suture size (1)

    Polypropylene suture size 1 (75cm), ½ Circle reverse cutting 40mm needle of SMI, NMSF net price = 6.00 SDG

43. ½ Circle reverse cutting 45mm needle on 75cm polyglycolic acid suture size (2)

    Polyglycolic acid suture size 2 (75cm), ½ Circle reverse cutting 45mm needleof SUTURES INDIA, NMSF net price = 6.00 SDG

44. ½ Circle reverse cutting needle 35mm needle on 75cm polyglycolic acid suture size (3 /0)

    Polyglycolic acid suture size 3/0 (75cm), ½ Circle reverse cutting needle 35mm needleof SUTURES INDIA, NMSF net price = 5.57 SDG

45. ½ Circle round bodied taper point 12mm needle on 75cm chromic catgut suture size 6/0

    Polyglycolic acid suture size 6/0 (45cm), 3/8 circle reverse cutting 12mm needle of SUTURES INDIA, NMSF net price = 7.30 SDG

46. ½ Circle round bodied taper point 26mm needle on 75cm Polyamide suture size (3/0)

    Polyamide suture size 3/0 (75cm), ½ Circle round bodied taper point 26mm needle of SUTURES INDIA, NMSF net price = 7.30 SDG

47. ½ Circle round bodied taper point 35mm needle on 75cm Polyamide suture size (2 /0)

    Polyamide suture size 2/0 (75cm), ½ circle round bodied taper point 35mm needle of SUTURES INDIA, NMSF net price = 2.50 SDG

48. ½ Circle round bodied taper point 35mm needle on 75cm Polypropylene suture size (2/0)

    Polyprolene suture size 2/0 (75cm), ½ circle reverse cutting 35mm needle of SMI, NMSF net price = 6.00 SDG

49. ½ Circle round bodied taper point 45mm needle on 75cm polyamide suture size (2)

    Polyamide suture size 2 (75cm), ½ circle round bodied taper point 45mm needle of SUTURES INDIA, NMSF net price = 3.00 SDG

50. ½ Circle round bodied taper point 45mm needle on 75cm polypropylene suture size (2)

    Polypropylene suture size 2 (75cm), ½ circle round bodied taper point 45mm needleof SMI, NMSF net price = 6.00 SDG

51. ½ Circle spatulated 6.2mm double needle on 30cm black braided silk suture size (10/0)

    Black Braided Silk suture size 10/0 (30cm), ½ circle spatulated 6.2mm double needle of SMI, NMSF net price = 42.00 SDG

52. ½ Circle spatulated 6.2mm double needle on 30cm polypropylene suture size (10/ 0)

    Polypropylene suture size 10/0 (30cm), ½ Circle spatulated 6.2mm double needle of SMI, NMSF net price = 69.00 SDG

53. ½ Circle spatulated 6.2mm double needle on 30cm black polyamide suture size (10/0)

    Black Polyamide suture size 10/0 (30cm), ½ Circle spatulated 6.2mm double needle of SMI, NMSF net price = 42.00 SDG

54. ½ Circle spatulated 6.2mm double needle on 30cm black polyamide suture size (8/0)

    Black Polyamide suture size 8/0 (30cm), ½ Circle spatulated 6.2mm double needle of SMI, NMSF net price = 42.00 SDG

55. ½ Circle spatulated needle 8mm double armed on 45cm polyglactin 910 size (5/0)

    Polyglactin 910 size 5/0 (45cm), ½ Circle spatulated needle 8mm double armedof SMI, NMSF net price = 63.00 SDG

56. ½ Circle spatulated needle 8mm double armed on 45cm polyglactin 910 size (6/0)

    Polyglactin 910 size 6/0 (45cm), ½ Circle spatulated needle 8mm double armed of SMI, NMSF net price = 63.00 SDG

57. ¼ Circle tapercut 13mm needle on 20cm polyprolene suture size (10/0)

    Polyprolene suture size 10/0 (20cm), 1/4 Circle tapercut 13mm needle of SMI, NMSF net price = 69.00 SDG

58. Circle cutting 30mm needle on 75cm polypropylene suture size (2/0)

    Polypropylene monofilament suture 2/0 (75cm) 3/8 circle round bodied 30mm Suture india of Suture india, NMSF net price = 5.00 SDG

59. Circle micro point spatula 6.5mm needle on 30cm polyglactin 910 suture size (7/0)

    3/8 Circle micro point spatula 6.5mm needle on 30cm polyglactin 910 suture size 7/0 of SMI, NMSF net price = 69.00 SDG

60. Circle micro-needle with taper point 5mm needle on polyamide non absorbable uncoated monofilament suture 15cm size (10/0)

    3/8 Circle micro -needle with taper point 5mm on polyamide 15cm size 10/0 of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 83.50 SDG
    3/8 Circle micro -needle with taper point 5mm on polyamide 15 cm size 10/0 of China MEHECO Corporation Industries, NMSF net price = 7.75 SDG
    3/8 Circle micro -needle with taper point 5mm on polyamide 15cm size 10/0 of SUTURES INDIA PVT, NMSF net price = 21.50 SDG

61. Circle reverse cutting 12mm needle on 45cm black braided silk suture size (7/0)

    Black Braided Silk suture size 7/0 (45cm), 3/8 Circle reverse cutting 12mm needle of Kollsut, NMSF net price = 5.00 SDG

62. Circle reverse cutting 17mm needle on 45cm black braided silk suture size (5/0)

    Black Braided Silk suture size 5/0 (45cm), 3/8 Circle reverse cutting 17mm needle of Suture India, NMSF net price = 5.00 SDG

63. Circle reverse cutting 17mm needle on 45cm black braided silk suture size (6/0)

    Black Braided Silk suture size 6/0 (45cm), 3/8 Circle reverse cutting 17mm needle of Suture India, NMSF net price = 5.00 SDG

64. Circle reverse cutting 12mm needle on 45cm polyglycolic acid suture size (6/ 0)

    Polyglycolic acid coated braided suture 6/0 (75cm) ½ circle round bodied 17mm needle of CINTIC trading, NMSF net price = 6.00 SDG

65. Circle reverse cutting 17mm needle on 45/75cm polypropylene suture size (5/0)

    Polypropylene suture size 5/0 (45~75cm), 3/8 Circle reverse cutting 17 mm needle of Suture india, NMSF net price = 5.00 SDG

66. Circle reverse cutting 18mm needle on 45cm polyglycolic acid suture size (4/0)

    3/8 Circle rounded bodied double needle 18mm prolene on 75cm size (4/0) of B.Braun Melsungen Ag Sparte Hospital Ca, NMSF net price = 83.00 SDG
    3/8 Circle rounded bodied double needle 18mm prolene on 75cm size (4/0) of SUTURES INDIA PVT, NMSF net price = 21.50 SDG

67. Circle reverse cutting needle 35mm length on polyamide non absorbable un coated monofilament suture 40cm size (3/0)

    3/8 Circle reverse cutting needle 35mm length on polyamide 40cm size 3/0 of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 12.25 SDG
    3/8 Circle reverse cutting needle 35mm length on polyamide 40cm size 3/0 of Beromed GMBH hospital, NMSF net price = 2.00 SDG
    3/8 Circle reverse cutting needle 35mm length on polyamide 40cm size 3/0 of China MEHECO Corporation Industries, NMSF net price = 1.50 SDG
    3/8 Circle reverse cutting needle 35mm length on polyamide 40cm size 3/0 of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

68. Circle reverse cutting needle 39mm length on polyamide non absorbable un coated monofilament suture 40cm size (2/0)

    3/8 Circle reverse cutting needle 39mm

Consumable

Consumable

length on polyamide 75cm size 2/0 of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 13.00 SDG
3/8 Circle reverse cutting needle 39mm length on polyamide 75cm size 2/0 of Beromed GMBH hospital, NMSF net price = 2.00 SDG
3/8 Circle reverse cutting needle 39mm length on polyamide 75cm size 2/0 of China MEHECO Corporation Industries, NMSF net price = 1.40 SDG
3/8 Circle reverse cutting needle 39mm length on polyamide 75cm size 2/0 of SUTURES INDIA PVT, NMSF net price = 3.00 SDG

69. Circle round bodied 35mm needle on 60cm polypropylene suture size (6/0)

New Item

70. Circle rounded bodied double needle18mm polypropylene on 75cm suture size (4/0)

Polyprolene suture size 4/0 (75cm), ½ Circle reverse cutting 18mm needle of SMI, NMSF net price = 6.00 SDG

71. Reverse cutting needle 8mm black braided silk suture 8/0 on 45cm

Silk black braided suture 8/0 (45cm) 3/8 reverse cutting 8mm needle of CNTIC Trading Co. Ltd,, NMSF net price = 5.00 SDG

72. Absorbable haemostate collagen 10cm x 20cm

Absorbable hemostatic collagen (Oxidized regenerated cellulose) 10cm x 20cm of JOHNSON AND JOHNSON MEDICAL, NMSF net price = 168.5 SDG

73. Absorbable haemostate collagen 10cm x 20cm

New Item

74. Absorbable haemostate collagen 5cm x 8cm

Absorbable haemostate collagen 5cm x 8cm of AMED THERAPEUTIC, NMSF net price = 74.75 SDG
Absorbable haemostate collagen 5cm x 8cm of IMRES, NMSF net price = 130.23 SDG
Absorbable haemostate collagen 5cm x8cm of JOHNSON AND JOHNSON MEDICAL, NMSF net price = 91.00 SDG

75. Absorbent cotton wool, BP, 500gm in roll

Cotton Absorbent 500g of HBM Medical Co. , NMSF net price = 20.00 SDG
Cotton Absorbent 500g of JAYCOT INDUSTERIES, NMSF net price = 23.86 SDG
Cotton Absorbent 500g of Khomasi, NMSF net price = 20.00 SDG
Cotton Absorbent 500g of neomedic, NMSF net price = 25.30 SDG
Cotton Absorbent 500g of S.F.M MEDICAL COMPANY, NMSF net price = 25.30 SDG
Cotton Absorbent 500g of Y.S.U.M, NMSF net price = 25.30 SDG

76. Absorbent gauze 90cm x 90cm

Absorbent gauze 90cm x 90m of winner, NMSF net price = 110.00 SDG
Absorbent gauze 90cm x 90m of Eltayeb Yousif Interpresies, NMSF net price = 110.00 SDG
Absorbent gauze 90cm x 90m of morning side, NMSF net price = 110.00 SDG
Absorbent gauze 90 cmx90m of WINNER INDUSTERIES, NMSF net price = 110.00 SDG

77. Acid bicarbonate concentrate 10L/ gallon

Acid bicarbonate concentrate 10L/ Galon of AIN SUDAN, NMSF net price = 43.26 SDG
Acid bicarbonate concentrate 10L/Galon of GORTAG FOR HAEMODIALYSIS SOLUTIONS, NMSF net price = 43.26 SDG
Acid bicarbonate concentrate 10L/Galon of FRESENIUS MEDICAL CARE -EG, NMSF net price = 40.33 SDG
Acid bicarbonate concentrate 10L/Galon of PHARMACEUTICAL SOLUTION INDUSTRIES, NMSF net price = 42.37 SDG

78. Anti human globulin sera test (coombs) 10ml (IgG + C3d)

Anti-human globulin coombs in 10ml vail of Biorex - (Fortress) -U.K, NMSF net price = 16.50 SDG
Anti-human globulin coombs in 10ml vail of BIOREX UK, NMSF net price = 23.00 SDG

79. Bicarbonate powder bag 650gm

Bicarbonate powder bag 650gm for Fresenius Kabi Machines of B.BRAUN Avitum AG, NMSF net price = 13.8504 SDG
Bicarbonate powder bag 650 gm for Fresenius Kabi Machines of FRESENIUS MEDICAL CARE -EG, NMSF net price = 18.7388 SDG
Bicarbonate powder bag 650gm for Fresenius Kabi Machines of FARMASOL , TURKEY, NMSF net price = 10.9174 SDG
Bicarbonate powder bag 650gm for Fresenius Kabi Machines of INSPRAMED MEDICAL SANAYI, NMSF net price = 25.5825 SDG
Bicarbonate powder bag 650gm for Fresenius Kabi Machines of INSPRAMED serumwerk AG, NMSF net price = 16.2946 SDG

80. Bicarbonate powder cartridge 650gm

Bicarbonate powder cartridge 650-700gm for Gambro Machines of B.BRAUN Avitum AG, NMSF net price = 11.406 SDG
Bicarbonate powder cartridge 650-700gm for Gambro Machines of FRE SENIUS MEDICAL CARE -EG, NMSF net price = 24.2790 SDG
Bicarbonate powder cartridge 650-700gm for Gambro Machines of GAMBRO LUNDIA AB, NMSF net price = 14.6651 SDG
Bicarbonate powder cartridge 650-700gm for Gambro Machines of SERUMWERK AG, NMSF net price = 8.1473 SDG

81. Black braided silk suture size (1) roll 50m

Silk black braided suture1 (50m) of SUTURES INDIA PVT, NMSF net price = 55.00 SDG

82. Blood lancet box of 200 pcs

Blood lancet Box of 200 pcs of Karl Hecht, NMSF net price = 23.86 SDG
Blood lancet Box of 200 pcs of KDM, NMSF net price = 14.38 SDG

83. Blood transfusion set

Blood transfusion set of Saudimais Company, NMSF net price = 6.00SDG
Blood transfusion set of GHATWARY MEDICAL CO, NMSF net price = 6.00 SDG
Blood transfusion set of MAIS, NMSF net price = 6.00 SDG
Blood transfusion set of Ultra Med, NMSF net price = 6.00 SDG

84. Blunt point curved round bodied needle 63mm on braided polyglactic acid suture 1m size (1)

Blunt point curved round bodied 63mm on polyglactic acid 1m size (1) of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 33.14 SDG
Blunt point curved round bodied 63mm on polyglactic acid 1m size (1) of SUTURES INDIA PVT, NMSF net price = 7.00 SDG

85. Bone wax surgical haemostatic 2.5g

Bone wax surgical heamostatic 2.5g of SMI, NMSF net price = 4.80 SDG
Bone wax surgical heamostatic 2.5g of SUTURES INDIA PVT, NMSF net price = 3.50 SDG
Bone wax surgical heamostatic 2.5g of WILL PHARMA, NMSF net price = 130.23 SDG

86. Cannula, intravenous cannula with injection port sterile non toxic, pyrogen free, 16G/55mm

Sterile i.v canula size 16 of SATISCON CANADA Inc(HASONA), NMSF net price = 1.50 SDG

87. Cannula, intravenous cannula with injection port sterile non toxic, pyrogen free, 18G/55mm

Sterile i.v Canula size 18 of Lakhani Medicare PVT Ltd, NMSF net price = 1.50 SDG
Sterile i.v. Canula size 18 of SATISCON CANADA Inc (HASONA), NMSF net price = 1.50 SDG

88. Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 19G/55mm

New Item

89. Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 20G/55mm

Sterile i.v. Canula size 20 of Lakhani Medicine Pvt Ltd India, NMSF net price = 1.50 SDG
Sterile IV Canula size 20 of N.I.D. Medical Co, NMSF net price = 1.50 SDG
Sterile IV Canula size 20 of SATISCON CANADA Inc (HASONA), NMSF net price = 1.50 SDG

90. Cannula, intravenous cannula with injection port sterile non toxic, pyrogen free, 20G/55mm

New Item

91. Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 21G/55mm

New Item

92. Cannula, intravenous cannula with injection port sterile non toxic, pyrogen free, 22G/55mm

Sterile i.v Canula size 22 of Lakhani Medicine Pvt Ltd India, NMSF net price = 1.50 SDG
Sterile i.v. Canula size 22 of N.I.D. Medical Co, NMSF net price = 1.50 SDG
Sterile IV Canula size 22 of SATISCON CANADA Inc (HASONA), NMSF net price = 1.50 SDG

93. Cannula, Intravenous cannula with injection port sterile non toxic, pyrogen free, 23G/55mm

New Item

94. Cannula, intravenous cannula with injection port sterile non toxic, pyrogen free, 24G/55mm

Sterile i.v. Canula size 24 of Lakhani Medicine Pvt Ltd India, NMSF net price = 1.50 SDG
Sterile i.v Canula size 24 of SATISCON CANADA Inc (HASONA), NMSF net price = 1.50 SDG

95. Cannula, intravenous cannula with injection port sterile non toxic, pyrogen free, 26G/55mm

Sterile i.v. Canula size 26 of SATISCON CANADA Inc (HASONA), NMSF net price = 2.00 SDG

96. Cell pack hematology reagent compatable with Sysmex analyzer

New Item

97. Central venous catheter 0.8 x 1.4mm. (275)

Central Venous Catheter 0.8 x 1.4mm. (275) of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 70.00 SDG

98. Chromic CATGUT 6/ 0 round bodied taper point 12mm needle

Chromic catgut suture size 6/0 (75cm), ½ Circle round of SMI, NMSF net price = 6.48 SDG

99. Citric acid 50% 5L in gallons

Citric acid 50% 5L in gallons of INSPRAMED MEDICAL SANAYI, NMSF net price = 44.81 SDG
Citric acid 50% 5L in gallons of Medical care, NMSF net price = 71.29 SDG

100. Clostomy bags (60mm) disposable mounted with base plate size 60mm

Clostomy bag size 60mm with base plate Disposable of Coloplast, NMSF net price = 14.50 SDG

101. Clostomy bags (70mm) disposable mounted with base plate size 70mm

Clostomy bag size 70mm with base plate Disposable of Coloplast, NMSF net price = 23.00 SDG

102. Coagulometer cuvettes (PVC, Glass, or Quarz)

New Item

103. Colostomy bag (40mm) disposable mounted with base plate size 40mm

Clostomy bag size 40mm of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 6.51 SDG
Clostomy bag size 40mm of MRK Health care, NMSF net price = 2.21 SDG

104. Colostomy bag (50mm) disposable mounted with base plate size 50mm

Clostomy bag size 50mm of ANGIPLAST PVT LTD, NMSF net price = 2.00 SDG
Clostomy bag size 50mm of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 6.54 SDG

105. Colostomy bag (60mm) disposable mounted with base plate size 60mm

Clostomy bag size 60mm of ANGIPLAST PVT LTD, NMSF net price = 2.00 SDG
Clostomy bag size 60mm of B.Braun Melsungen Ag Sparte Hospital Care, NMSF net price = 6.55 SDG

106. Colostomy bag (70mm) disposable mounted with base plate size 70mm

Clostomy bag size 70mm of MRK Health care, NMSF net price = 3.80 SDG

107. Condom catheter

Condom catheter medium size of Romsons Int, NMSF net price = 4.00 SDG

108. Crep bandage 15cm

New Item

109. Crepe bandage 5cm * 5cm

New Item

110. Cripe bandage 10cm * 4.5cm

Crepe bandage 10cm x 4.5m of BSN Medical, NMSF net price = 3.00 SDG
Crepe bandage 10cm x 4.5m of ABD ELRHMAN IBNAOUF MANUFACTURE, NMSF net price = 3.00 SDG

111. Cripe bandage 7.5cm * 4.5cm

Crepe bandage 7.5cm x 4.5cm of ABD ELRHMAN IBNAOUF MANUFACTURE, NMSF net price = 2.50 SDG
Crepe bandage 7.5cm x 4.5cm of Ratag Pharmaceuticals, NMSF net price = 3.00 SDG
Crepe bandage 7.5cm x 4.5cm of Surgimed, NMSF net price = 2.50 SDG
Crepe bandage 7.5cm x 4.5cm of Taizhou Jiapeng, NMSF net price = 2.50 SDG

112. Diaclean 25% (diastral), 5lit in gallon

Diaclean 25% (Diastril), 5lit in gallon of FRESENIUS MEDICAL CARE, NMSF net price = 162.9460 SDG
Diaclean 25% (Diastril), 5lit in gallon of Medical care, NMSF net price = 81.4730 SDG

113. Dialyser 1 sqm surface area

Dialyser 1 sqm surface area of B.BRAUN Avitum AG, NMSF net price = 83.5098 SDG
Dialyser 1 sqm surface area of FRESENIUS MEDICAL CARE -EG, NMSF net price = 46.0322 SDG
Dialyser 1 sqm surface area of SERUMWERK AG, NMSF net price = 87.5835 SDG

114. Dialyser 1.5 sqm surface area

Dialyser 1.5 sqm surface area of B.BRAUN Avitum AG, NMSF net price = 59.5568 SDG
Dialyser 1.5 sqm surface area of SERUMWERK AG, NMSF net price = 67.2152SDG

115. Dialyser 1.6 sqm surface area

Dialyser 1.6 sqm surface area of B.BRAUN Avitum AG, NMSF net price = 69.2521 SDG
Dialyser 1.6 sqm surface area of BAIN MEDICAL, NMSF net price = 58.7100SDG
Dialyser 1.6 sqm surface area of FRESENIUS MEDICAL CARE -EG, NMSF net price = 101.1080 SDG
Dialyser 1.6 sqm surface area of SERUMWERK AG, NMSF net price = 91.6571 SDG

116. Dialyser 1.7 sqm surface area

Dialyser 1.7 sqm surface area of GAMBRO LUNDIA AB, NMSF net price = 57.0311 SDG

117. Disposable Blow-extruded PVC, sterilized by steam, non-toxic, pyrogen-free quadruple blood bag system includes one primary bag capacity (450ml) having anticoagulant CPDA/CPDA-II /CPD solution USP/BP (63ml) and three empty satellite bags (capacity 400ml) with donor needle .Each set packed in one PE or PET compounded vacuum pouch, 3 to 5 sets packed in one lightproof aluminum foil compounded pouch, and then 30 to 50 sets packed in one carton

Blood Bags Quadrable 450ml of Terumo - Japan, NMSF net price = 103.25 SDG

118. Disposable syringe 10ml with needle sterile non-toxic, pyrogen free, 21G * 1.25-1.50 inch

Disposable syringe 10ml of AVAMED MEDICAL INDUSTRIES, NMSF net price = 0.35 SDG
Disposable syringe 10ml of Changzhou Huichun Medical Equipment CO.LTD, NMSF net price = 0.35 SDG
Disposable syringe 10ml of Nirma ltd, NMSF net price = 0.35 SDG
Disposable syringe 10ml of Shandong zihoa, NMSF net price = 0.35 SDG

119. Disposable syringe 1ml with needle sterile non-toxic, pyrogen free, 29-30G * 1.25 inch

Disposable syringe 1ml of AVAMED MEDICAL INDUSTRIES, NMSF net price = 0.18 SDG
Disposable syringe 1ml of OMDURMAN MEDICAL (HINDUSTAN SYRINGES), NMSF net price = 0.41 SDG
Disposable syringe 1ml of Changzhou Huichun Medical Equipment CO.LTD, NMSF net price = 0.41 SDG
Disposable syringe 1ml of HBM Medical Co, NMSF net price = 0.35 SDG
Disposable syringe 1ml of SUMBO MEDICAL INSTRUMENTS, NMSF net price = 0.41 SDG

120. Disposable syringe 20ml with needle sterile non-toxic, pyrogen free, 21G * 1.25-1.50 inch

Disposable syringe 20ml of Changzhou Huichun Medical Equipment CO.LTD, NMSF net price = 0.48 SDG

121. Disposable syringe 3ml with needle sterile non-toxic, pyrogen free, 21-22G * 1.2-1.50 inch

Disposable syringe 3ml of AVAMED MEDICAL INDUSTRIES, NMSF net price = 0.25SDG
Disposable syringe 3ml of Chanzhou Huichun, NMSF net price = 0.25 SDG
Disposable syringe 3ml of JIANGSU RANGYOU MEDICAL EGUIPMENT COMPANY, NMSF net price = 0.25 SDG
Disposable syringe 3ml of PHARO MEDICA, NMSF net price = 0.25 SDG
Disposable syringe 3ml of Shandong zihoa, NMSF net price = 0.25 SDG

122. Disposable syringe 50ml with needle sterile non-toxic, pyrogen free, 21G X 1.25-1.50 inch

Disposable syringe 50ml with needle sterile non-toxic, pyrogen free, 21G x 1.25-1.50 inch of Saudi Mais co, NMSF net price = 8.50 SDG

123. Disposable, Sterile and Non-Pyrogenic IV cannula with 3-way size 18

New Item

124. Double J catheter size 6 * 30 open sides

New Item

125. Double J catheter size 6 * 28 open sides

New Item

126. Double J catheter size 7 * 28 open sides

New Item

127. Double J catheter size 7 * 30 open sides

New Item

128. Empty bag for clinical nutrient 1500ml

Empty bag for clinical nutrient 1500ml of Fresenius Kabi, NMSF net price = 35.90 SDG

129. Eppendorf tubee

New Item

130. Examination gloves, disposable, latex powdered (arge size)

Examination Gloves Large size of SWECO, NMSF net price = 0.25 SDG
Examination Gloves Large size of SWECO, NMSF net price = 0.25 SDG

131. Examination gloves, disposable, latex powdered (medium size)

Examination Gloves Medium size of SWECO, NMSF net price = 0.25 SDG
Examination Gloves Medium size of TiTi Glove, NMSF net price = 0.25 SDG
Examination Gloves Medium size of CIPLA LTD, NMSF net price = 0.25 SDG

132. Examination gloves, disposable, latex powdered (small size)

Examination Gloves small size of SWECO, NMSF net price = 0.25 SDG
Examination Gloves small size of TiTi Glove, NMSF net price = 0.25 SDG
Examination Gloves small size of CIPLA LTD, NMSF net price = 0.25 SDG

133. Factor IX conc 500IU

Antihaemophilic factor IX dried fraction 500IU vial of Octapharma, NMSF net price = 1,100.00 SDG
Antihaemophilic factor IX dried fraction 500IU vial of Bio Products Laboratory (BPL) U.K, NMSF net price = 1,150.00 SDG

134. Factor VIII conc with VWF 250IU powder for reconstitution for injection

Antihaemophilic factor VIII dried fraction with VWF 500IU vial of Bio Products Laboratory (BPL) U.K, NMSF net price = 912.00 SDG

135. Fibrin Sealant Patch, degradable fibrin sealant product, consists of two active Substances-Human Fibrinogen and Human Thrombin – coated onto a Collagen Sponge of equine origin for topical use

New Item

136. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 10 FR

Folly catheter size 10 of euromed, NMSF net price = 3.20 SDG
Folly catheter size 10 of Jiangxi, NMSF net price = 4.00 SDG
Folly catheter size 10 of Ultramed, NMSF net price = 3.00 SDG
Folly catheter size 10 of well lead, NMSF net price = 4.60 SDG

137. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 12 FR

Folly catheter size 12 of Ultra for medical product, NMSF net price = 4.50 SDG
Folly catheter size 12 of well lead, NMSF net price = 4.60 SDG

138. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 14 FR

Folly catheter size 14 of Ultramed, NMSF net price = 4.00 SDG
Folly catheter size 14 of well lead, NMSF net price = 4.60 SDG

139. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 16 FR

Folly catheter size 16 of Euromed, NMSF net price = 2.40 SDG
Folly catheter size 16 of Ultramed, NMSF net price = 2.31 SDG
Folly catheter size 16 of well lead, NMSF net price = 4.60 SDG

140. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 18 FR

Folly catheter size 18 of Euromed, NMSF net price = 4.00 SDG
Folly catheter size 18 of Ultramed, NMSF net price = 2.31 SDG
Folly catheter size 18 of well lead, NMSF net price = 4.60 SDG

141. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 20 FR

Folly catheter size 20 of Ultramed, NMSF net price = 2.31 SDG
Folly catheter size 20 of well lead, NMSF net price = 4.60 SDG

142. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 24 FR

Foley catheter size 24 of well lead, NMSF net price = 4.60 SDG

143. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 6 FR

Folly catheter size 6 of Euromed, NMSF net price = 2.40 SDG
Folly catheter size 6 of Ultramed, NMSF net price = 2.24 SDG
Folly catheter size 6 of WELL LEAD Medical CO. LTD, NMSF net price = 4.60 SDG

144. Foley balloon catheter 2-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 8 FR

Folly catheter size 8 of Ratag Pharma (HBM Group), NMSF net price = 2.34 SDG
Folly catheter size 8 of Euromed, NMSF net price = 2.40 SDG
Folly catheter size 8 of Ultramed, NMSF net price = 2.31 SDG
Folly catheter size 8 of WELL LEAD Medical CO. LTD, NMSF net price = 4.60 SDG

145. Foley catheter 3-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 18 FR

New Item

146. Foley catheter 3-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 20 FR

New Item

147. Foley catheter 3-ways, latex, silicone coated, sterile, non toxic, non pyrogenic, size 22 FR

New Item

148. Gauze bandage 7.5 cm * 4.5cm

Gauze bandage 7.5cm x 4.5cm of Ratag Pharmaceuticals, NMSF net price = 0.70 SDG
Gauze bandage 7.5cm x 4.5cm of HBM Medical Co, NMSF net price = 0.70 SDG
Gauze bandage 7.5cm x 4.5cm of Medwell Medical Products (Medical Pro), NMSF net price = 0.70 SDG
Gauze bandage 7.5cm x 4.5cm of Taizhou Jiapeng, NMSF net price = 0.70 SDG
Gauze bandage 7.5cm x 4.5cm of Visonmed International, NMSF net price = 0.70 SDG

149. Gauze Vaseline

Vaseline gauze coated with vaseline petroleum sterile Size 10*10cm of WAYSON MEDICAL, NMSF net price = 1.23 SDG

150. Graduated urine bages 2000 ml capacity, tubee length 900mm, with sampling port

Graduated disposable urine bag 2000ml capicity with outlet of Ratag Pharmaceuticals, NMSF net price = 2.75 SDG
Graduated disposable urine bag 2000ml capicity with outlet of Flexicare, NMSF net price = 2.75 SDG
Graduated disposable urine bag 2000ml capicity with outlet of Greetmed, NMSF net price = 2.75 SDG
Graduated disposable urine bag 2000ml capicity with outlet of Neomedic limited, NMSF net price = 2.75 SDG
Graduated disposable urine bag 2000ml capicity with outlet of Sumbow medical instruments, NMSF net price = 2.75 SDG
Graduated disposable urine bag 2000ml capicity with outlet of Ultramed, NMSF net price = 2.75 SDG
Graduated disposable urine bag 2000ml capicity with outlet of VT VERDALIA, NMSF net price = 2.75 SDG

151. Haemocontrol microcuvettes

Haemoglobin 301 microcuvettes of Hemocue AB Seweden, NMSF net price = 3.45 SDG

152. Hypoclean 6% (biastril) 5lit. in gallon

Biastril 6 %, 5lit. in gallon of Medical care, NMSF net price = 81.47 SDG

153. I.V set

New Item

154. Identification Bracelet, Child-Blue

Child Identification Bracelet, Blue (New born label) of jiaxing yuanyu, NMSF net price = 0.50 SDG

155. Internal jugular catheter size 12

Tunnelled central venous catheter ("CVC", "central venous line" or "central venous access catheter") internal jugular vein size 12 of BALTON SPA, NMSF net price = 166.00 SDG

156. Internal jugular catheter size 15

Tunnelled central venous catheter ("CVC", "central venous line" or "central venous access catheter") internal jugular vein size 15 of BALTON SPA, NMSF net price = 166.00 SDG

157. Internal jugular catheter size 18

Tunnelled central venous catheter ("CVC", "central venous line" or "central venous access catheter") internal jugular vein size 18 of BALTON SPA, NMSF net price = 166.00 SDG

158. Intravenous set, non-pyrogenic, sterile vented with : protective cap, closure piercing device, drip tubee, air vent, drip chamber, disk filter.

I.V. set vented with cap., closure piercing device, air vent, drip chamber, disk filter of Lamed HC Pvt, NMSF net price = 1.00 SDG
I.V, set vented with cap, closure piercing device, air vent, drip chamber, disk filter of LAKHANI MEDICARE PVT Ltd, NMSF net price = 1.00 SDG

159. Medical disposable non-toxic PVC Suction catheter size 12

New Item

160. Medical disposable non-toxic PVC Suction catheter size 14

New Item

161. Membrane 40*21 for haemodialysis machine

Membrane 40*21 for haemodialysis machine of DOW FLEMENTIC, NMSF net price = 2,678.00 SDG
Membrane 40*21 for haemodialysis machine of Flematic, NMSF net price = 3,560.37 SDG

162. Membrane 40*40 for haemodialysis machine

Membrane 40*40 for haemodialysis machine of DOW FLEMENTIC, NMSF net price = 3,090.00 SDG
Membrane 40*40 for haemodialysis machine of Flematic, NMSF net price = 4,073.65 SDG

163. Nasogastric tube sterile disposable non toxic pyrogen free size FG 14 (adult)

Nasogastric tube (adult) size 14 of Ultra Medical Co, NMSF net price = 1.75 SDG
Nasogastric tube (adult) size 14 of Well Lead Medical CO. LTD, NMSF net price = 1.75 SDG

164. Nasogastric tube sterile disposable non toxic pyrogen free size FG 16 (adult)

Nasogastric tube (adult) size 16 of Ultramed, NMSF net price = 1.75 SDG
Nasogastric tube (adult) size 16 of Ratag Pharma (HBM Group), NMSF net price = 1.75 SDG
Nasogastric tube (adult) size 16 of Kalindi Industrial, NMSF net price = 1.75 SDG

165. Nasogastric tube sterile disposable non toxic pyrogen free size FR 18 (adult)

Nasogastric tube (adult) size 18 of Ultramed, NMSF net price = 1.75 SDG
Nasogastric tube (adult) size 18 of Ratag Pharma (HBM Group), NMSF net price = 1.75 SDG
Nasogastric tube (adult) size 18 of Industrial, NMSF net price = 1.75 SDG
Nasogastric tube (adult) size 18 of Sinobright (Suzhou Yudu), NMSF net price = 1.75 SDG

166. Nasogastric tube sterile disposable non toxic pyrogen free size FR 5 (infant)

Nasogastric tube (infant) size 5 of Ultramed, NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 5 of Lilioum Medical SERVICE, NMSF net price = 1.75nSDG
Nasogastric tube (infant) size 5 of Ratag Pharma (HBM Group), NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 5 of Kalindi Industrial, NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 5 of Sinobright (Suzhou Yudu), NMSF net price = 1.75 SDG

167. Nasogastric tube sterile disposable non toxic pyrogen free size FR 8 (infant)

Nasogastric tube (infant) size 8 of Ultramed, NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 8 of Ratag Pharmaceuticals, NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 8 of Angiplast Pvt Ltd, NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 8 of Kalindi Industrial, NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 8 of Saudi Mais, NMSF net price = 1.75 SDG
Nasogastric tube (infant) size 8 of Sinobright, NMSF net price = 1.75 SDG

168. Percutaneous Endoscopic Gastrostomy (PEG) tube size 9 CH

New Item

169. Permanent catheter size 36

New Item

170. Permanent catheter size 42

New Item

171. Plaster of Paris bandage (low plaster loss) 4 inch

Plaster of Paris 4 inch of BSN Medical, NMSF net price = 4.50 SDG
Plaster of Paris 4 inch of anji anshen surgical dressings Co.ltd, NMSF net price = 2.50 SDG

172. Plaster of Paris bandage (low plaster loss) 6 inch

Plaster of paris 6 inch of BSN Medical, NMSF net price = 6.00 SDG
Plaster of paris 6 inch of Anji anshen surgical dressings Co.ltd, NMSF net price = 4.00 SDG
Plaster of paris 6inch of HBM Medical Co, NMSF net price = 5.20 SDG
Plaster of paris 6 inch of Surgimed, NMSF net price = 2.50 SDG
Plaster of paris 6 inch of Taizhou Jiapeng, NMSF net price = 2.50 SDG

Consumable

173. Plaster of Paris bandage (low plaster loss) 8 inch

Plaster of paris 8 inch of BSN Medical, NMSF net price = 7.50 SDG
Plaster of paris 8 inch of anji anshen surgical dressings Co.ltd, NMSF net price = 5.33 SDG
Plaster of paris 8 inch of HBM Medical Co, NMSF net price = 6.33 SDG
Plaster of paris 8 inch of Surgimed, NMSF net price = 4.00 SDG
Plaster of paris 8 inch of Taizhou Jiapeng, NMSF net price = 4.00SDG

174. Polyamide round needle size 2

New Item

175. Polyamide round needle size 2.0

New Item

176. Polyamide round needle size 3.0

New Item

177. Polyglycolic acid coated braided suture cutting needle size 2.0

New Item

178. Polyglycolic acid coated braided suture cutting needle size 4.0 (17-15)

New Item

179. Polyglycolic acid coated braided suture cutting needle size 5.0

Polyglycolic acid coated braided suture 5/0 (75cm) ½ circle round bodied 17mm needle of CNTIC, NMSF net price = 5.30 SDG
Polyglycolic acid coated braided suture 5/0 (75cm) ½ circle round bodied 17mm needle of China MEHECO Corporation Industries, NMSF net price = 6.00 SDG
Polyglycolic acid coated braided suture 5/0 (75cm) ½ circle round bodied 17mm needle of SMI A.G, NMSF net price = 5.50 SDG

180. Polyglycolic acid coated braided suture cutting needle size 6.0 (17-15)

New Item

Consumable

181. Polyglycolic acid coated braided suture round size 2.0

New Item

182. Polyglycolic acid coated braided suture round size 3.0

Polyglycolic acid coated braided suture 3/0 (75Cm) ½ circle round bodied 40mm needle of CNTIC Trading Co. Ltd, NMSF net price = 6.00 SDG
Polyglycolic acid coated braided suture 3/0 (75cm) ½ circle round bodied 40mm needle of china MEHECO Corporation industries, NMSF net price = 6.00 SDG

183. Polypropylene filter cartilage 10mm

Polypropylene filter catrilage 10mm of Flematic, NMSF net price = 97.7676 SDG

184. Polypropylene filter cartilage 1mm

Polypropylene filter catrilage 1mm of Flematic, NMSF net price = 97.7676 SDG

185. Polypropylene filter cartilage 50mm

Polypropylene filter catrilage 50mm of Flematic, NMSF net price = 97.7676 SDG

186. Polypropylene filter cartilage 5mm

Polypropylene filter catrilage 5mm of Flematic, NMSF net price = 97.7676 SDG

187. Prolene 30*30 (non-absorbable monofilament polypropylene mesh size 30cm * 30cm)

Non-absorbable monofilament Polypropylene mesh size 30cm x 30cm of SMI A.G, NMSF net price = 130.00 SDG
Non-absorbable monofilament Polypropylene mesh size 30cm x 30cm of SUTURES INDIA PVT, NMSF net price = 170.00 SDG

188. Prolene mesh size 11*6cm (non-absorable monofilament polypropylene mesh size 11 cm * 6cm)

Non-absorbable monofilament Polypropylene mesh size 11cm x 6cm of SMI A.G, NMSF net price = 66.00 SDG
Non-absorbable monofilament Polypropylene mesh size 11cm x 6cm of SMI A.G, NMSF net price = 25.00 SDG

189. Prolene mesh size 15*15cm (non-absorable monofilament polypropylene mesh size 15 cm * 15cm)

Non-absorbable monofilament Polypropylene mesh size 15cm x 15cm of SMI A.G, NMSF net price = 60.00 SDG

Non-absorbable monofilament Polypropylene mesh size 15cm x 15cm of SUTURES INDIA PVT, NMSF net price = 60.00 SDG

190. Prolyene 2/0 cutting

Polypropylene monofilament suture 2/0 (75cm) 3/8 circle cutting 30mm needle of SUTURES INDIA PVT, NMSF net price = 5.60 SDG

191. Prolyene 2/0 round

New Item

192. Prolyene 4/0 cutting

New Item

193. Prolyene 4/0 round

New Item

194. Prolyene 5/0

Polypropylene monofilament suture 5/0 (75cm) 3/8 circle round bodied 13mm needle of China MEHECO Corporation Industries, NMSF net price = 3.00 SDG

195. Prolyene sterile 0 cutting

New Item

196. Prolyene sterile 1 cutting

New Item

197. Prolyene sterile 2 cutting

New Item

198. Prolyene sterile 2 round

New Item

199. Prolyene sterile 3/0 cutting

New Item

200. Prolyene sterile 3/0 round

New Item

201. Ready vacc

New Item

202. Rest join for children + mother

New Item

203. Salt tablets, bag of 25k

Salt tablets, bag of 25K of ABU DHABI CHEMICAL, NMSF net price = 123.60 SDG
Salt tablets, bag of 25K of esco, NMSF net price = 175.10 SDG

204. Silicon long term NG tubee for feeding

New Item

205. Silk black braided suture 1 cutting needle size 0

New Item

206. Silk black braided suture 1 cutting needle size 1

New Item

207. Silk black braided suture 1 cutting needle size 2

New Item

208. Silk sterile 1 cutting

New Item

209. Silk sterile 10/0

New Item

210. Silk sterile 10/0

New Item

211. Silk sterile 2cutting

New Item

212. Silk sterile 3/0 cutting

New Item

213. Silk sterile 37/0 cutting

New Item

214. Silk sterile 5/0 cutting

New Item

215. Silk sterile 6/0 cutting

New Item

216. Silk sterile 8/0

New Item

217. Single blood bags: Volume capacity = (450ml),Volume of Anticoagulant (CPDA-1) equal 63ml.The plastic bags flexible to often minimum resistance during filling and emptying under normal condition of use. Bags must be not contain more than 5ml of air.Bags must be sufficiently transparent to allow adequate visual examination of its contents.Resistance to centrifugation load.Resistance to ultra keep freezing for align storing period (-80 for year). Needle poor should be 16mm with Blood Given set: Sterile, non pyrogenic & Non toxic. Discard after use. Do not store at extreme and humidity.

Consumable

Blood Bags single 450ml without set of Beast Industrial company, NMSF net price = 15.00 SDG
Blood Bags single 450ml without set of TERUMO, NMSF net price = 25.00 SDG
Blood Bags single 450ml with set of Terumo-Japan, NMSF net price = 36.00 SDG
Blood Bags single 450ml with set of JMS Singapore Ltd, NMSF net price = 24.00 SDG

218. Soft comfortable Orthopedic Padding cotton size 4 inch (100mm*3m)

Soft comfortable Orthopedic Padding cotton size 4 inc (10cm*270cm) of BSN MEDICAL (Pty) Ltd, NMSF net price = 4.00 SDG
Soft comfortable Orthopedic Padding cotton size 4 inch (10cm*270cm) of CALLONA INDUSTERIES, NMSF net price = 5.75 SDG
Soft comfortable Orthopedic Padding cotton size 4 inch (10cm*270cm) of Nanjing Phyto, NMSF net price = 5.00 SDG

219. Soft comfortable orthopedic padding cotton size 6 inch (150mm*3m)

Soft comfortable Orthopedic padding cotton size 6 inc (15cm*3m) of BSN MEDICAL (Pty) Ltd, NMSF net price =6.00 SDG
Soft comfortable Orthopedic padding cotton size 6 inc (15cm*3m) of Nanjing Phyto, NMSF net price = 7.50 SDG

220. Soft comfortable orthopedic Padding cotton size 8 inch (200mm*3m)

Soft comfortable Orthopedic Padding cotton size 8 inc (20cm*3m) of BSN MEDICAL (Pty) Ltd, NMSF net price = 7.50 SDG
Soft comfortable Orthopedic Padding cotton size 8 inc (20cm*3m) of CALLONA INDUSTERIES, NMSF net price = 5.75 SDG
Soft comfortable Orthopedic Padding cotton size 8 inc (20cm*3m) of Nanjing Phyto, NMSF net price = 10.00 SDG

221. Sterile enteral catheter, gastric (Stomach) polyurethane or silicon feeding tubees size 20 large

New Item

222. Sterile gastric (Stomach) polyurethane or silicon feeding tubes size 10

New Item

223. Sterile gastric (Stomach) polyurethane or silicon feeding tubes size 12

New Item

224. Sterile silicon long term nasogastric polyurethane or silicone feeding tubee for children feeding with diameter 8FR length 75cm

New Item

225. Sterile single-use Vaccutainers contain a buffered tri-sodium citrate solution (Tri Na Citrate)

New Item

226. Sterile urethral catheter size 3

New Item

227. Sterile urethral catheter size 4

New Item

228. Sterile urethral catheter size 5

New Item

229. Sterile urethral catheter size 6

New Item

230. Sterile urethral catheter size 7

New Item

231. Sterile, single-use Vaccutainers contain tripotassium (k3) or dipotassium ethylenediamin tetra-acetic acid (EDTA)

New Item

232. Stomach tube size 10

New Item

233. Stomach tube size 12

New Item

234. Stomach tube size 20 large

New Item

235. Stromatolyser reagent 500 ml compatable with Sysmex analyzer

New Item

236. Suction catheter size 12

Medical disposable non-toxic PVC Suction catheter size 12 of Ultra for medic, NMSF net price = 1.70 SDG

237. Suction catheter size 14

Medical disposable non-toxic PVC Suction catheter size 14 of Ultra for medic, NMSF net price = 1.70 SDG

238. Surgical Blade without handle size 10 box of 100 pcs

Surgical Blade without handle size 10 box of 100 pcs of SMI, NMSF net price = 36.50 SDG

239. Surgical Blade without handle size 11 box of 100 pcs

Surgical Blade without handle size 11 box of 100 pcs of SMI, NMSF net price = 36.50 SDG
Surgical Blade without handle size 11 box of 100 pcs of SHANGHAI CHANNELMED IMPORT, NMSF net price = 38.00 SDG
Surgical Blade without handle size 11 box of 100 pcs of XINEA Industeries, NMSF net price = 23.00 SDG

240. Surgical blade without handle size 15 box of 100 pcs

Surgical Bladewithout handle size 15 Box of 100 pcs of SMI, NMSF net price = 36.50 SDG
Surgical blade without handle size 15 Box of 100 pcs of SHANGHAI CHANNELMED IMPORT, NMSF net price = 38.00 SDG

241. Surgical Blade without handle size 20 box of 100 pcs

Surgical blade without handle size 20 Box of 100 pcs of SMI, NMSF net price = 36.50 SDG

242. Surgical Blade without handle size 21 box of 100 pcs

Surgical blade without handle size 21 box of 100 pcs of SMI, NMSF net price = 36.50 SDG

243. Surgical Blade without handle size 22 Box of 100 pcs

Surgical Blade without handle size 22 Box of 100 pcs of SMI, NMSF net price = 36.50 SDG
Surgical Blade without handle size 22 Box of 100 pcs of Huaia Tianda Medical, NMSF net price = 23.00 SDG
Surgical Blade without handle size 22 Box of 100 pcs of ISHWARI HEALTHCARE, NMSF net price = 34.50 SDG
Surgical Blade without handle size 22 Box of 100 pcs of SHANGHAI CHANNELMED IMPORT, NMSF net price = 37.95 SDG

244. Surgical Blade without handle size 23 box of 100 pcs

Surgical Blade without handle size 23 box of 100 pcs of SMI, NMSF net price = 36.50 SDG
Surgical blade without handle size 23 box of 100 pcs of Gold Well Medical, NMSF net price = 25.30 SDG
Surgical blade without handle size 23 box of 100 pcs of ISHWARI HEALTHCARE, NMSF net price = 34.50 SDG
Surgical blade without handle size 23 box of 100 pcs of SHANGHAI CHANNELMED IMPORT, NMSF net price = 38.00 SDG

245. Surgical Blade without handle size 24 box of 100 pcs

Surgical blade without handle size 24 box of 100 pcs of SMI, NMSF net price = 36.50 SDG
Surgical blade without handle size 24 box of 100 pcs of Gold Well Medical, NMSF net price = 25.30 SDG
Surgical blade without handle size 24 box of 100 pcs of ISHWARI HEALTHCARE, NMSF net price = 34.50 SDG
Surgical blade without handle size 24 box of 100 pcs of SHANGHAI CHANNELMED IMPORT, NMSF net price = 38.00 SDG

246. Surgical Blade without handle size 25 box of 100 pcs

Surgical blade without handle size 25 box of 100 pcs of SMI, NMSF net price = 36.50 SDG

247. Surgical gloves, powdered, sterile, size 6 inch

New Item

248. Surgical gloves, powdered, sterile, size 7 ½ inch

Sterile surgical gloves size 7.5 of Beromed, NMSF net price = 2.00 SDG
Sterile surgical gloves size 7.5 of HBM Medical Co, NMSF net price = 2.00 SDG
Sterile surgical gloves size 7.5 of Safeshield INDIA RUBBER PRODUCTS PVT. LTD, NMSF net price = 2.00 SDG

Sterile surgical gloves size 7.5 of SURGIMED MEDICAL SUPPLIES CO.LTD, NMSF net price = 2.00 SDG

249. Surgical gloves, powdered, sterile, size 7 inch

Sterile surgical gloves size 7 of Beromed, NMSF net price = 2.00 SDG
Sterile surgical gloves size 7 of HBM Medical Co, NMSF net price = 2.00 SDG
Sterile surgical gloves size 7 of SAFESHIELD INDIA RUBBER PRODUCTS PVT. LTD, NMSF net price = 2.00 SDG
Sterile surgical gloves size 7 of SURGIMED MEDICAL SUPPLIES CO.LTD, NMSF net price = 2.00 SDG

250. Surgical gloves, powdered, sterile, size 8 inch

Sterile surgical glovesl size 8 of Ratag Pharmaceuticals, NMSF net price = 2.00 SDG
Sterile surgical gloves size 8 of HBM Medical Co, NMSF net price = 2.00 SDG
Sterile surgical Gloves size 8 of SAFESHIELD INDIA RUBBER PRODUCTS PVT. LTD, NMSF net price = 2.00 SDG
Sterile surgical gloves size 8 of SURGIMED MEDICAL SUPPLIES CO.LTD, NMSF net price = 2.00 SDG

251. Surgical gloves, powdered, sterile, size 8½ inch

Sterile surgical gloves size 8.5 of HBM Medical Co, NMSF net price = 2.00 SDG
Sterile surgical gloves size 8.5 of SAFESHIELD INDIA RUBBER PRODUCTS PVT. LTD, NMSF net price = 2.00 SDG
Sterile surgical gloves size 8.5 of SURGIMED MEDICAL SUPPLIES CO.LTD, NMSF net price = 2.00 SDG

252. Symmetrical tip 14.5 fr/ch 4.8mm*19cm permenant catheter size 36

New Item

253. Symmetrical tip 14.5 fr/ch 4.8mm *19cm permenant catheter size 42

New Item

254. Three way canula

New Item

255. Triple blood bags: Volume capacity = (450ml),Volume of Anticoagulant (CPDA-1) equal 63ml.The plastic bags flexible to often minimum resistance during filling and emptying under normal condition of use. Bags must be not contain more than 5ml of air. Bags must

Blood Bags triple (CPDA-1) 450ml with set of Macopharma Designed for Life, NMSF net price = 44.18 SDG
Blood Bags triple (CPDA-1) 450ml with set of Terumo-Japan, NMSF net price = 52.50 SDG
Blood Bags triple (CPDA-1) 450ml

256. be sufficiently transparent to allow adequate visual examinataion of its contents. Resistance to centrifugation load. Resistance to ultra keep freezing for align storing period. (-80 for year). Needle poor should be 16mm. with Blood Given set: Sterile, non pyrogenic & non toxic. Discard after use. Do not store at extreme and humidity

With set of Beast Industrial company, NMSF net price = 32.00 SDG
Blood Bags triple (CPDA-1) 450ml with set of JMS SINGASPORTE PTE LTD, NMSF net price = 41.00 SDG

257. Urethral catheter size 3

New Item

258. Urethral catheter size 4

New Item

259. Urethral catheter size 5

New Item

260. Urethral catheter size 6

New Item

261. Urethral catheter size 7

New Item

262. Vaseline gauze coated with vaseline petroleum sterile absorbant non-adhering dressing

New Item

263. Ventricular shunt, CSF-flow control shunt kit (high pressure)

C.S.F Flow contoured shunt high pressure of MEDTRONIC, NMSF net price = 1000.00 SDG
C.S.F Flow contoured shunt high pressure of Wellong (BMI Medical), NMSF net price = 500.00 SDG

264. Ventricular shunt, CSF-flow control shunt kit (low pressure)

C.S.F Flow contoured shunt low pressure of MEDTRONIC, NMSF net price = 1000.00 SDG
C.S.F Flow contoured shunt low pressure of Wellong (BMI Medical), NMSF net price = 500.00 SDG

265. Ventricular shunt, CSF-flow control shunt kit (small medium pressure)

C.S.F Flow contoured shunt small medium pressure of MEDTRONIC, NMSF net price = 1000.00 SDG
C.S.F Flow contoured shunt small medium pressure of Health Care Co. Ltd), NMSF net price = 621.00 SDG
C.S.F Flow contoured shunt small medium pressure of Wellong (BMI Medical), NMSF net price = 500.00 SDG

266. Vicryl sterile 0 cutting

New Item

267. Vicryl sterile 0 round

New Item

268. Vicryl sterile 1 cutting

New Item

269. Vicryl sterile 2 cutting

New Item

270. Vicryl sterile 2/0 cutting

New Item

271. Vicryl sterile 3/0 cutting

New Item

272. Vicryl sterile 5/0 double needle- spatulate ophthalmic use

New Item

273. Vicryl sterile 5/0 nb- need spatulate

New Item

274. Vicryl sterile 6/0 double needle- spatulate ophthalmic use

New Item

275. Zinc oxide adhesive plaster, 5cm*5m

Adhesive plaster 5cm x 5m Zinc oxide of PiC indolor, NMSF net price = 6.50 SDG
Adhesive plaster 5cm x 5m Zinc oxide of Ratag Pharmaceuticals, NMSF net price = 6.50 SDG
Adhesive plaster 5cm x 5m Zinc oxide of HBM Medical Co, NMSF net price = 7.50 SDG
Adhesive plaster 5cm x 5m Zinc oxide of Taizhou Jiapeng, NMSF net price = 6.50 SDG

Appendix1: Drug-Drug Interactions

Two or more medicines given at the sametime may interact with each other. The interaction may be potentiation or antagonism of one drug by another, or occasionally some other effect. Drug interactions may be pharmacodynamics or pharmacokinetic.

Pharmacodynamic interactions occur between medicines which have similar or antagonistic pharmacological effects or adverse effects. They are usually predictable from knowledge of the pharmacology of the interacting medicines and given the fact that an interaction occurring with one drug is likely to occur with a related drug. Pharmacodynamic interactions may be due to:

Competition at receptors sites,

Medicines acting on the same physiological system.

Pharmacodynamic interactions occur to some extent in most patients who receive the interacting medicines.

Pharmacokinetic interactions occur when one drug increases or reduces the amount of another drug available to produce its pharmacological action. They are not easily predicted and an interaction occurring with one drug can not be assumed to occur with a related rug unless their pharmacokinetic properties are similar. Pharmacokinetic interactions may be due to:

Interference with absorption,

Changes in protein binding,

Modification of drug metabolism,

Interference with renal excretion.

Many pharmacokinetic interactions affect only a small proportion of patients taking a combination of interacting medicines.

Many drug interactions do not have serious consequences and many which are potentially harmful occur only in a small proportion of patients. A known interaction will not necessarily occur to the same extent in all patients. Medicines with a small therapeutic to toxic ratio (such as Phenytoin) and medicines which require careful dose control (such as anticoagulants, antihypertensives, or antidiabetics) are most often involved.

Patients at increased risk from drug interactions include the elderly and those with impaired renal or liver function.

Interaction and the combined administration of the medicines involved should be avoided, or only taken with caution and appropriate monitoring.

Absence of a medicine from the list does not imply the medicine not interaction

Drug-Drug Interactions:

5-fluorouracil	
Vitamin E	Increase the risk of bleeding
Non steroidal anti-inflammatory drug (aspirin, ibuprofen, Naproxen …)	Increase the risk of bleeding
Warfarin	Increase the risk of bleeding
Ticlopidine	Increase the risk of bleeding
Clopidogrel	Increase the risk of bleeding
Acetylsalicylic acid	
Acetazolamide	Increased risk of toxicity when given with high-dose Acetylsalicylic acid
Antacids(Aluminiumhydroxide, Magnesiumhydroxide)	Excretion of Acetylsalicylic acid increased by alkaline urine Increased risk of gastrointestinal bleeding and ulceration
Dexamethasone	Reduces plasma salicylate concentration
Enalpril	Antagonism of hypotensive effect, risk renal impairment When Acetylsalicylic acid given in doses of over 300mg daily.
Fluoxetine	Increased risk of bleeding
Heparin	Enhanced anticoagulant effect of Heparin
Hydrocortisone	Increased risk of gastrointestinal bleeding and ulceration, hydrocortisone reduces plasma salicylate concentration
Ibuprofen	Avoid concomitant use (increased adverse effects) antiplatelet effect of Acetylsalicylic acid possibly reduced
Methotrexate	Reduced excretion of Methotrexate (increased toxicity)
Metoclopramide	Metoclopramide enhanced effect of acetyl salicylic acid(increased rate of absorption)
Mifepristone	Manufacturer of Mifepristone advises avoid concomitant use
Phenytoin	Enhancement of effect of Phenytoin
Prednisolone	Increased risk of gastrointestinal bleeding and ulceration Prednisolone reduces plasma salicylate concentration
Spironolactone	Spironolactone, antagonism of diuretic effect
Valproic acid	Enhancement of effect of Valproic acid

Drug-Drug Interactions

Warfarin	Increased risk of bleeding due to antiplatelet effect
Aciclovir	
Ciclosporn	Increased risk of nephrotoxicity
Adapalene	
CiprOfloxacin	Increase sensitivity to sunlight
Sulfamethoxazole	Increase sensitivity to sunlight
Chlorpromazine	Increase sensitivity to sunlight
Albendazole	
Dexamethasone	Plasma albendazole concentration possibly increased
Praziquantel	Increased plasma concentration of active metabolite of albendazole
Alfacalcidol	
Barbiturate	Concentration of alfacalcidol may decrease so using high dose of alfacalcidol is required
Digoxin	May precipitate cardiac arrhythmias
Cholestyramine	Helps to stop some types of diarrhea or itching
Thiazide diuretics	Risk of hypercalceamia
Allopurinol	
Ammophylline	Blood level of Aminophylline may increase
Theophylline	Blood level of Theophylline may increase
Azathioprine	Allopurinol interfere with the metabolism of Azathioprine, and lead to fetal blood dyscrasis
Warfarin	Increased risk of bleeding
Chlorpropamide	Allopurinol increase Chlorpropamide's plasma half life
Cyclosporin	Increased plasma level of cyclosporin
Mercaptopurine	Allopurinol alter the metabolism of Mercaptopurine by inhibiting the xanthine oxidase enzyme, thus increasing the plasma level of 6-Mercaptopurine which may result in potentially fatal blood dyscarsias
Amidarone Hydrochloride	
Atenolol	The interaction result in slow heart rate or a block in the conduction of the electrical impulse through the heart.

Propranolol	The interaction result in slow heart rate or a block in the conduction of the electrical impulse through the heart.
Metoprolol	The interaction result in slow heart rate or a block in the conduction of the electrical impulse through the heart.
Verapamil	The interaction result in slow heart rate or a block in the conduction of the electrical impulse through the heart.
Diltiazim	The interaction result in slow heart rate or a block in the conduction of the electrical impulse through the heart.
Digoxin	Increased plasma level of Digoxin
Procainamide	Concentration of Procainamide increased in the first week of amidarone therapy
Quinidine	Concentration of Procainamide increased in the first week of amidarone therapy
Phenytoin	Increased blood concentration of Phenytoin
Amikacin	
Alcuronium	Enhanced effects of Alcuronium
Amphotericin B	Increased risk of nephrotoxicity
Capreomycin	Increased risk of nephrotoxicity and ototoxicity
Ciclosporin	Increased risk of nephrotoxicity
Cisplatin	Increased risk of nephrotoxicity and ototoxicity
Furosemide	Increased risk of ototoxicity
Neostigmine	Antagonism of effects of Neostigmine
Pyridostigmine	Antagonism effects of Pyridostigmine
Suxamethonium	Enhanced effects of Suxamethonium
Vancomycin	Increased risk of nephrotoxicity and ototoxicity
Vecuronium	Enhanced effects of Vecuronium
Aminophylline	
Adenosine	Increases in heart rate and contratctility
Allopurinol	Blood level of Aminophylline may increase
Aminoglutethimide	Aminoglutethimide increases Aminophylline clearance by induction of microsomal enzyme activity
Mexiletine	Increased blood level of Aminophylline

Drug-Drug Interactions

Propafenone	Aminophylline oral increase levels of propafenone oral by reducing drug clearance through the kidneys
Carbamazepine	The blood level for one or both may decrease
Phenytoin	Aminophylline oral will decrease the level or effect of Phenytoin oral by altering drug metabolism
Phenobarbital	Phenobarbital oral will decrease the level or effect of Aminophylline oral by altering drug metabolism
Diazepam, flurazepam	Aminophylline attenuate the sedative effects of Diazepam
Propranolol	Propranolol oral, Aminophylline other mechanism. Effects and side effects of Theophylline may increase. Smoking increase risk of interaction
Cimetidine	Cimetidine increase the effect of Aminophylline
Digoxin	Decreased serum Digoxin level
Disulfiram	Aminophylline increase levels of disulfiram oral by slowing drug metabolism
Fluvoxamine	Aminophylline oral will increase the level of effect of fluvoxamine oral by altering drug metabolism
Interferon	Aminophylline oral increases levels of interferon by slowing drug metabolis.increasd risk of iteraction in smokers
Erythromycin, clarithromycin	Erythromycin, clarithromycin will increase the level or effect of Aminophylline
Isoproterenol	Isoproterenol solution may precipitate if its co-administered with in an intravenous line with Aminophylline
Lithium	Lithium carbonate oral decreases levels of Aminophylline
Methotrexate	Aminophylline increase levels of Methotrexate by unknown mechanism
Ciprofloxacin	Aminophylline may increase the level of ciprOfloxacin by altering its metabolism
Rifampin	Rifampin oral will decrease the level or effect of Aminophylline
Thiabendazole	Thiabendazole may increase the effect and toxicity of Aminophylline
Ticlopidine	Ticlopidine may increase the effect and toxicity of Aminophylline
Verapamil	Increase the effect of Aminophylline
Zileuton	Increase the effect and toxicity of Aminophylline

Amitriptylline	
Anticholinergic	Anticholinergic and Amitriptyline both decrease cholinergic effects
Clonidine	Amitriptylline decreases effects of Clonidine by other
Isocarboxide	Isocarboxazid and Amitriptylline both increase serotonin levels. Never use combination
Linezolid	Linezolid and Amitriptylline both increase serotonin levels
Phenelzine	Phenelzine and Amitriptylline both increase serotonin levels. Never use combination
Procarbazine	Procarbazine and Amitriptylline both increase serotonin levels. Never use combination. Combination is contraindicated within 2 weeks of MAOI use
Rasagiline	Rasagiline and Amitriptylline both increase serotonin levels. Possible serious or life-threatening interaction. Monitor closely. Use alternatives if available. Severe CNS toxicity associated with hyperpyrexia has been reported with the combined treatment of an antidepressant and Rasagiline. Avoid combination within 14 days of MAOI use
Selegiline	Selegiline and Amitriptylline both increase serotonin levels
Tranylcypromine	Tranylcypromine and Amitriptylline both increase serotonin levels. Never use combination
Cimetidine	Cimetidine will increase the level or effect of Amitriptylline by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Quinidine	Quinidine and Amitriptylline both increase QTc interval. Never use combination
Flecanide	Amitriptylline and Flecainide both increase QTc interval. Potential for dangerous interaction
Diazepam	Diazepam and Amitriptylline both increase sedation
Isoniazide	Amitriptylline and Flecainide Isoniazid both increase serotonin levels
Nortriptyline	Amitriptylline and Nortriptyline both increase QTc interval and serotonin levels
Amlodipine	
Acetazoleamide	Enhanced hypotensive effect
Alcohol	Enhanced hypotensive effect
Amiloride	Enhanced hypotensive effect

Atenolol	Enhanced hypotensive effect
Carbamezapine	Probably reduced Amlodipine effect
Chlorpromazine	Enhanced hypotensive effect
Contraceptive	Oral antagonism of hypotensive effect by estrogen
Dexamethasone	Antagonism of hypotensive effect
Diazepam	Enhanced hypotensive effect
Enalapril	Enhanced hypotensive effect
Fluphenazine	Enhanced hypotensive effect
Furesimide	Enhanced hypotensive effect
Glyceril trinitrate	Enhanced hypotensive effect
Haloperidol	Enhanced hypotensive effect
Halothane	Enhanced hypotensive effect
Hydralazine	Enhanced hypotensive effect
Hydrochlorothiazide	Enhanced hypotensive effect
Hydrocortisone	Antagonism of hypotensive effect
Ibuprofen	Antagonism of hypotensive effect
Isosorbide dinitrate	Enhanced hypotensive effect
Ketamine	Enhanced hypotensive effect
Levodopa	Enhanced hypotensive effect
Mefloquine	Possible increased risk of bradycardia
Methyldopa	Enhanced hypotensive effect
Nitrous oxide	Enhanced hypotensive effect
Phenobarbital	Probably reduced Amlodipine effect
Phenytoin	Probably reduced Amlodipine effect
Prednisolone	Antagonism of hypotensive effect
Propranolol	Enhanced hypotensive effect
Spironolactone	Enhanced hypotensive effect
Thiopental	Enhanced hypotensive effect

Timolol	Enhanced hypotensive effect
Ritonavir	Ritonavir increase the effect of Amlodipine
Amoxicillin+clavulanic acid	
Allopurinol	Increased risk of rash
Contraceptive	Oral contraceptive effect of estrogens possibly reduced (risk probably small)
Methotrexate	Reduce excretion of Methotrexate (increase risk of toxicity)
Warfarin	Studies are rare to demonstrate an interaction, but common experience in anticoagulant clinics is that INR can be altered by a course of Amoxicillin
Amphotericin B	
Amikacin	Increased risk of nephrotoxicity
Ciclosporin	Increased risk of nephrotoxicity
Dexamethasone	Increased risk of hypokalaemia (avoid concominant use unless dexamethasone needed to control reactions)
Digoxin	Hypokalaemia by Amphotericin B increases cardiac toxicity of Digoxin
Fluconazole	Possible antagonism of effect of Amphotericin B
Flucytosine	Renal excretion of Flucytosine decreased and cellular uptake increased (Flucytosine toxicity possibly increased)
Furosemide	Incrased risk of hypokalaemia
Gentamicin	Increased risk of nephrotoxicity
Hydrochlorothiazide	Increased risk of hypokalaemia
Hydrocortisone	Increased risk of hypokalaemia (avoid concomitant use unless hydrocortisone needed to control reactions)
miconazole	Possibly antagonism of effects of Amphotericin B
Paromomycin	Possibly increased of nephrotoxicity
Prednisolone	Increased risk of hypokalaemia (avoid concomitant use unless Prednisolone needed to control reactions)
Streptomycin	Increased risk of nephrotoxicity
Vancomycin	Possibly increased risk of nephrotoxicity

Ampicillin	
Allopurinol	Increased risk of rash
Contraceptive	Oral contraceptive effect of estrogen possibly reduced (risk probably small)
Methotrexate	Reduced excretion of Methotrexate (increased risk of toxicity)
Warfarin	Studies have rare to demonstrate an interaction, but common experience in anticoagulant crimes is that INR can be altered by a course of Ampicillin
Antacids(Aluminiumhydroxide, Magnesiumhydroxide)	
Acetylsalicylic acid	Excretion of Acetylsalicylic acid increased by alkaline urine
Azithromycin	Reduced absorption of Azithromycin
Chloroquine	Reduced absorption of chloroquine
Chloropromazine	Reduced absorption of Chloropromazine
Digoxin	Possibly reduced absorption of Digoxin
Doxycycline	Reduced absorption of Doxycycline
Enalapril	Absorption of enalapril reduced
Fluphenazine	Reduced absorption of Fluphenazine
Isoniazid	Reduced absorption of Isoniazid
Levofloxacin	Reduced absorption of LevOfloxacin
Ofloxacin	Reduced absorption of Ofloxacin
Pencillamine	Reduced absorption of Penacillamine
Phenytoin	Reduced absorption of Phenytoin
Quinidine	Reduced Quinidine excretion in alkaline urine (plasma Quinidine concentration occasionally increased)
Rifampicin	Reduced absorption of rifampicin
Artemether+Lumefantrine	
Amitriptyline	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Azithromycin	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Chloroquine	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use

Chlorpromazine	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Ciprofloxacin	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Clomipramine	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Erythromycin	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Fluconazole	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Fluxetine	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Fluphenazine	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Haloperidol	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Indinavir	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Levofloxacin	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Lopinavir	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Mefloquine	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Nelfinavir	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Ofloxacin	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Primaquine	Manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Procainamide	Risk of ventricular arrhythmia, manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Proguanil	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Pyrimethamine	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Quinidine	Risk of ventricular arrhythmia, manufacturer of Artemether + Lumefantrine advises to avoid concomitant use

Quinine	Risk of ventricular arrhythmia, manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Ritonavir	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Saquinavir	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Sulfadoxine + pyrimethamine	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Atenolol	
Acetazolamide	Enhanced hypotensive effect
Alcohol	Enhanced hypotensive effect
Amiloride	Enhanced hypotensive effect
Amilodipine	Enhanced hypotensive effect
Chlorpromazine	Enhanced hypotensive effect
Contraceptive	Oral antagonist of hypotensive effects by estrogen
Dexamethasone	Antagonism of hypotensive effect
Diazepam	Enhanced hypotensive effect
Digoxin	Increased AV block and bradycardia
Enalapril	Enhanced hypotensive effects
Epinephrine	Severe hypertension
Fluphenazine	Enhanced hypotensive effects
Furosemide	Enhanced hypotensive effects
Gilbenclamide	Atenolol may mask warning signs of hypoglycaemia such as tremor
Glyceryl trinitrate	Enhanced hypotensive effects
Halothane	Enhanced hypotensive effects
Hydralazine	Enhanced hypotensive effects
Hydrochlorothiazide	Enhanced hypotensive effects
Hydrocortisone	Antagonism of hypotensive effect
Ibuprofen	Antagonism of hypotensive effect

Insulins	Enhanced hypoglycemic effect, atenolol may mask warning signs of hypoglycaemia such as tremor
Isosorbide dinitrate	Enhanced hypotensive effect
Ketamine	Enhanced hypotensive effects
levodopa	Enhanced hypotensive effects
Lidocaine	Increased myocardial depression (interaction less likely when lidocaine used topically)
Mefloquine	Increased risk of bradycardia
Metformin	Atenolol may mask warning signs of hypoglycaemia such as tremor
Methyldopa	Enhanced hypotensive effects
Nifidipine	Enhanced hypotensive effects, possibly severe hypotension and heart failure
Nitrous oxide	Enhanced hypotensive effects
Pilocarpine	Increased risk of arrhythmias
Prednisolone	Antagonism of hypotensive effect
Procainamide	Increased myocardial depression
Quinidine	Increased myocardial depression
Sodium nitropursside	Enhanced hypotensive effects
Spironolactone	Enhanced hypotensive effects
Thiopental	Enhanced hypotensive effects
Verapamil	Systole, severe hypotension and heart failure
Atorvastatin	
Clarithromycin	Increased plasma concentration of Atorvastatin
Lipitor	Increased plasma concentration of Atorvastatin
Itraconazole	Increased plasma concentration of Atorvastatin
Cyclosporin	Increased bioavailability of Atorvastatin
Gemfibrozin	Increase the risk of myopathy and rhabdomyiosis
Niacin	Increased risk of skeletal muscle effect
Rifampicin	Reduction in plasma concentration of Atorvastatin

Digoxin	Steady state Digoxin plasma concentrations increased by approximately 20%
Oral contraceptive	Increased AUC value for Norethindrone, Ethinyl estradiol
Warfarin	
Colchicines	Causes myopathy
Atracurium besylate	
Enflurane, isoflurane, nalothane	Enhance the neuromuscular blocking agent muscle relaxant, synergistic or antagonist effect
Atropine	
Amitriptyline	Increased antimuscarinic adverse effects
Chlorphenamine	Increased antimuscarinic adverse effects
Chlorpromazine	Increased antimuscarinic adverse effect (but reduced plasma chlorpromazine concentration)
Clomipramine	Increased antimuscarinic adverse effects
Fluphenazine	Increased antimuscarinic adverse effect (but reduced plasma chlorpromazine concentration)
Glyceryl trinitrate	Possibly reduced effect of sublingual Glyceryl trinitrate tablet (failure to dissolve under the tongue owing to dry mouth)
Haloperidol	Possibly reduced effects of Haloperidol
Isosorbide dinitrate	Possibly reduced effect of sublingual Isosorbide dinitrate tablets (failure to dissolve under the tongue owing to dry mouth)
Levodopa	Absorption of Levodopa possibly reduced
Metoclopromide	Antagonism of effects of Metoclopromide on gastrointestinal activity
Neostigmine	Antagonism of effect of Neostigmine
Pilocarpine	Antagonism of effect of Pilocarpine
Promethazine	Increased risk of antimuscarinic adverse effects
Pyridostigmine	Antagonism of effects of Pyridostigmine
Azathioprine	
Benzapril, lisinopril	There is an increased chance of reduced production of blood cells from bone marrow (neutropenia)
Allopurinol	Allopurinol with Azathiopril results in bone marrow depression

Aminosalicylates	Result in higher risk of bone marrow depression when use Aminosalicylates with Azathioprine
Warfarin, Heparin, Enoxaparin	Azathioprine inhibit anticoagulant effect of Warfarin
Trimethoprim/Sulfamethoxazole	Combination of Trimethoprim/Sulfamethoxazole with Azathioprin my increase suppression of white blood cell production (myelosuppression).
Febuxostat	Azathioprine increase level of Febuxostat
Cyclophosphamide	Concominant use results in liver necrosis
Melphalan	Increase the risks of infection, malignancy, cardiovascular disease and bone marrow suppression
Rituximab	Increased risk of infection because Rituximab lowers the immune system
Azithromycin	
Antacids (Aluminium hydroxide, magnesium hydroxide)	Reduced absorption of Azithromycin
Artemether + Flumefantrine	Manufacturer of Artemether and Flumefantrine avoid concomitant use
Ciclosporin	Possible inhibition of metabolism Ciclosporin (increased plasma concentration)
Contraceptives	Oral contraceptive effect of estrogen is possibly reduced (risk probably small)
Digoxin	Increased plasma concentration of Digoxin (increased risk of toxicity)
Ritonavir	Plasma concentration of Azithromycin possibly increased
Warfarin	Possibly enhanced anticoagulant effect of Warfarin
Beclomethasone	
Azathioprine	Affect the immune system
Cyclosporin	Affect the immune system
Benzyl penicillin	
Contraceptives	Oral contraceptive effect of estrogen is possibly reduced (risk probably small)
Methotrexate	Reduced excretion of Methotrexate (increased risk of toxicity)
Betamethasone	
Clopidogrel	Causes bleeding

Non steroidal anti-inflammatory medicines	Increase risk of bleeding
Azol antifungal	Affect liver enzyme that remove Betamethasone from the body
Barbiturate	May decrease pharmacological effect of Betamethasone. Betamethasone dosage may need to increase.
Rifampicin	May decrease the level of Betamethasone in plasma
Phenytoin	May decrease the level of Betamethasone in plasma
Betaxolol	
Non steroidal anti inflammatory drug (NSAIDs)	Reduced blood pressure
Diabetic Medicines	Mask the early warning symptoms of hypoglycaemia
Diltiazem	Complete block of heart electrical system that leads to abnormal heart rhythms
Bupivacaine	
Lidocaine	Increased myocardial depression (interaction less likely when Lidocaine used topically)
Procainamide	Increased myocardial depression
Propranolol	Increased risk of Bupivacaine toxicity
Quinidine	Increased myocardial depression
Budesonide	
Cyclosporin	Increase the level of Budesonide by altering drug metabolism
Clopidogrel	Increases the level of Clopidogrel by altering drug metabolism
Aspirin	Increases the level of Aspirin by altering drug metabolism
Celecoxib	Increase the risk of gastrointestinal ulceration
Ketoconazole	Increase risk of abnormal heart rhythm
Erythromycin	Decrease the level or effect of erythromycin by altering drug metabolism
Rifampicin	Budesonide may decrease the level of Rifampicin by altering it's metabolism
Carbamezapine	Budesonide may decrease the level of Carbamezapine by altering it's metabolism
Phenytoin	Budesonide may decrease the level of Phenytoin by altering it's metabolism

Bromocriptine	
Ergotamine	Ergotamine, Bromocriptine. Either increases toxicity of the other by pharmacodynamic synergism.
Dihydroergotamine	Dihydroergotamine, Bromocriptine. Either increases toxicity of the other by pharmacodynamic synergism. The concomitant use of Bromocriptine with ergot alkaloids may potentially lead to ergot toxicity
Calcium carbonate	
Tetracycline antibiotics	Calcium carbonate, Tetracycline. Either decreases levels of the other by inhibition of GI absorption
Bisoprolol	Calcium carbonate decreases levels of Bisoprolol by inhibition of GI absorption.
Ferrous sulfate	calcium carbonate will decrease the level or effect of Ferrous Sulfate by increasing gastric pH
Levothyroxin	Calcium carbonate decreases levels of Levothyroxine by inhibition of GI absorption.
Ciprofloxacin	Calcium carbonate decreases effects of CiprOfloxacin by inhibition of GI absorption
Levofloxacin	Calcium carbonate, Levofloxacin. Either decreases levels of the other by inhibition of GI absorption.
Calcium gluconate	
Tetracycline	Calcium gluconate, Tetracycline. Either decreases levels of the other by inhibition of GI absorption
Candesartan Cilexetin	
Spironolactone	Candesartan and Spironolactone both increase serum potassium
Potassium chloride	Candesartan and Potassium chloride both increase serum potassium
Mefenamic acid	Candesartan, Mefenamic acid. Either increases toxicity of the other: may result in renal function deterioration, particularly in elderly or volume depleted individuals
Lithium	Candesartan increases toxicity of Lithium by decreasing renal clearance
Capecitabine	
Phenytoin	Capecitabine increases levels of Phenytoin by unknown mechanism

Capreomycin	
Amikacin	Increased risk of nephrotoxicity and ototoxicity
Gentamicin	Increased risk of nephrotoxicity and ototoxicity
Streptomycin	Increased risk of nephrotoxicity and ototoxicity
Vancomycin	Increased risk of nephrotoxicity and ototoxicity
Captopril	
Lithium	Captopril increases toxicity of Lithium by unknown mechanism
Carbamazepine	
Acetazolamide	Increased risk of hyponatraemia, Acetazolamide increases plasma Carbamezapine concentration
Alcohol	Possibly enhanced CNS adverse effects of Carbamazepine
Alcuronium	Antagonism of the muscle relaxant effect (recovery from neuromuscular blocking acceleration)
Amiloride	Increased risk of hyponatraemia
Amitriptyline	Antagonism of anticonvulsant effect (convulsive threshold lowered) accelerated, metabolism of Amitriptyline (reduced plasma concentration, reduced antidepressant effect)
Amlodipine	Probably reduced effect of Amlodipine
Chloroquine	Possibly increased risk of convulsions
Chlorpromazine	Antagonism of anticonvulsant effect (convulsive threshold lowered)
Ciclosporin	Accelerated metabolism of Ciclosporin (reduced plasma Ciclosporin concentration)
Clomipramine	Antagonism anticonvulsant effect (convulsive threshold lowered), accelerated metabolism of Clomipramine (reduced plasma concentration, reduced antidepressant effect)
Contraceptive	Accelerated metabolism of estrogen and progesterone (reduced contraceptive effect)
Dexamethasone	Accelerated metabolism of Dexamethasone (reduced effect)
Doxycycline	Accelerated metabolism of Doxycycline (reduced effect)
Ergocalciterol	Ergocalciterol requirements possibly increased
Erythromycin	Increased plasma Carbamazepine concentration

Ethosuximide	May enhance toxicity without corresponding increase I antiepileptic effect, plasma concentration of Ethosuximide, possibly reduced Fluoxetine plasma concentration of Carbamazepine increased
Fluphenazine	Antagonism anticonvulsant effect (convulsive threshold lowered)
Furosemide	Increased risk of hyponatraemia
Haloperidol	Antagonism of anticonvulsant effect (convulsive threshold lowered), metabolism of Haloperidol accelerated (reduced plasma concentration)
Hydrochlorothiazide	Increased risk of hyponatraemia
Hydrocortisone	Accelerated metabolism of hydrocortisone (reduced effect)
Indinavir	Possibly reduced plasma Indinavir concentration
Isoniazid	Increased plasma Carbamazepine concentration (also Isoniazid hepatotoxicity possibly increased)
Levonorgestrel	Accelerated metabolism of Levonorgestrel (reduced contraceptive effect)
Levothyroxine	Accelerated metabolism of Levothyroxine (may increase levothyroxine)
Lithium	Neurotoxicity may occur without increased plasma Lithium concentration
Lopinavir	Possibly reduced plasma Lopinavir concentration
Mebendazole	Reduced plasma Mebendazole concentration (possibly increase Mebendazole dose in tissue infection)
Medroxyprogesterone	Accelerated metabolism of Medroxyprogesterone (dose not apply to injectable Medroxyprogestrone acetate used for contraception)
mefloquine	Antagonism of anticonvulsant effect
Methadone	Reduce plasma concentration of Methadone
Miconazole	Plasma concentration of Carbamazepine possibly increased
Nelfinavir	Probably reduced plasma Nelfmavir concentration
Norethisterone	Accelerated metabolism of Norethisterone
Vecuronium	Antagonism of muscle relaxant effect (recovery from neuromuscular blocking acceleration)
Verapamil	Enhanced effect of Carbamazepine

Drug–Drug Interactions

Warfarin	Accelerated metabolism of Warfarin (reduced anticoagulant effect)
Carvedilol	
Ciclosporin	Carvedilol increases plasma concentration of Ciclosporin
Rifampicin	Plasma concentration of Carvedilol reduced by Rifampicin
Cefaclor monohydrate	
Probenecid	Cefaclor will increase the level or effect of Probenecid by acidic (anionic) drug competition for renal tubular clearance
Warfarin	Cefaclor increases effects of Warfarin by other, vitamin K-producing intestinal flora may increase INR after a few days.
Contraceptives	Oral contraceptive effect of estrogens possibly reduced (risk is probably small)
Warfarin	Possibly enhanced anticoagulant effect
BCG Vaccine	Cefaclor decreases the BCG vaccine live pharmacodynamic antagonism
Cefotaxime	
BCG vaccine	Cefotaxime decreases the BCG vaccine live by pharmacodynamic antagonism
Typhoid vaccine	Cefotaxime decreases the typhoid vaccine live by pharmacodynamic antagonism
bazedoxifene	Cefotaxime affects the level or effect of Benzadoxilene by altering intestinal flora
Estradiol valerate	Cefotaxime affects the level or effect of Estradiol of Bazedoxilene by altering intestinal flora
Ethinylestradiol	Cefotaxime affects the level or effect of Estradiol of Ethinyl estradiol by altering intestinal flora
Probenecid	Increases the level or effect of Cefotaxime by acidic drug competition for renal tubular clearance
Magnesium oxide	Cefotaxime decreases the effect of Magnesium oxide by altering its metabolism
Warfarin	Cefotaxime increases the effect of Warfarin
Cefpodoxime	
Ranitidine	Ranitidine will decrease the level or effect of Cefpodoxime by increasing gastric pH. Applies only to oral form of both agents. Potential for interaction, monitor closely

Probenecid	Probenecid will increase the level or effect of Cefpodoxime by acidic (anionic) drug competition for renal tubular clearance
Ceftazidime	
Aspirin	Ceftazidime will increase the level or effect of Aspirin by acidic (anionic) drug competition for renal tubular clearance
Cefuroxime axetil	
Probenecid	Increases the concentration of Cefuroxime in the blood
Antacid	Reduces the absorption of Cefuroxime
Cephalexin monohydrate	
Metformin	Cephalexin may increase the effect of Metformin in lowering blood sugar
Probencid	Inhibit the renal excretion of Cephalexin
Cefradine	
Probenecid	Probenecid may decrease urinary excretion of Cefradine
Warfarin	Increases risk of Warfarin toxicity
Furosemide	Increases risk of kidney damage
Amikacin	Increases risk of kidney damage
Cetrizine HCL	
Theophyline	Theophylline increases levels of Cetirizine by reducing drug removal from the body.
Chlordiazepoxide	
Abiraterone	Abiraterone increases levels of Chlordiazepoxide by affecting hepatic enzyme CYP2D6 metabolism. Significant interaction is possible, monitor closely. Avoid co-administration of Abiraterone with substrates of CYP2D6. If alternative therapy cannot be used, exercise caution and consider a dose reduction of the CYP2D6 substrate.
Albuterol	Chlordiazepoxide increases and Albuterol decreases sedation. Effect of interaction is not clear, use caution. Potential for interaction, monitor closely.
Alfentanil	Chlordiazepoxide and Alfentanil both increase sedation. Potential for interaction, monitor.
Alprazolam	Alprazolam and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.

Amisulpride	Chlordiazepoxide and Amisulpride both increase sedation. Potential for interaction, monitor.
Amitriptyline	Chlordiazepoxide and Amitriptyline both increase sedation. Potential for interaction, monitor closely.
Amobarbital	Amobarbital and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.
Amoxapine	Chlordiazepoxide and amoxapine both increase sedation. Potential for interaction, monitor.
Apomorphine	Chlordiazepoxide and Apomorphine both increase sedation. Potential for interaction, monitor.
Arformoterol	Chlordiazepoxide increases and Arformoterol decreases sedation. Effect of interaction is not clear, use with caution. Potential for interaction, monitor.
Aripiprazole	Chlordiazepoxide and aripiprazole both increase sedation. Potential for interaction, monitor.
Armodafinil	Chlordiazepoxide increases and armodafinil decreases sedation. Effect of interaction is not clear, use with caution. Potential for interaction, monitor.
Atazanavir	Atazanavir increases levels of Chlordiazepoxide by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Potential for dangerous interaction. Use with caution and monitor closely. Potential for increased toxicity. Use alternatives if available. Consider lowering benzodiazepine dose.
Azelastine	Azelastine and Chlordiazepoxide both increase sedation. Potential for interaction, monitor
Baclofen	Chlordiazepoxide and Baclofen both increase sedation. Potential for interaction, monitor.
Bambuterol	Chlordiazepoxide increases and Bambuterol decreases sedation. Effect of interaction is not clear, use caution. Potential for interaction, monitor
Belladonna and Opium	Chlordiazepoxide and Belladonna and Opium both increase sedation. Potential for interaction, monitor.
Benperidol	Chlordiazepoxide and Benperidol both increase sedation. Potential for interaction, monitor.
Benzphetamine	Chlordiazepoxide increases and Benzphetamine decreases sedation. Effect of interaction is not clear, use with caution. Potential for interaction, monitor.
Brompheniramine	Brompheniramine and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.

Buprenorphine	Chlordiazepoxide and Buprenorphine both increase sedation. Potential for interaction, monitor.
Butabarbital	Butabarbital and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.
Butalbital	Butalbital and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.
Butorphanol	Chlordiazepoxide and Butorphanol both increase sedation. Potential for interaction, monitor.
Caffeine	Chlordiazepoxide increases and caffeine decreases sedation. Effect of interaction is not clear, use caution. Potential for interaction, monitor.
Carbinoxamine	Carbinoxamine and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.
Carisoprodol	Chlordiazepoxide and Carisoprodol both increase sedation. Potential for interaction, monitor.
Chloral hydrate	Chlordiazepoxide and Chloral hydrate both increase sedation. Potential for interaction, monitor.
Chlorpheniramine	Chlorpheniramine and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.
Chlorpromazine	Chlordiazepoxide and Chlorpromazine both increase sedation. Potential for interaction, monitor.
Chlorzoxazone	Chlordiazepoxide and Chlorzoxazone both increase sedation. Potential for interaction, monitor.
Cimetidine	Cimetidine increases levels of Chlordiazepoxide by decreasing metabolism. Significant interaction is possible, monitor closely.
Cinnarizine	Cinnarizine and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.
Clemastine	Clemastine and Chlordiazepoxide both increase sedation. Potential for interaction, monitor.
Chlorambucil	
Phenytoin	Possibly reduced absorption of Phenytoin
Vaccine	Avoid use of live vaccines with Chlorambucil (impairment of immune response)
Chloramphenicol	
Cyclosporin	Plasma concentration of Cyclosporin possibly increased
Glibenclamide	Enhanced effect of Glibenclamide

Hydroxocobalamin	Response of Hydroxocobalamin reduced
Phenobarbital	Metabolism of Chloramphenicol accelerated (reduced plasma Chloramphenicol concentration)
Phenytoin	Plasma Phenytoin concentration increased (increased risk of toxicity)
Rifampicin	Accelerated metabolism of Chloramphenicol (reduced plasma Chloramphenicol concentration)
Warfarin	Enhanced anticoagulant effect
Chloroquine	
Antacids (Aluminium Hydroxide, Magnesium Hydroxide)	Reduced absorption of Chloroquine
Artemether + Fumelantrine	Manufacturer Advises to avoid concomitant use
Carbamazepine	Possibly increased risk of convulsions
Cyclosporin	Increased plasma Cyclosporin concentration (increased risk of toxicity)
Digoxin	Plasma Digoxin concentration possibly increased
Phenytoin	Possible increased risk of convulsions
Praziquantel	Plasma Praziquantel concentration possibly reduced
Pyridostigmine	Chloroquine has potential to increase symptoms of myasthenia gravis and thus diminishes the effect of Pyridostigmine
Quinidine	Increased risk of ventricular arrhythmias
Quinine	Increased risk of ventricular arrhythmias
Valproic acid	Possibly increased risk of convulsions
Chlorphenamine	
Alcohol	Enhanced sedative effect
Amitriptyline	Increased antimuscarinic and sedative effects
Clomipramine	Increased antimuscarinic and sedative effects
Diazepam	Enhanced sedative effect
Chlorpromazine	
Acetazolamide	Enhanced hypotensive effect
Alcohol	Enhanced sedative effect

Amlodipine	Enhanced hypotensive effect
Artemether + Flumelantrine	Manufacturer of Artemether + Flumetlantrine advises to avoid concomitant use
Atenolol	Enhanced hypotensive effect
Atropine	Increased antimuscarinic adverse effects (but reduced plasma Chlorpromazine concentration)
Clomipramine	Increased antimuscarinic adverse effects, increased plasma Clomipramine concentration, possibly increased risk of ventricular arrhythmias
Epinephrine	Antagonism of hypertensive effect
Furosemide	Enhanced hypotensive effect
Glibenclamide	Possible antagonism of hypoglycemic effect
Glyceryl trinitrate	Enhanced hypotensive effect
Halothane	Enhanced hypotensive effect
Hydralazine	Enhanced hypotensive effect
Hydrochlorothiazide	Enhanced hypotensive effect
Isosorbide dinitrate	Enhanced hypotensive effect
Quinidine	Increased risk of ventricular arrhythmias
Ritonavir	Plasma concentration possibly increased by Ritonavir
Sodium nitroprusside	Enhanced hypotensive effect
Spironolactone	Enhanced hypotensive effect
Thiopental	Enhanced hypotensive effect
Timolol	Enhanced hypotensive effect
Valproic acid	Antagonism of anticonvulsive is threshold lowered
Verapamil	Enhanced hypotensive effect
Chlordiazepoxide	
Salmetrol	Chlordiazepoxide increases and Salmeterol decreases sedation
Ciclosporin	
Aciclovir	Increased risk of nephrotoxicity
Allopurinol	Plasma Cyclosporin concentration possibly increased

Amikacin	Increased risk of nephrotoxicity
CiprOfloxacin	Increased risk of nephrotoxicity
Contraceptives	Oral plasma Cyclosporin concentration increased by Progesterone and possibly increased by estrogens
Digoxin	Increased plasma concentration of Digoxin (increased risk of toxicity)
Doxorubicin	Increased risk of nephrotoxicity
Doxycycline	Possibly increased plasma Cyclosporin concentration
Enalapril	Increase risk of hyperkalaemia
Erythromycin	Increased plasma Cyclosporin concentration (inhibition of metabolism of Cyclosporin)
Etoposide	Possibly increased plasma concentration of Etoposide (increased risk of toxicity)
Griseovulvin	Plasma Cyclosporin concentration possibly reduced
Hydrochlorothiazide	Increased risk of nephrotoxicity and possibly hypermagnesaemia
Ibuprofen	Increased risk of nephrotoxicity
Potassium salts	Increased risk of hyperkalaemia
Prednisolone	Increased plasma concentration of Prednisolone
Rifampicin	Accelerated metabolism of Cyclosporin (reduced plasma Cyclosporin concentration)
Streptomycin	Increased risk of nephrotoxicity
Sulfasalazine	Plasma Cyclosporin concentration possibly reduced, increased risk of nephrotoxicity
Sulfadiazine	Plasma Cyclosporin concentration possibly reduced, increased risk of nephrotoxicity
Sulfadoxine + Pyrimethamine	Increased risk of nephrotoxicity
Sulfamethoxazole + Pyrimethamine	Increased risk of nephrotoxicity, plasma Cyclosporin concentration possibly reduced by intravenous route
Trimethoprim	Trimethoprim increased risk of nephrotoxicity, plasma Cyclosporin concentration
Vaccine	Avoid use of live vaccines with Cyclosporin (impairment of immune response)
Vancomycin	Increased risk of nephrotoxicity

Verapamil	Increased plasma Cyclosporin concentration
Cimetidine HCl	
Astemizole	Cimetidine increases levels of Astemizole by decreasing its metabolism
Cisapride	
Pimozide	Cisapride and Pimozide both increase QTc interval.
Ciprofloxacin	
Antacid (Aluminium hydroxide Magnesium hydroxide)	Reduced absorption of Ciprofloxacin
Artemether + Lumefantrine	Artemether + Lumefantrine advises to avoid concomitant use
Phenytoin	Plasma phenytion concentration can be increased or decreased by Ciprofloxacin
Warfarin	Enhanced anticoagulant effect
Zinc sulfate	Reduce absorption of Ciprofloxacin
Cisplatin	
Acetazolamide	Increased risk of nepheotoxicity and ototoxicity
amikacin	Increased risk of nepheotoxicity and possibly ototoxicity
Gentamicin	Increased risk of nepheotoxicity and possibly ototoxicity
hydrochlorothiazide	Increased risk of nepheotoxicity and ototoxicity
Methotrexate	Risk of pulmonary toxicity
Paromomycin	Increased risk of ototoxicity
Phenytoin	Reduce absoption of Phenytoin
Spiranolactone	increased risk of nepherotoxicity and ototoxicity
Streptomycin	Increased risk of nepherotoxicity and possibly of ototoxicity
Vaccine	Avoid use of liver vaccine with Cisplatin (impairment of immune response)
Vancomycin	Increased risk of nepherotoxicity and possibly of toxicity
Citalopram	
5 HT- receptor agonists	Increased risk of CNS toxicity when Citalopram given with $5HT_1$ agonists (manufacturer of Citalopram advises to avoid concomitant use)

Amiodarone	Manufacturer of Citalopram advises to avoid concomitant use with Amiodarone (risk of ventricular arrhythmias)
Tricyclic antidepressants	Manufacturer of Citalopram advises to avoid concomitant use with Tricyclics (risk of ventricular arrhythmias)
Antimalarials	Manufacturer of Citalopram advises to avoid concomitant use with antimalarials (risk of ventricular arrhythmias)
Bupropion	Plasma concentration of Citalopram possibly increased by Bupropion
Cimetidine	Plasma concentration of Citalopram increased by Cimetidine
Clozapine	Citalopram possibly increases plasma concentration of Clozapine (increased risk of toxicity)
Disopyramide	Manufacturer of Citalopram advises to avoid concomitant use with Disopyramide (risk of ventricular arrhythmias)
Dronedarone	Manufacturer of Citalopram advises to avoid concomitant use with Dronedarone (risk of ventricular arrhythmias)
Erythromycin	Manufacturer of Citalopram advises to avoid concomitant use with intravenous Erythromycin (risk of ventricular arrhythmias)
Haloperidol	Manufacturer of Citalopram advises to avoid concomitant use with Haloperidol (risk of ventricular arrhythmias)
MAOIs	Citalopram shoud not be started until 2 weeks after stopping MAOIs, also MAOIs shoud not be started until at least 1 week after stopping Citalopram
Metoprolol	Citalopram increases plasma concentration of Metoprolol
Mizolastine	Manufacturer of Citalopram advises to avoid concomitant use with Mizolastine (risk of ventricular arrhythmias)
Moclobemide	After stopping Citalopram do not start Moclobemide for at least 1 week
Moxifloxacin	Manufacturer of Citalopram advises to avoid concomitant use with Moxifloxacin (risk of ventricular arrhythmias)
Pentamidine Isetionate	Manufacturer of Citalopram advises to avoid concomitant use with Pentamidine Isetionate (risk of ventricular arrhythmias)
Phenothiazines	Manufacturer of Citalopram advises to avoid concomitant use with Phenothiazines (risk of ventricular arrhythmias)
Pimozide	Manufacturer of Citalopram advises to avoid concomitant use with Pimozide (risk of ventricular arrhythmias)
Selegiline	Avoidance of Citalopram is advised by manufacturer of Selegiline

Sotalol	Increased risk of ventricular arrhythmias when Citalopram given with Sotalol-avoid concomitant use
Sumatriptan	Increased risk of CNS toxicity when Citalopram given with Sumatriptan
Telithromycin	Possible increased risk of ventricular arrhythmias when Citalopram given with Telithromycin
Ticagrelor	Possible increased risk of bleeding when Citalopram given with Ticagrelor
Clarithromycin	
Aprepitant	Clarithromycin possibly increases plasma concentration of Aprepitant
Atazanavir	Plasma concentration of both medicines increased when Clarithromycin given with Atazanavir
Atorvastatin	Clarithromycin increases plasma concentration of Atorvastatin
Axitinib	Clarithromycin possibly increases plasma concentration of Axitinib (reduce dose of Axitinib-consult Axitinib product literature)
Bosutinib	Clarithromycin possibly increases the plasma concentration of Bosutinib—manufacturer of Bosutinib advises to avoid or consider reducing dose of Bosutinib
Cabazitaxel	Clarithromycin possibly increases the plasma concentration of Cabazitaxel—manufacturer of Cabazitaxel advises to avoid or consider reducing dose of Cabazitaxel
Calcium-Channel Blockers	Clarithromycin possibly inhibits metabolism of Calcium-Channel Clockers (increased risk of side-effects)
Carbamazepine	Clarithromycin increases plasma concentration of Carbamazepine (consider reducing dose of Carbamazepine)
Ciclosporin	Clarithromycin inhibits metabolism of Cyclosporin (increased plasma concentration)
Cilostazol	Clarithromycin possibly increases plasma concentration of Cilostazol (see Dose under Cilostazol, section 2.6.4)
Colchicine	Clarithromycin possibly increases risk of Colchicine toxicity-suspend or reduce dose of Colchicine (avoid concomitant use in hepatic or renal impairment)
Coumarins	Clarithromycin enhances anticoagulant effect of Coumarins
Crizotinib	Clarithromycin possibly increases plasma concentration of Crizotinib—manufacturer of Crizotinib advises to avoid concomitant use

Dabigatran	Possible increased risk of bleeding when Clarithromycin given with Dabigatran
Dapoxetine	Manufacturer of Dapoxetine advises dose reduction when Clarithromycin is given with Dapoxetine
Disopyramide	Clarithromycin possibly increases plasma concentration of Disopyramide (increased risk of ventricular arrhythmias)
Dronedarone	Avoidance of Clarithromycin is advised by manufacturer of Dronedarone (risk of ventricular arrhythmias)
Efavirenz	Plasma concentration of Clarithromycin reduced by Efavirenz, also plasma concentration of active metabolite of Clarithromycin increased
Eletriptan	Clarithromycin increases plasma concentration of Eletriptan (risk of toxicity)—avoid concomitant use
Eplerenone	Clarithromycin increases plasma concentration of Eplerenone—avoid concomitant use
Etravirine	Plasma concentration of Clarithromycin is reduced by Etravirine (but concentration of an active metabolite increased), also plasma concentration of Etravirine increased
Everolimus	Clarithromycin possibly increases plasma concentration of Everolimus—manufacturer of Everolimus advises to avoid concomitant use
Fentanyl	Clarithromycin possibly increases plasma concentration of Fentanyl
Fesoterodine	Manufacturer of Fesoterodine advises dose reduction when Clarithromycin given with Fesoterodine-consult Fesoterodine product literature
Fidaxomicin	Avoidance of Clarithromycin is advised by manufacturer of Fidaxomicin
Itraconazole	Clarithromycin increases plasma concentration of Itraconazole
Ivabradine	Clarithromycin possibly increases plasma concentration of Ivabradine—avoid concomitant use
Ivacaftor	Clarithromycin possibly increases plasma concentration of Ivacaftor
Lenalidomide	Clarithromycin possibly increases plasma concentration of Lenalidomide (increased risk of toxicity)
Lomitapide	Avoidance of Clarithromycin is advised by manufacturer of Lomitapide (plasma concentration of Lomitapide possibly increased)

Maraviroc	Clarithromycin possibly increases plasma concentration of Maraviroc (consider reducing dose of Maraviroc)
MethylPrednisolone	Clarithromycin possibly increases plasma concentration of Methylprednisolone
Midazolam	Clarithromycin inhibits the metabolism of Midazolam (increased plasma concentration with increased sedation)
Mirabegron	When given with Clarithromycin, avoid or reduce dose of Mirabegron in hepatic or renal impairment—see Mirabegron
Nevirapine	Plasma concentration of Clarithromycin is reduced by Nevirapine (but concentration of an active metabolite increased), also plasma concentration of Nevirapine increased
Nilotinib	Avoidance of Clarithromycin is advised by manufacturer of Nilotinib
Pazopanib	Clarithromycin possibly increases plasma concentration of Pazopanib (reduce dose of Pazopanib)
Phenytoin	Clarithromycin inhibits metabolism of Phenytoin (increased plasma concentration)
Pimozide	Increased risk of ventricular arrhythmias when Clarithromycin is given with Pimozide—avoid concomitant use
Pravastatin	Clarithromycin increases plasma concentration of Pravastatin
Quetiapine	Clarithromycin possibly increases plasma concentration of Quetiapine—manufacturer of Quetiapine advises to avoid concomitant use
Ranolazine	Clarithromycin possibly increases plasma concentration of Ranolazine—manufacturer of Ranolazine advises to avoid concomitant use
Repaglinide	Clarithromycin enhances effects of Repaglinide
Rifabutin	Clarithromycin increases plasma concentration of Rifabutin (increased risk of toxicity—reduce Rifabutin dose)
Rifamycins	Plasma concentration of Clarithromycin is reduced by Rifamycins
Rilpivirine	Avoidance of Clarithromycin advised by manufacturer of Rilpivirine (plasma concentration of Rilpivirine may be increased)
Ritonavir	Plasma concentration of Clarithromycin increased by Ritonavir (reduce dose of Clarithromycin in renal impairment)
Ruxolitinib	Manufacturer of Ruxolitinib advises dose reduction when Clarithromycin is given with Ruxolitinib-consult Ruxolitinib product literature

Saquinavir	Plasma concentration of both medicines possibly increased when Clarithromycin given with Saquinavir (increased risk of ventricular arrhythmias)
Sildenafil	Clarithromycin increases plasma concentration of Sildenafil (consider reducing dose of Sildenafil)
Simvastatin	Increased risk of myopathy when Clarithromycin is given with Simvastatin (avoid concomitant use)
Sirolimus	Clarithromycin increases plasma concentration of Sirolimus—avoid concomitant use
Tacrolimus	Clarithromycin increases plasma concentration of Tacrolimus
Tadalafil	Clarithromycin possibly increases plasma concentration of Tadalafil
Telaprevir	Plasma concentration of both medicines possibly increased when Clarithromycin is given with Telaprevir (increased risk of ventricular arrhythmias)
Theophylline	Clarithromycin possibly increases plasma concentration of Theophylline
Ticagrelor	Clarithromycin possibly increases plasma concentration of Ticagrelor —manufacturer of Ticagrelor advises to avoid concomitant use
Tipranavir	Plasma concentration of Clarithromycin increased by Tipranavir (reduce dose of Clarithromycin in renal impairment), also Clarithromycin increases plasma concentration of Tipranavir
Tolterodine	Avoidance of Clarithromycin is advised by manufacturer of Tolterodine
Trazodone	Clarithromycin possibly increases plasma concentration of Trazodone
Ulipristal	Avoidance of Clarithromycin is advised by manufacturer of Ulipristal
Vardenafil	Clarithromycin possibly increases plasma concentration of Vardenafil (consider reducing initial dose of Vardenafil)
Vinorelbine	Possible increased risk of neutropenia when Clarithromycin is given with Vinorelbine
Zidovudine	Clarithromycin tablets reduce absorption of Zidovudine (give at least 2 hours apart)
Clindamycin	
Alcuronium	Enhanced musle relaxant effect

Neostigmin	Antagonism of effect of Neostigmin
Suxamethonium	Enhanced effect of Suxamethonium
Vecuronium	Enhanced musle relaxant
Clopidogrel	
Citalopram	Citalopram increases effects of Clopidogrel by pharmacodynamic synergism
Omeprazole	Omeprazole decreases effects of Clopidogrel by affecting hepatic enzyme CYP2C19 metabolism
Ketoconazole	Ketoconazole decreases effects of Clopidogrel by affecting hepatic enzyme CYP2C19 metabolism.
Cimetidine	Cimetidine decreases effects of Clopidogrel by affecting hepatic enzyme CYP2C19 metabolism
Ticlopidine	Ticlopidine decreases effects of Clopidogrel by affecting hepatic enzyme CYP2C19 metabolism
Ibuprofen	Clopidogrel, Ibuprofen. Either increases effects of the other by pharmacodynamic synergism
Naproxen	Clopidogrel, Naproxen. Either increases effects of the other by pharmacodynamic synergism
Aspirin	Aspirin, Clopidogrel. Either increases toxicity of the other by pharmacodynamic synergism. The need for simultaneous use of low-dose Aspirin and anticoagulant or antiplatelet agents are common for patients with cardiovascular disease, monitor closely.
Clozapine	
Fluconazol	Fluconazole will increase the level or effect of Clozapine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Rifampin	Rifampin will decrease the level or effect of Clozapine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Carbamezapine	Carbamazepine will decrease the level or effect of Clozapine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Phenytoin	Phenytoin will decrease the level or effect of Clozapine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Citrizine	Citrizine decreases levels of Clozapine by inhibition of GI absorption. Applies only to oral form of both agents
Diphenhydramine	Diphenhydramine decreases levels of Clozapine by inhibition of GI absorption. Applies only to oral form of both agents

Diazepam	Diazepam and Clozapine both increase sedation
Codeine	Codeine and Clozapine both increase sedation
Ketoconazole	Ketoconazole will increase the level or effect of Clozapine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Itraconazole	Itraconazole will increase the level or effect of Clozapine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Cyclosporin	Cyclosporin will increase the level or effect of Clozapine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Verapamil	Verapamil will increase the level or effect of Clozapine by affecting hepatic enzyme CYP1A2 metabolism
Clotrimazole	
Amidarone	Amiodarone and Sulfamethoxazole both increase QTc interval
Cyclopentolate/Phenylephrine	
Bromocriptine	Bromocriptine, Phenylephrine. Either increases effects of the other by pharmacodynamic synergism
Isocarboxazide	Isocarboxazide increases effects of Phenylephrine by pharmacodynamic synergism
Morphine	Morphine increases and Phenylephrine decreases sedation
Procarbazine	Procarbazine increases effects of Phenylephrine by pharmacodynamic synergism.
Amitriptyline	Amitriptyline increases and Phenylephrine decreases sedation
Cyclophosphamide	
Allopurinol	Allopurinol increases toxicity of Cyclophosphamide by decreasing metabolism
Digoxin	Cyclophosphamide decreases levels of Digoxin by inhibition of GI absorption
Phenobarbital	Phenobarbital will decrease the level or effect of Cyclophosphamide by affecting hepatic enzyme CYP2B6 metabolism
Cytarabine	
Flucytosine	Plasma Flucytosine concentration is possibly reduced
Phenytoin	Reduced absorption of Phenytoin
Vaccine live	Avoid use of live vaccines with Cytarabine (impairment of immune response)
Phenytoin	Possibly reduce absorption of Phenytoin

Vaccine live	Avoid use of live vaccines with Dacarbazine (impairment of immune respone)
Phenytoin	Possibly reduced absorption of Phenytoin
Vaccine live	Avoid use of live vaccines with Daunorubicin (impairment of immune respone)
Desmopressin	
Carbamezapine	Carbamazepine, Desmopressin. Mechanism: unknown. Minor or non-significant interaction. Carbamazepine may increase or decrease the duration of action of Desmopressin.
Dexamethasone	
Acetazolamide	Increased risk of hypokalaemia, antagonism of diuretic effect
Acetylsalicylic acid	Increased risk of gastrointestinal bleeding and ulceration, Dexamethasone reduced plasma Salicylate concentration
Albendazole	Plasma Albendazole concentration is possibly increased
Glibenclamide	Antagonism of hypoglycemic effect
Metformin	Antagonism of hypoglycemic effect
Methyldopa	Antagonism of the hypotensive effect
Praziquantel	Plasma Praziquentel concentration is reduced
Propranolol	Antagonism of the hypotensive effect
Rifampicin	Accelerated metabolism of Dexamethasone (reduced effect)
Warfarin	Anticoagulant effect possibly enhanced or reduced (high dose Dexamethasone enhaced anticoagulant effect)
Diazepam	
Acetazolamide	Enhanced hypotensive effect
Alcohol	Enhanced sedative effect
Amiloride	Enhanced hypotensive effect
Amitriptyline	Enhanced sedative effect
Amlodipine	Enhanced hypotensive effect
Atenolol	Enhanced hypotensive effect
Chlorphenamine	Enhanced sedative effect
Chlorpromazine	Enhanced sedative effect

Clomipranibe	Enhanced sedative effect
Codeine	Enhanced sedative effect
Enalapril	Enhanced hypotensive effect
Fluphenazine	Enhanced sedative effect
Furosemide	Enhanced hypotensive effect
Glyceryl trinitrate	Enhanced hypotensive effect
Haloperidol	Enhanced sedative effect
Halothane	Enhanced sedative effect
Hydralazine	Enhanced hypotensive effect
Hydrochlorothizide	Enhanced hypotensive effect
Promethazine	Enhanced sedative effect
Propanolol	Propranolol increases effects of Diazepam by decreasing metabolism
Rifampin	Rifampin will decrease the level or effect of Diazepam by affecting hepatic enzyme CYP2C19 metabolism
Verapamil	Verapamil will increase the level or effect of Diazepam by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Diclofenac	
Anticoagulants	Increased risk of haemorrhage when intravenous diclofenac is given with anticoagulants (avoid concomitant use, including low-dose Heparins)
Cyclosporin	Plasma concentration of diclofenac is increased by Cyclosporin (halve dose of Diclofenac)
Methotrexate	Diclofenac reduces excretion of Methotrexate (increased risk of toxicity)-but for concomitant use in rheumatic disease
Rifampicin	Plasma concentration of Diclofenac reduced by Rifampicin
Voriconazole	Plasma concentration of Diclofenac increased by Voriconazole
Digoxin	
Acetazolamide	Hypokalaemia caused by Acetazolamide increases cardiac toxicity of Digoxin
Amphotericin B	Hypokalaemia caused by Amphotericin B increases cardic toxicity of Digoxin

Erythromycin	Increased plasma concentration of Digoxin (increased risk of toxicity)
Furosemide	Hypokalaemia caused by Furosemide increases cardic toxicity of Dgoxin
Gentamcin	Possibly increased plasma concentration of Digoxin
Phenytoin	Plasma concentration of Digoxin is possibly reduced
Prednisolone	Increased risk of hypokalaemia
Propranolol	Increased risk of AV block and bradycardia
Qunidine	Plasma concentration of Digoxin increased (have dose of Digoxin)
Quinine	Plasma concentration of Digoxin increased
Diltiazem	
Alfentanil	Diltiazem inhibits metabolism of Alfentanil (risk of prolonged or delayed respiratory depression)
Amiodarone	Increased risk of bradycardia, AV block and myocardial depression when Diltiazem given with Amiodarone
Antidepressants, Tricyclic	Diltiazem possibly increases plasma concentration of Tricyclics
Aprepitant	Plasma concentration of both medicines may increase when Diltiazem given with Aprepitant
Atazanavir	Plasma concentration of Diltiazem increased by Atazanavir (reduce dose of Diltiazem)
Atorvastatin	Diltiazem increases plasma concentration of Atorvastatin—possible increased risk of myopathy
Beta-blockers	Increased risk of AV block and bradycardia when Diltiazem given with Beta-blockers
Bosutinib	Diltiazem possibly increases the plasma concentration of Bosutinib manufacturer of Bosutinib advises avoid or consider reducing dose of Bosutinib
Buspirone	Diltiazem increases plasma concentration of Buspirone (reduce dose of Buspirone)
Carbamazepine	Diltiazem enhances effects of Carbamazepine
Cyclosporin	Diltiazem increases plasma concentration of Cyclosporin
Cilostazol	Diltiazem increases plasma concentration of Cilostazol (consider reducing dose of Cilostazol)

Colchicine	Diltiazem possibly increases risk of Colchicine toxicity—suspend or reduce dose of Colchicine (avoid concomitant use in hepatic or renal impairment)
Crizotinib	Possible increased risk of bradycardia when Diltiazem is given with Crizotinib
Dantrolene	Possible increased risk of ventricular arrhythmias when Diltiazem is given with intravenous Dantrolene—manufacturer of Diltiazem advises to avoid concomitant use
Dapoxetine	Manufacturer of Dapoxetine advises dose reduction when Diltiazem given with Dapoxetine.
Digoxin	Diltiazem increases plasma concentration of Digoxin
Dronedarone	Increased risk of bradycardia and myocardial depression when Diltiazem is given with Dronedarone
Dutasteride	Diltiazem increases plasma concentration of Dutasteride
Efavirenz	Plasma concentration of Diltiazem reduced by Efavirenz
Eplerenone	Diltiazem increases plasma concentration of Eplerenone (reduce dose of Eplerenone)
Fingolimod	Possible increased risk of bradycardia when Diltiazem is given with Fingolimod
Imipramine	Diltiazem increases plasma concentration of Imipramine
Ivabradine	Diltiazem increases plasma concentration of Ivabradine—avoid concomitant use
Lithium	Neurotoxicity may occur when Diltiazem given with Lithium without increased plasma concentration of Lithium
Lomitapide	Avoidance of Diltiazem advised by manufacturer of Lomitapide (plasma concentration of Lomitapide possibly increased)
MethylPrednisolone	Diltiazem increases plasma concentration of Methylprednisolone
Midazolam	Diltiazem inhibits metabolism of Midazolam (increased plasma concentration with increased sedation)
Nifedipine	Plasma concentration of both medicines may increase when Diltiazem given with Nifedipine
Pasireotide	Possible increased risk of bradycardia when Diltiazem given with Pasireotide
Phenytoin	Diltiazem increases plasma concentration of Phenytoin but also effect of Diltiazem reduced

Ranolazine	Diltiazem increases plasma concentration of Ranolazine (consider reducing dose of Ranolazine)
Rifampicin	Metabolism of Diltiazem accelerated by Rifampicin (plasma concentration significantly reduced)
Simvastatin	Possible increased risk of myopathy when Diltiazem given with Simvastatin (see Dose under Simvastatin, section)
Sirolimus	Diltiazem increases plasma concentration of Sirolimus
Tacrolimus	Diltiazem increases plasma concentration of Tacrolimus
Telaprevir	Caution with Diltiazem advised by manufacturer of Telaprevir
Theophylline	Diltiazem increases plasma concentration of Theophylline
Ticagrelor	Diltiazem increases plasma concentration of Ticagrelor
Anticoagulants	Increased risk of haemorrhage when intravenous Diclofenac given with anticoagulants (avoid concomitant use, including low-dose Heparins)
Cyclosporin	plasma concentration of diclofenac increased by Ciclosporin (halve dose of diclofenac)
Methotrexate	Diclofenac reduces excretion of Methotrexate (increased risk of toxicity)—but for concomitant use in rheumatic disease
Rifampicin	Plasma concentration of Diclofenac reduced by Rifampicin
Voriconazole	Plasma concentration of Diclofenac increased by Voriconazole
Dipyridamole	
Adenosine	Dipyridamol decrease the break down of Adenosine. Decreasing the break down of Adenosine if can cause heart problems.
Heparin	Dipyridamol, Heparin either increases the effects of other by pharmacodynamic synergism. never use in combination, enhanced the risk of hemorrage
Riociguat	Dipyridamol, Riociguat either increase the effect of each other
Theophylline	Theophylline decrase the effects of Dipyridamol by pharmacodynamic antagonism
Dobutamine	
Isocarboxide	Isocarboxide increases effects of Dobutamine by pharmacodynamic synergism, never use combination, risk of acute hypertensive episode
Linezoid	Linezoid increases effects of Dobutamine by pharmacodynamic synergism , never use combination, risk of acute hypertensive episode

Phenelzine	Phenelzine increases effects of Dobutamine by pharmacodynamic synergism , never use combination, risk of acute hypertensive episode
Selegline	Selegline transdermal increases effects of Dobutamine by pharmacodynamic synergism, never use combination, risk of acute hypertensive episode
Tranylcypromine	Tranylcypromine increases effects of Dobutamine by pharmacodynamic synergism, never use combination, risk of acute hypertensive episode
Docetaxel unhydrous	
Itraconazole	Itraconazole will increase the level or effect of Docetaxel by P-glycoprotein (MDR1) efflux transporter
Erythromycin	Erythromycin base will increase the level or effect of docetaxel by P-glycoprotein (MDR1) efflux transporter.
Rifamycin	Rifampin will decrease the level or effect of docetaxel by P-glycoprotein (MDR1) efflux transporter.
Ritonavir	Ritonavir will increase the level or effect of Docetaxel by P-glycoprotein (MDR1) efflux transporter
Dopamine	
Chlorpromazine	Antagonism of hypertensive effect
Ergotamine	Increased risk of ergotism
Fluphenazine	Antagonism of hypertensive effect
Haloperidol	Antagonism of hypertensive effect
Doxazocin mesilate	
Sildenafil	Sildenafil increases effects of Doxazosin by pharmacodynamic synergism. Possible serious or life-threatening interaction. Monitor closely. Use alternatives if available. Risk of hypotension
Tadalafil	Tadalafil increases effects of Doxazosin by pharmacodynamic synergism. Significant interaction is possible, monitor closely. Risk of hypotension
Ibuprofen	Ibuprofen decreases effects of Doxazosin by pharmacodynamic antagonism. Significant interaction is possible, monitor closely. NSAIDs decrease prostaglandin synthesis.
Naproxen	Naproxen decreases effects of Doxazosin by pharmacodynamic antagonism. Significant interaction is possible, monitor closely. NSAIDs decrease prostaglandin synthesis.

Cyclosporin	Increased risk of neurotoxicity
Phenytoin	Possibly reduced absorption of Phenytoin
Doxycycline	
Antacids	Reduced absorption of Doxcycline
Carbamazepine	Accelerated metabolism of Doxycycline (reduced effect)
Cyclosporin	Possibly increased plasma Cyclosporin concentration
Contraceptives	Oral contraceptive effect of Estrogens possibly reduced (risk probably small)
Ferrous salts	Absorption of oral Ferrous salts reduced by Doxycyline, absorption of Doxycycline reduced by oral Ferrous salt
Methotrexate	Increased risk of Methotrexate toxicity
Epinephrine	
Amitriptyline	Increased risk of hypertension and arrhythmias (but local anaesthetics which contain Epinephrine appear to be safe)
Atenolol	Severe hypertension
Chlorpromazine	Antagonism of hypertensive effect
Propranolol	Severe hypertension
Timolol	Severe hypertension
Enalapril	
Spironolactone	Enalapril, Spironolactone. Mechanism: pharmacodynamic synergism. Significant interaction is possible, monitor closely. Risk of hyperkalaemia
Lithium	Enalapril increases toxicity of Lithium by unknown mechanism.
Aspirin	Enalapril, Aspirin. Either increases toxicity of the other by Other
Ibuprofen	Enalapril, Ibuprofen. Either increases toxicity of the other by Other May result in renal function deterioration, particularly in elderly or volume depleted individuals
Indomethacin	Enalapril, Indomethacin. Either increases toxicity of the other by Other Significant interaction is possible, monitor closely. Comment: May result in renal function deterioration, particularly in elderly or volume depleted individuals.

Naproxen	Enalapril, Naproxen. Either increases toxicity of the other by Other (see comment). Significant interaction is possible, monitor closely. Comment: May result in renal function deterioration, particularly in elderly or volume depleted individuals.
Enoxaparin	
Mifepristone	Mifepristone, Enoxaparin. Mifepristone may lead to excessive post abortion bleeding in pts. On anticoagulant therapy.
Prothrombin	Enoxaparin, Prothrombin pharmacodynamic antagonism
Azithromycin	Azithromycin increases effects of Enoxaparin by decreasing metabolism.
Cefdinir	Cefdinir increases effects of Enoxaparin by anticoagulation
Cefpodoxime	Cefpodoxime will increase the level or effect of Enoxaparin by anticoagulation. Cephalosporins may decrease prothrombin activity.
Dipyridamole	Enoxaparin, Dipyridamole. Either increases effects of the other by pharmacodynamic synergism. Enhanced risk of hemorrhage.
Erythromycin	Erythromycin base increases effects of Enoxaparin by decreasing metabolism.
Warfarin	Enoxaparin and Warfarin both increase anticoagulation
Epirubicin HCL	
Cimetidine	Cimetidine increases levels of Epirubicin by decreasing metabolism. Cimetidine treatment should be stopped during treatment with Epirubicin.
Ergometrine	
Dopamine	Increased risk of ergotism
Halothane	Reduced effect of Ergometrine on parturient uterus
Erythromycin	
Artemether + Lumefantrine	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Carbamazepine	Increased Carbamazepine plasma concentration
Cyclosporin	Increased plasma Cyclosporin concentration (inhibition of metabolism of Cyclossporin)
Quinidine	Increased risk of ventricular arrhythmias with parenteral Erythromycin

Valporic acid	Metabolism of Valporic acid possibly inhibited (increased plasma concentration)
Verapamil	Possible inhibition of metabolism of Verapamil (increased risk of toxicity)
Vinblastine	Increased toxicity of Vinblastine (avoid concomitant use)
Warfarin	Enhanced anticoagulant effect
Esomeprazole	
Clopidogrel	Esomeprazole reduces antiplatelet effect of Clopidogrel
Coumarins	Esomeprazole possibly enhances anticoagulant effect of Coumarins
Diazepam	Esomeprazole possibly inhibits metabolism of Diazepam (increased plasma concentration)
Erlotinib	Avoidance of Esomeprazole is advised by manufacturer of Erlotinib
Phenytoin	Esomeprazole enhances effects of Phenytoin
Rilpivirine	Avoidance of Esomeprazole is advised by manufacturer of Rilpivirine (plasma concentration of Rilpivirine is possibly reduced)
Saquinavir	Esomeprazole possibly increases plasma concentration of Saquinavir—manufacturer of Saquinavir advises avoid concomitant use
Tipranavir	Plasma concentration of Esomeprazole is reduced by Tipranavir
Voriconazole	Plasma concentration of Esomeprazole is possibly increased by Voriconazole
Ethinyl estradiol	
Phenobarbital	Phenobarbital will decrease the level or effect of Ethinylestradiol by affecting hepatic/intestinal enzyme CYP3A4 metabolism. The efficacy of hormonal contraceptives may be reduced. Use of a non-hormonal contraceptive is recommended
Carbamezapine	Ethinylestradiol will increase the level or effect of Carbamazepine by affecting hepatic/intestinal enzyme CYP3A4 metabolis m. Use alternatives if available. The efficacy of hormonal contraceptives may be reduced.
Phenytoin	Phenytoin will decrease the level or effect of Ethinylestradiol by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Use alternatives if available. The efficacy of hormonal contraceptives may be reduced. Use of a non-hormonal contraceptive is recommended.

Nitrofurantoin	Nitrofurantoin will decrease the level or effect of Ethinylestradiol by altering intestinal flora. Applies only to oral forms of hormone. Low risk of contraceptive failure. Potential for interaction, monitor.
Warfarin	Ethinylestradiol will increase the level or effect of Warfarin by affecting hepatic enzyme CYP1A2 metabolism.
Diazepam	Ethinylestradiol will increase the level or effect of Diazepam by decreasing its metabolism. Potential for interaction, monitor. Ethinyl estradiol may inhibit the clearance of Benzodiazepines that undergo oxidation, thereby increasing serum concentrations of concomitantly administered Benzodiazepines
Etoposide	
Cyclosporin	Possibly increased plasma concentration of Etoposide (increased risk of toxicity)
Phenobarbital	Possibly reduced plasma concentration of Etoposide
Vaccine live	Avoid use of live vaccines with Etoposide (impairment of immune response)
Warfarin	Possibly enhanced anticoagulant effect
Famotidine	
Atazanavir	Famotidine will decrease the level or effect of Atazanavir by increasing gastric pH. Applies only to oral form of both agents
Itraconazole	Famotidine will decrease the level or effect of Itraconazole by increasing gastric pH.
Ketoconazole	Famotidine will decrease the level or effect of Ketoconazole by increasing gastric pH
Felodipine	
Itraconazole	Itraconazole will increase the level or effect of Felodipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Never use combination. CCBs elicit negative inotropic effects which may be additive to those of Itraconazole, additionally, itraconazole can inhibit the metabolism of Calcium Channel Blockers, co-administration may increase risk of CHF
Cimetidine	Cimetidine will increase the level or effect of Felodipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Erythromycin	Erythromycin base will increase the level or effect of Felodipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Phenytoin	Phenytoin will decrease the level or effect of Felodipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.

Carbamezapine	Carbamazepine will decrease the level or effect of Felodipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Tacrolimus	Felodipine will increase the level or effect of Tacrolimus by P-glycoprotein (MDR1) efflux transporter.
Ciclosporin	Increased risk of renal impairment when Felodipine given with Cyclosporin
Statins	Reduce maximum dose of Fenofibrate when given with Statins
Calcium salts	Reduce absoption of oral calcium salts
CiprOfloxacin	CiprOfloxacin will increase the level or effect of Felodipine
Dimercaprol	Avoid concomitant use
Doxycycline	Absorption of oral Ferrous salts reduced by Doxycycline, absopstion of Doxycycline is reduced by oral Felodipine
Levodopa	Absoption of Levodopa may be reduced by oral Felodipine
Amitrptyline	Felodipine will increase the level or effect of Amitriptyline by P-glycoprotein (MDR1) efflux transporter.
Fluqinolone Acetomide	
Metronidazole	Metabolism of Metronidazole inhibited (increased toxicity)
Phenytoin	Metabolism of Phenytoin possibly inhibited (increased risk of of toxicity)
Vaccine	Avoid use of live vaccines with Fluorouracil (impairment of immune response)
Warfarin	Anticoagulant effect possibly enhanced
Acetazolamide	Enhanced hypotensive effect
Amiloride	Enhanced hypotensive effect
Methadone	Enhanced hypotensive and sedative effect
Methyldopa	Enhanced hypotensive effect, inereased risk of extrapyramidal effects
Metoclopramide	Increased risk of extrapyramidal effect
Morphine	Enhanced sedative effect
Nifedipine	Enhanced hypotensive effect
Propranolol	Enhanced hypotensive effect
Quinidine	Increased risk of ventricular arrhythmias

Thiopental	Enhanced hypotensive effect
Thiopental	Enhanced hypotensive effect
Verapamil	Enhanced hypotensive effect
Fluvastatin	
Ciclosporin	Increased risk of myopathy when Fluvastatin is given with Cyclosporin
Coumarins	Fluvastatin enhances anticoagulant effect of Coumarins
Fluconazole	Plasma concentration of Fluvastatin is increased by Fluconazole-possible increased risk of myopathy
Gemfibrozil	Increased risk of myopathy when Fluvastatin given with Gemfibrozil (preferably avoid concomitant use)
Glibenclamide	Fluvastatin possibly increases plasma concentration of Glibenclamide
Phenytoin	Combination of Fluvastatin with Phenytoin may increase plasma concentration of either drug (or both)
Rifampicin	Metabolism of Fluvastatin is accelerated by Rifampicin (reduced effect)
Furosemide	
Acetazolamide	Increased risk of hypokalaemia
Alcohol	Enhanced hypotensive effect
Amikacin	Increased risk of toxicity
Amitriptyline	Increasd risk of postural hypotension
Amlodipne	Enhanced hypotensive effect
Amphotericin B	Increased risk of hypokalaemia
Digoxin	Hypokalaemia caused by Furosemide increases cardic toxicity of Digoxin
Fluphenazine	Enhanced hypotensive effect
Gentamicin	Increased risk of toxicity
Glibenclamide	Antagonism of hypoglycemic effect
Halothane	Enhanced hypotensive effect
Hydrazine	Enhanced hypotensive effect
Metformine	Antagonism of hypoglycemic effect

Methyldopa	Enhanced hypotensive effect
Nifedipine	Enhanced hypotensive effect
Thiopental	Enhanced hypotensive effect
Timolol	Enhanced hypotensive effect
Vancomycin	Increased risk of toxicity
Verapamil	Enhanced hypotensive effect
Gemcitabine	
Heparin	Gemcitabine increases effects of Heparin by unspecified interaction mechanism. Potential for interaction, monitor. Due to the thrombocytopenic effects of Gemcitabine, an additive risk of bleeding may be seen in patients receiving concomitant anticoagulants
Hydroxyl urea	Gemcitabine, Hydroxyurea combination may increase risk of myelosuppression.
Warfarin	Gemcitabine increases effects of Warfarin by unspecified interaction mechanism. Significant interaction is possible, monitor closely. The anticoagulant effect of Warfarin may be increased
Argatroban	Gemcitabine increases effects of Argatroban by unspecified interaction mechanism. Potential for interaction, monitor. Due to the thrombocytopenic effects of Gemcitabine, an additive risk of bleeding may be seen in patients receiving concomitant anticoagulants
Bivalirudin	Gemcitabine increases effects of Bivalirudin by unspecified interaction mechanism. Potential for interaction, monitor. Due to the thrombocytopenic effects of Gemcitabine, an additive risk of bleeding may be seen in patients receiving concomitant anticoagulants
Gemfibrozil	
Atorvastatin	Increased risk of myopathy when Gemfibrozil given with Atorvastatin (preferably avoid concomitant use)
Bexarotene	Gemfibrozil increases plasma concentration of Bexarotene—avoid concomitant use
Enzalutamide	Gemfibrozil increases plasma concentration of Enzalutamide—manufacturer of Enzalutamide advises to avoid concomitant use or halve dose of Enzalutamide
Fluvastatin	Increased risk of myopathy when Gemfibrozil given with Fluvastatin (preferably avoid concomitant use)

Drug–Drug Interactions

Montelukast	Gemfibrozil increases plasma concentration of Montelukast
Nateglinide	Gemfibrozil possibly enhances hypoglycaemic effect of Nateglinide
Pravastatin	Increased risk of myopathy when Gemfibrozil is given with Pravastatin (preferably avoid concomitant use)
Repaglinide	Increased risk of severe hypoglycaemia when Gemfibrozil is given with Repaglinide-avoid concomitant use
Simvastatin	Increased risk of myopathy when Gemfibrozil is given with Simvastatin (avoid concomitant use)
Gentamicin	
Alcuronium	Enhanced musle relaxant effect
Amphotericin B	Incrased risk of nephrotoxicity
Vancomycin	Incrased risk of nephrotoxicity and ototoxicity
Vancornium	Enhanced muscle relaxant
Glibenclamide	
Alcohol	Enhanced hypoglycemic effect
Warfarin	Possibly enhaced hypoglycemic effect and changes to anticoagulant effect
Glimepiride	
Sulfasalazine	Sulfasalazine increases effects of Glimepiride by unknown mechanism. Significant interaction is possible, monitor closely. Risk of hypoglycaemia
Aspirin	Aspirin increases effects of Glimepiride by plasma protein binding competition, risk of hypoglycaemia
Rifampin	Rifampin decreases levels of Glimepiride by increasing metabolism. Significant interaction is possible, monitor closely.
Probenecid	Probenecid increases levels of Glimepiride by unspecified interaction mechanism. Risk of hypoglycaemia.
Disopyramide	Disopyramide increases effects of Glimepiride by unspecified interaction mechanism. Significant interaction is possible, monitor closely. Risk of hypoglycaemia
Propranolol	Propranolol decreases effects of Glimepiride by pharmacodynamic antagonism. Significant interaction is possible, monitor closely. Non-selective beta blockers may also mask the symptoms of hypoglycaemia.

Timolol	Timolol decreases effects of Glimepiride by pharmacodynamic antagonism. Significant interaction is possible, monitor closely. Non-selective Beta blockers may also mask the symptoms of hypoglycaemia
Griseofulvin	
Amitriptyline	Griseofulvin will decrease the level or effect of Amitriptyline by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Haloperidol	
Alcohol	Enhanced sedative effect
Amitriptyline	Increased plasma Amitriptyline concentration, possibly increased risk of ventricular arrhymias
Amidopine	Enhanced hypotensive effect
Artemether + Lumefantrine	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use
Valproic acid	Antagonism of anticonvulsant effect (convulsive threshold is lowered)
Verapamil	Enhanced hypotensive effect
Halothane	
Acetazolamide	Enhanced hypotensive effect
Alcuronium	Effects of Alcuronium enhanced
Amiloride	Enhanced hypotensive effect
Methyldopa	Enhanced hypotensive effect
Propranolol	Enhanced hypotensive effect
Sodium nitrprusside	Enhanced hypotensive effect
Spironolactone	Enhanced hypotensive effect
Suxamethonium	Enhanced effects of Suxamethonium
Heparin	
Acetylsalicylic acid	Enhanced anticoagulant effect of Heparin
Enalapril	Increased risk of hyperkalaemia
Glyceryl Trinitrate	Anticoagulant effect reduced by infusion of Glyceyl Trinitrate
Ibuprofen	Possibly increased risk of bleeding

Drug-Drug Interactions

Hydralazine	
Acetazolamide	Enhanced hypotensive effect
Alcohol	Enhanced hypotensive effect
Amilorid	Enhanced hypotensive effect
Amlodipine	Enhanced hypotensive effect
Atenolol	Enhanced hypotensive effect
Spironolactone	Enhanced hypotensive effect
Timolol	Enhanced hypotensive effect
Verapamil	Enhanced hypotensive effect
Hydrochlorothazide	
Cisapride	Hydrochlorothiazide, Cisapride. Mechanism: Pharmacodynamic. Risk of prolonged QTc interval
Dofetilide	Hydrochlorothiazide increases levels of Dofetilide by decreasing renal clearance available. Risk of prolonged QTc interval
Lithum	Hydrochlorothiazide increases toxicity of Lithium by decreasing its elimination
Ibuprofen	Ibuprofen increases and Hydrochlorothiazide decreases serum potassium
Naproxen	Naproxen increases and Hydrochlorothiazide decreases serum potassium
Hydrocortisone	
Acetazolamide	Increased risk of hypokalaemia, antagonism of diuretic effect
Furoseamide	Antagonism of diuretic effect, increased risk of hypokaleamia
Glipenclamide	Antagonism of hypoglycemic effect
Verapamil	Anticoagulant of hypotensive effect
Warfarin	Anticoagulant effect possibly enhanced or reduced (highdose Hydrocortisone enhances anticoagulant effect)
Hyoscyamine	
Amantadine	Hyoscyamine, Amantadine. Mechanism: pharmacodynamic synergism. Potential for increased anticholinergic adverse effects
Diphenhydramine	Diphenhydramine and Hyoscyamine both decrease cholinergic effects/transmission.

Ibuprofen	
Aspirin	Ibuprofen decreases effects of Aspirin by Other: Ibuprofen decreases the antiplatelet effects of Aspirin by blocking the active site of platelet cyclooxygenase. The effect of other NSAIMs on Aspirin is not established
Lithum	Ibuprofen increases levels of Lithium by decreasing renal clearance
Methotrexate	Ibuprofen increases levels of Methotrexate by decreasing renal clearance. Concomitant administration of NSAIDs with high dose Methotrexate has been reported to elevate and prolong serum Methotrexate levels, resulting in deaths from severe hematologic and GI toxicity. NSAIMs may reduce tubular secretion of Methotrexate and enhance toxicity.
Cimetidine	Cimetidine will increase the level or effect of Ibuprofen by affecting hepatic enzyme CYP2C9/10 metabolism
Lisinopril	Lisinopril, Ibuprofen. Either increases toxicity of the other by Other. May result in renal function deterioration, particularly in elderly or volume depleted individuals
Imipramine Hydrochloride	
Cimetidine	Cimetidine will increase the level or effect of Imipramine by affecting hepatic enzyme CYP1A2 metabolism
Phenytoin	Phenytoin will decrease the level or effect of Imipramine by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Consider Phenytoin serum levels if a Tricyclic Antidepressant is added to therapy or if the patient begins to exhibit signs of toxicity, lower doses of Phenytoin may be required. Tricyclic Antidepressants when given concomitantly with anticonvulsants can increase CNS depression
Phenobarbital	Phenobarbital will decrease the level or effect of Imipramine by affecting hepatic enzyme CYP1A2 metabolism.
Indapamide	
Digoxin	Indapamide increases effects of Digoxin by pharmacodynamic synergism. Significant interaction is possible, monitor closely. Hypokalaemia increases Digoxin effects.
Lithium	Indapamide increases toxicity of Lithium by decreasing elimination. Significant interaction is possible, monitor closely.
Ibuprofen	Ibuprofen increases and Indapamide decreases serum potassium. Effect of interaction is not clear, use caution. Potential for interaction, monitor.

Naproxen	Naproxen increases and Indapamide decreases serum potassium.
Indomethacin	
Aspirin	Aspirin and Indomethacin both increase anticoagulation.
Cyclosporin	Indomethacin, Cyclosporin. Either increases toxicity of the other by nephrotoxicity and/or ototoxicity. Potential for dangerous interaction.
Digoxin	Indomethacin and Digoxin both increase serum potassium
Lithiume	Indomethacin increases levels of Lithium by decreasing renal clearance.
Methotrexate	Indomethacin increases levels of Methotrexate by decreasing renal clearance.
Warfarin	Warfarin and Indomethacin both increase anticoagulation
Kanamycin	
Furosemide	Furosemide, Kanamycin. Either increases toxicity of the pharmacodynamic synergism.. Increased risk of ototoxicity and nephrotoxicity.
Ibuprophen	Ibuprofen increases levels of Kanamycin by decreasing renal clearance
Indomethacine	Indomethacin increases levels of Kanamycin by decreasing renal clearance
Sulfasalazine	Sulfasalazine increases levels of Kanamycin by decreasing renal clearance
Tacrolimus	Tacrolimus will increase the level or effect of Kanamycin by P-glycoprotein (MDR1) efflux transporter
Cidofovir	Cidofovir and kanamycin both increase nephrotoxicity and/or ototoxicity
Cisplatin	Cisplatin and kanamycin both increase nephrotoxicity and/or ototoxicity
Streptozocin	Kanamycin and Streptozocin both increase nephrotoxicity and/or ototoxicity
Ketoconazole	
Cisapride	Ketoconazole increases levels of Cisapride by decreasing metabolism. Never use combination. Risk of QT interval prolongation

Isoniazid	Isoniazid decreases levels of Ketoconazole by unspecified interaction mechanism.
Lovastatin	Ketoconazole will increase the level or effect of Lovastatin by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Never use combination. Strong CYP3A4 inhibitors increase systemic Statin exposure and risk of myopathy, including rhabdomyolysis
Methadone	Ketoconazole will increase the level or effect of Methadone by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Procainamide	Ketoconazole and Procainamide both increase QTc interval.
Qunidine	Quinidine and ketoconazole both increase QTc interval.
Sotalol	Ketoconazole and sotalol both increase QTc interval.
Terfinadine	Ketoconazole increases levels of Terfinadine by decreasing metabolism.
Ketoprofen	
Captopril	Captopril, Ketoprofen. Either increases toxicity of the other by Other. May result in renal function deterioration, particularly in elderly or volume depleted individuals
Losartan	Ketoprofen decreases effects of losartan by pharmacodynamic antagonism.
Predinsolon	Ketoprofen, Prednisolone. Either increases toxicity of the other by pharmacodynamic synergism. Sig. Increased risk of GI ulceration.
Methotrexate	Ketoprofen increases levels of Methotrexate by decreasing renal clearance.
Cyclosporin	Ketoprofen, Cyclosporin. Either increases toxicity of the other by nephrotoxicity and/or ototoxicity.
Warfarin	Warfarin and Ketoprofen both increase anticoagulation.
Clopidogerl	Clopidogrel, Ketoprofen. Either increases effects of the other by pharmacodynamic synergism.
Lithium	Ketoprofen increases levels of Lithium by decreasing renal clearance.
Asprin	Aspirin and Ketoprofen both increase anticoagulation.
Ibuprofen	Ibuprofen and Ketoprofen both increase anticoagulation.
Naproxen	Ketoprofen and Naproxen both increase anticoagulation.

Lapetalol	Ketoprofen decreases effects of Labetalol by pharmacodynamic antagonism.
Digoxin	Ketoprofen and Digoxin both increase serum potassium
Lamotrigine	
Carbamazepine	Carbamazepine decreases levels of Lamotrigine by increasing metabolism.
Phenobarbital	Phenobarbital decreases levels of Lamotrigine by increasing hepatic clearance.
Rifampin	Rifampin decreases levels of Lamotrigine by increasing metabolism.
Phenytoin	Phenytoin decreases levels of Lamotrigine by increasing metabolism.
Lansoprazole	
Ampicillin	Lansoprazole will decrease the level or effect of Ampicillin by increasing gastric pH.
Digoxin	Lansoprazole will increase the level or effect of Digoxin by increasing gastric pH
Iron	Lansoprazole will decrease the level or effect of Ferrous Sulfate by increasing gastric pH
Methotrexate	Lansoprazole increases levels of Methotrexate by decreasing renal clearance. Increased risk of toxicity with higher doses.
Ketoconazole	Lansoprazole will decrease the level or effect of Ketoconazole by increasing gastric pH.
Theophylline	Lansoprazole increases levels of Theophylline by decreasing metabolism.
Atazanavir	Lansoprazole will decrease the level or effect of Atazanavir by increasing gastric pH
Letrozole	
Ethinylestradiol	Ethinylestradiol decreases effects of Letrozole
Levothyroxine	
Calcium carbonate	Calcium Carbonate decreases levels of Levothyroxine by inhibition of GI absorption.
Cholestyramine	Cholestyramine decreases levels of Levothyroxine by inhibition of GI absorption.
Colestipol	Colestipol decreases levels of Levothyroxine by inhibition of GI absorption.

Heparin	Levothyroxine increases effects of Heparin by pharmacodynamic synergism.
Carbamezapine	Carbamazepine decreases levels of Levothyroxine by increasing metabolism.
Rifampin	Rifampin decreases levels of Levothyroxine by increasing metabolism.
Warfarin	Levothyroxine increases effects of Warfarin by pharmacodynamic synergism.
Lisinopril	
Lithium	Lisinopril increases toxicity of Lithium by unknown mechanism.
Aspirin	Lisinopril, Aspirin. Either increases toxicity of the other. May result in renal function deterioration, particularly in elderly or volume depleted individuals.
Ibuprofen	Lisinopril, Ibuprofen. Either increases toxicity of the other. May result in renal function deterioration, particularly in elderly or volume depleted individuals.
Indomethacin	Lisinopril, Indomethacin. Either increases toxicity of the other (see comment). Significant interaction is possible, monitor closely. Comment: May result in renal function deterioration, particularly in elderly or volume depleted individuals.
Naproxen	Lisinopril, Naproxen. Either increases toxicity of the other (see comment). Significant interaction is possible, monitor closely. Comment: May result in renal function deterioration, particularly in elderly or volume depleted individuals.
Loperamide	
Quinidine	Quinidine will increase the level or effect of Loperamide by P-glycoprotein (MDR1) efflux transporter.
Loratadine	
Erythromycin	Erythromycin base will increase the level or effect of Loratadine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Cimetidine	Cimetidine will increase the level or effect of Loratadine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Ketoconazole	Ketoconazole will increase the level or effect of Loratadine by affecting hepatic/intestinal enzyme CYP3A4 metabolism
Lorazepam	
Clozapine	Orazepam, Clozapine. Pharmacodynamic synergism. Significant interaction is possible, monitor closely. Possible risk of cardiorespiratory collapse

Drug-Drug Interactions

Chlorpromazine	
Risperidone	Lorazepam and Risperidone both increase sedation.
Amitriptyline	Lorazepam and Amitriptyline both increase sedation.
Codeine	Lorazepam and Codeine both increase sedation. Potential for interaction.
Diphenhydramine	Diphenhydramine and Lorazepam both increase sedation.
Losartan	
Spironolactone	Losartan and Spironolactone both increase serum potassium.
Triametene	Losartan and Triamterene both increase serum potassium.
Amiloride	Losartan and Amiloride both increase serum potassium.
Ibuprofen	Losartan, Ibuprofen. Either increases toxicity of the other: May result in renal function deterioration, particularly in elderly or volume depleted individuals
Indomethacin	Losartan, Indomethacin. Either increases toxicity of the other. May result in renal function deterioration, particularly in elderly or volume depleted individuals.
Naproxen	Losartan, Naproxen. Either increases toxicity of the other (see comment). Significant interaction is possible, monitor closely. Comment: May result in renal function deterioration, particularly in elderly or volume depleted individuals.
Maprotilline	
Guanabenz	Maprotiline decreases effects of Guanabenz by Other. Inhibition of uptake by adrenergic neurons.
Chlorpromazine	Chlorpromazine and Maprotiline both increase QTc interval.
Meclizine	
Diphenhydramine	Diphenhydramine and Meclizine both decrease cholinergic effects/transmission.
Mefenamic acid	
Captopril	Captopril, Mefenamic acid. Either increases toxicity of the other by Other. May result in renal function deterioration, particularly in elderly or volume depleted individuals
Losartan	Losartan, Mefenamic acid. Either increases toxicity of the other by other. May result in renal function deterioration, particularly in elderly or volume depleted individuals

Lithium	Mefenamic acid increases levels of Lithium by decreasing renal clearance.
Methotrexate	Mefenamic acid increases levels of Methotrexate by decreasing renal clearance NSAIMs may reduce tubular secretion of Methotrexate and enhance toxicity.
Cyclosporin	Mefenamic acid, Cyclosporin. Either increases toxicity of the other by nephrotoxicity and/or ototoxicity.
Clopidogrel	Clopidogrel, Mefenamic acid. Either increases effects of the other by pharmacodynamic synergism.
Warfarin	Enhanced risk of bleeding due to antiplatelet action and gastric mucosal damage avoid concurant use.
Ibuprofen	Ibuprofen and Mefenamic acid both increase anticoagulation.
Celecoxib	Celecoxib and Mefenamic acid both increase anticoagulation.
Aspirin	Aspirin and Mefenamic acid both increase anticoagulation.
Mefloquine	
Amiodarone	Increased risk of ventricular arrhythmias when Mefloquine given with Amiodarone-avoid concomitant use
Amisulpride	Avoidance of Mefloquine advised by manufacturer of Amisulpride
Antiepileptics	Mefloquine antagonises anticonvulsant effect of antiepileptics
Atomoxetine	Increased risk of ventricular arrhythmias when Mefloquine given with Atomoxetine
Beta-blockers	increased risk of bradycardia when mefloquine given with beta-blockers
Calcium-Channel Blockers	Possible increased risk of bradycardia when Mefloquine given with Calcium-Channel Blockers
Chloroquine and Hydroxychloroquine	Increased risk of convulsions when Mefloquine given with Chloroquine and Hydroxychloroquine
Crizotinib	Possible increased risk of bradycardia when Mefloquine given with Crizotinib
Digoxin	Possible increased risk of bradycardia when Mefloquine given with Digoxin
Haloperidol	Possible increased risk of ventricular arrhythmias when Mefloquine given with Haloperidol-avoid concomitant use
Ivabradine	Increased risk of ventricular arrhythmias when Mefloquine given with Ivabradine

Moxifloxacin	Increased risk of ventricular arrhythmias when Mefloquine given with Moxifloxacin-avoid concomitant use
Pimozide	Increased risk of ventricular arrhythmias when Mefloquine given with Pimozide-avoid concomitant use
Quinine	Increased risk of convulsions when Mefloquine given with Quinine (but should not prevent the use of intravenous Quinine in severe cases)
Rifampicin	Plasma concentration of Mefloquine reduced by Rifampicin—avoid concomitant use
Ritonavir	Mefloquine possibly reduces plasma concentration of Ritonavir
Meloxicam	
Captopril	Captopril, Meloxicam. Either increases toxicity of the other by Other. May result in renal function deterioration, particularly in elderly or volume depleted individuals
Lithium	Meloxicam increases levels of Lithium by decreasing renal clearance.
Furesemide	Meloxicam increases and Furosemide decreases serum potassium.
Warfarin	Warfarin and Meloxicam both increase anticoagulation
Clopidogrel	Clopidogrel, Meloxicam. Either increases effects of the other by pharmacodynamic synergism.
Methotrexate	Meloxicam increases levels of Methotrexate by decreasing renal clearance Concomitant administration of NSAIMs with high dose Methotrexate has been reported to elevate and prolong serum Methotrexate levels, resulting in deaths from severe hematologic and GI toxicity. NSAIMs may reduce tubular secretion of Methotrexate and enhance toxicity
Meropenem	
Probenecid	Excretion of Meropenem reduced by Probenecid
Digoxin	Meropenem will increase the level or effect of Digoxin by altering intestinal flora.
Metoprolol	
Artemether with Lumefantrine	Avoidance of Metoprolol advised by manufacturer of Artemether with Lumefantrine
Cimetidine	Plasma concentration of Metoprolol increased by Cimetidine
Citalopram	Plasma concentration of Metoprolol increased by Citalopram

Dronedarone	Plasma concentration of Metoprolol possibly increased by Dronedarone
Escitalopram	Plasma concentration of Metoprolol increased by Escitalopram
Mirabegron	Plasma concentration of Metoprolol increased by Mirabegron
Paroxetine	Plasma concentration of Metoprolol possibly increased by Paroxetine-increased risk of AV block (manufacturer of Paroxetine advises avoid concomitant use in cardiac insufficiency)
Pasireotide	Possible increased risk of bradycardia when Metoprolol given with pasireotide
Propafenone	Plasma concentration of Metoprolol increased by Propafenone
Rifampicin	Plasma concentration of Metoprolol reduced by Rifampicin
Tipranavir	Avoidance of Metoprolol for heart failure is advised by manufacturer of Tipranavir
Metronidazole	
Lithium	Metronidazol increases level of Lithium by decreasing Lithium metabolism
Minoxidil	
ACE Inhibitors	Enhanced hypotensive effect when Minoxidil given with ACE inhibitors
Adrenergic Neuron Blockers	Enhanced hypotensive effect when Minoxidil given with adrenergic neuron blockers
Alcohol	Enhanced hypotensive effect when minoxidil given with alcohol
Aldesleukin	Enhanced hypotensive effect when minoxidil given with aldesleukin
Alpha-blockers	Enhanced hypotensive effect when minoxidil given with alpha-blockers
Alprostadil	Enhanced hypotensive effect when minoxidil given with alprostadil
Anaesthetics, General	Enhanced hypotensive effect when minoxidil given with general anaesthetics
Angiotensin-II Receptor Antagonists	Enhanced hypotensive effect when minoxidil given with angiotensin-II receptor antagonists
Anxiolytics and Hypnotics	Enhanced hypotensive effect when minoxidil given with anxiolytics and hypnotics
Baclofen	Enhanced hypotensive effect when minoxidil given with Baclofen

Drug-Drug Interactions

Beta-blockers	Enhanced hypotensive effect when minoxidil given with beta-blockers
Calcium-channel Blockers	Enhanced hypotensive effect when minoxidil given with Calcium-channel blockers
Clonidine	Enhanced hypotensive effect when minoxidil given with Clonidine
Corticosteroids	Hypotensive effect of minoxidil antagonised by corticosteroids
Diazoxide	Enhanced hypotensive effect when minoxidil given with diazoxide
Diuretics	Enhanced hypotensive effect when minoxidil given with diuretics
Hydralazine	Enhanced hypotensive effect when minoxidil given with hydralazine
Levodopa	Enhanced hypotensive effect when minoxidil given with levodopa
MAOIs	Enhanced hypotensive effect when minoxidil given with MAOIs
Methyldopa	Enhanced hypotensive effect when Minoxidil given with methyldopa
Moxisylyte	Enhanced hypotensive effect when Minoxidil given with moxisylyte
Moxonidine	Enhanced hypotensive effect when minoxidil given with moxonidine
NSAIMs	Hypotensive effect of minoxidil antagonised by NSAIMs
Nicorandil	Possible enhanced hypotensive effect when minoxidil given with nicorandil
Nitrates	Enhanced hypotensive effect when minoxidil given with nitrates
Oestrogens	Hypotensive effect of minoxidil antagonised by oestrogens
Phenothiazines	Enhanced hypotensive effect when minoxidil given with phenothiazines
Sodium Nitroprusside	Enhanced hypotensive effect when minoxidil given with sodium nitroprusside
Tizanidine	Enhanced hypotensive effect when minoxidil given with tizanidine
Morphine	
Cimetidine	Cimetidine will increase the level or effect of Morphine by decreasing metabolism or by affecting hepatic enzyme CYP2D6 metabolism

Pentazocin	Morphine and Pentazocin both increase sedation and increase serotonin levels.
Butorphanol	Morphine and Butorphanol both increase sedation
Naproxen	
Propranolol	Naproxen decreases effects of Propranolol by pharmacodynamic antagonism, Propranolol and Naproxen both increase serum potassium.
Aspirin	Aspirin and Naproxen both increase anticoagulation and increase serum potassium.
Lithium	Naproxen increases levels of Lithium by decreasing renal clearance
Methotrexate	Naproxen increases levels of Methotrexate by decreasing renal clearance.
Warfarin	Warfarin and Naproxen both increase anticoagulation.
Sulfonylurea	Naproxen and Sulfasalazine both increase anticoagulation.
Neostigmine	
Alcuronium	Antagonism of muscle relaxant effect
Amikacin	Antagonism of effect of Neostigmine
Atropine	Antagonism of effect of Neostigmine
Suxamethonium	Effect of Suxamethonium enhanced
Vecuronium	Antagonism of muscle relaxant effect
Oxytocin	
Ephedrine	Risk of hypertension due to enhanced vasopressor effect of Ephedrine
Epinephrine	Risk of hypertension due to enhanced vasopressor effect of Epinephrine
Halothane	Oxytocic effect possibly reduced, enhanced hypotensive effect and risk of arrhythmias
Nifedipine	
Phenytoin	Phenytoin will decrease the level or effect of Nifedipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Quinidine	Nifedipine will increase the level or effect of Quinidine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.

Tacrolimus	Nifedipine will increase the level or effect of Tacrolimus by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Cimetidine	Cimetidine will increase the level or effect of Nifedipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Itraconazole	Nifedipine will decrease the level or effect of Itraconazole by P-glycoprotein (MDR1) efflux transporter.
Rifampin	Rifampin will decrease the level or effect of Nifedipine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Carbamezapine	Nifedipine will increase the level or effect of Carbamazepine by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Norfloxacin	
Clozapine	Norfloxacin will increase the level or effect of clozapine by affecting hepatic enzyme CYP1A2 metabolism.
Theophylline	Norfloxacin will increase the level or effect of Theophylline by affecting hepatic enzyme CYP1A2 metabolism.
Warfarin	Norfloxacin will increase the level or effect of Warfarin by affecting hepatic enzyme CYP1A2 metabolism.
Olanzapine	
Cetrizine	Cetrizine and Olanzapine both increase sedation.
Diazepam	Diazepam and Olanzapine both increase sedation.
Diphenhydramine	Diphenhydramine decreases levels of Olanzapine by inhibition of GI absorption.
Omeprazole	
Diazepam	Omeprazole will increase the level or effect of Diazepam by affecting hepatic enzyme CYP2C19 metabolism.
Warfarin	Omeprazole will increase the level or effect of Warfarin by affecting hepatic enzyme CYP2C9/10 metabolism.
Phenytoin	Omeprazole will increase the level or effect of Phenytoin by affecting hepatic enzyme CYP2C9/10 metabolism.
Ketoconazole	Omeprazole will decrease the level or effect of ketoconazole by increasing gastric pH. Applies only to oral form of both agents.
Digoxin	Omeprazole will increase the level or effect of Digoxin by increasing gastric pH. Applies only to oral form of both agents.
Ondansetron	
Phenytoin	Phenytoin will decrease the level or effect of Ondansetron by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Potential for interaction, monitor.

Carbmezapine	Carbamazepine will decrease the level or effect of Ondansetron by affecting hepatic enzyme CYP1A2 metabolism.
Rifamycin	Rifamycin will decrease the level or effect of Ondansetron by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Oxaliplatin	
Gentamycin	Gentamycin and Oxaliplatin both increase nephrotoxicity and/or ototoxicity.
Amphotericin B	Amphotericin B and Oxaliplatin both increase nephrotoxicity and/or ototoxicity. Potential for dangerous interaction.
Cyclosporin	Cyclosporin and Oxaliplatin both increase nephrotoxicity and/or ototoxicity.
Tacrolimus	Oxaliplatin and Tacrolimus both increase nephrotoxicity and/or ototoxicity.
Vancomycin	Oxaliplatin and vancomycin both increase nephrotoxicity and/or ototoxicity.
Paclitaxel	
Midazolam	Midazolam will decrease the level or effect of paclitaxel by P-glycoprotein (MDR1) efflux transporter.
Itraconazole	Itraconazole will increase the level or effect of paclitaxel by P-glycoprotein (MDR1) efflux transporter.
Rifampin	Rifampin will decrease the level or effect of paclitaxel by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Carbamezapine	Carbamazepine will decrease the level or effect of Paclitaxel by other (see comment). Significant interaction is possible, monitor closely.
Ritonavir	Ritonavir will increase the level or effect of paclitaxel by P-glycoprotein (MDR1) efflux transporter.
Pantoprazole	
Clopidogrel	Pantoprazole possibly reduces antiplatelet effect of Clopidogrel.
Coumarins	Pantoprazole might enhance the anticoagulant effect of Coumarins.
Erlotinib	Avoidance of Pantoprazole advised by manufacturer of Erlotinib
Rilpivirine	Avoidance of Pantoprazole advised by manufacturer of Rilpivirine (plasma concentration of Rilpivirine possibly reduced)
Saquinavir	Pantoprazole possibly increases plasma concentration of Saquinavir-manufacturer of Saquinavir advises avoid concomitant use

Paracetamol	
Metoclopramide	Increased absorption of Paracetamol
Warfarin	Pronlonged regular use of Paracetamol possibly enhances anticoagulant effect
Phenobarbital	
Acetazolamide	Increased risk of osteomalacia
Alcohol	Enhanced sedative effect
Doxycycline	Metabolism of Doxycycline accelerated (reduced plasma concentration)
Ergocalcitrol	Ergocalcitrol requirements possibly increased
Quinidine	Metabolism of Quinidine accelerated (reduced plasma concentration)
Verapamil	Effect of Verapamil probably reduced
Warfarin	Metabolism of Warfarin accelerated (reduced anticoagulant effect)
Phenytoin	
Acetazolamide	Increased risk of osteomalacia
Acetylsalicylic acid	Enhancement of effect of Phenytoin
Alcohol	Plasma Phenytoin concentration reduced with regular large amounts of alcohol
Chloroquine	Possibly increased risk of convulsion
Chlorpromazine	Antagonism of anticonvulsant effect (convulsive threshold lowered)
Ciclosporin	Accelerated metabolism of Ciclosporin (reduced plasma Ciclosporin concentration)
CiprOfloxacin	Plasma Phenytoin concentration can be increased or decreased by CiprOfloxacin
Cytarabine	Reduced absorption of Phenytoin
Dacarbazine	Possibly reduced absorption of Phenytoin
Haloperidol	Antagonism of anticonvulsant effect (convulsive threshold lowered)
Hydrocortisone	Metabolism of Hydrocortisone accelerated (reduced effect)

Quinidine	Accelerated metabolism of Quinidine (reduced plasma Quinidine concentration)
Rifampicin	Accelerated metabolism of Phenytoin (reduced plasma concentration)
Vaccine	Influenza enhanced effect of Phenytoin
Valproic acid	May be enhanced toxicity without corresponding increase in antiepileptic effect
Vecuronium	Antagonism of muscle relaxant effect (accelerated recovery from neuromuscular blockade)
Potassium Citrate	
Methenamine	Avoid concomitant use of Potassium citrate with Methenamine
Praziquantel	
Albendazole	Increased plasma concentration of active metabolite of Albendazole
Carbamezapine	Plasma Praziquantel concentration is reduced
Chloroquine	Plasma Praziquantel concentration possibly is reduced
Dexamethasone	Plasma Praziquantel concentration is reduced
Phenytoin	Plasma Praziquantel concentration is reduced
Prednisolone	
Acetazolamide	Increased risk of hypokalaemia , antagonism of diuretic effect
Acetylsalicylic acid	Increased risk of gastrointestinal bleeding and ulceration, Prednisolone reduced plasma Salicylate concentration
Amiloride	Antagonism of diuretic effect
Amilodipine	Antagonism of hypotensive effect
Spironolactone	Antagonism of diuretic effect
Vaccine	Influenza high doses of Prednisolone impair immune response
Verapamil	Antagonism of hypotensive effect
Warfarin	Anticoagulant effect possibly enhanced or reduced (high dose Prednisolone enhances anticoagulant effect)
Primaquine	
Artemether + Lumefantrine	Manufacturer of Artemether + Lumefantrine advises to avoid concomitant use

Promethazine	
Alcohol	Enhanced sedative effect
Amitriptylline	Increased antimuscarinic and sedative effects
Atropine	Increased risk of antimuscarinic adverse effects
Diazepam	Enhanced sedative effect
Propranolol	
Acetazolamide	Enhanced hypotensive effect
Alcohol	Enhanced hypotensive effect
Alcuronium	Enhanced muscle relaxant effect
Amiloride	Enhanced hypotensive effect
Halothane	Enhanced hypotensive effect
Hydralazine	Enhanced hypotensive effect
Methyldopa	Enhanced hypotensive effect
Neostigmine	Antagonism of effect of Neostigmine
Suxamethonium	Enhanced muscle relaxant effect
Thiopental	Enhanced hypotensive effect
Vecurnium	Enhanced muscle relaxant effect
Verapamil	Asystole, severe hypotension, and heart failure
Pyridostigmine	
Alcuronium	Antagonism of muscle relaxant effect
Amikacin	Antagonism of effect of Pyridostigmine
Atropine	Antagonism of effect of Pyridostigmine
Streptomycin	Antagonism of effect of Pyridostigmine
Suxamethonium	Effect of Suxamethonium enhanced
Vecuronium	Antagonism of muscle relaxant effect
Quinine	
Artemether + Lumefantrine	Risk of ventricular arrhythmias, manufacturer of Artemether + Lumefantrine advises avoid concomitant use
Chloroquine	Increased risk of ventricular arrhythmias

Digoxin	Plasma concentration of Digoxin increased
Mefloquine	Increased risk of convulsions, but should not prevent the use of intravenous Quinine in severe cases
Suxamethonium	Possibly enhanced effects of Suxamethonium
Rifampin	
Losartan	Rifampin will decrease the level or effect of Losartan by affecting hepatic enzyme CYP2C9/10 metabolism.
Dronedarone	Rifampin will decrease the level or effect of Dronedarone by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Ranitidine	
Itraconazole	Ranitidine will decrease the level or effect of Itraconazole by increasing gastric pH.
Ketoconazole	Ranitidine will decrease the level or effect of Ketoconazole by increasing gastric pH. Applies only to oral form of both agents.
Risperidone	
Diphenhydramine	Diphenhydramine decreases levels of Risperidone by inhibition of GI absorption. Applies only to oral form of both agents.
Diazepam	Diazepam and Risperidone both increase sedation.
Codeine	Codeine and Risperidone both increase sedation.
Rifampicin	
Amitriptyline	Plasma concentration of Amitriptyline possibly reduced
Antacid	Reduced absorption of Rifampicin
Chloramphenicol	Accelerated metabolism of Chloramphenicol (reduced plasma Chloramphenicol concentration)
Cyclosporin	Accelerated metabolism of Cyclosporin (reduced plasma Chloramphenicol concentration)
Quinidine	Accelerated metabolism Quinidine (reduced plasma Quinidine concentration)
Verapamil	Accelerated metabolism Verapamil (plasma concentration significantly reduced)
Warfarin	Accelerated metabolism Warfarin (reduced anticoagulant effect)
Zidovudine	Manufacturer of Zidovudine advises to avoid concomitant use

Salbutamol	
Acetazolamide	Increased risk of hypokalaemia with high doses of Salbutamol
Dexamethasone	Increased risk of hypokalaemia if high doses of Salbutamol given with Dexamethasone
Digoxin	Possibly reduced plasma concentration of Digoxin
Furosemide	Increased risk of hypokalaemia with high doses of Salbutamol
Salmeterol	
Ritonavir	Ritonavir increace the level of Salmeterol
Amitriptyline	Amitriptyline may increase or decrease the effect of Salmeterol
Clomipramine	Clomipramine may increase or decrease the effect of Salmetrol
Maprotiline	Maprotiline, Salmeterol. Tricyclic antidepressants increase or decrease effects of sympathomimetics, by blocking reuptake of NE, or blocking uptake of indirect sympathomimetics into the adrenergic neuron.
Nortriptyline	Nortriptyline, Salmeterol. Tricyclic antidepressants increase or decrease effects of sympathomimetics, by blocking reuptake of NE, or blocking uptake of indirect sympathomimetics into the adrenergic neuron.
Mefloquine	Mefloquine increases toxicity of Salmeterol by QTc interval. Monitor closely. Use alternatives if available. Mefloquine may enhance the QTc prolonging effect of high risk QTc prolonging agents.
Tranylcypromine	Tranylcypromine increases effects of Salmeterol by pharmacodynamic synergism. Never use combination. Risk of acute hypertensive episode.
Amiloride	Amiloride increases and Salmeterol decreases serum potassium.
Benperidol	Benperidol increases and Salmeterol decreases sedation.
Bisoprolol	Bisoprolol decreases effects of Salmeterol by pharmacodynamic antagonism.
Caffeine	Salmeterol and Caffeine both decrease sedation.
Cinnarazin	Cinnarizine increases and Salmeterol decreases sedation.
Clomipramine	Clomipramine, Salmeterol. Tricyclic antidepressants increase or decrease effects of sympathomimetics, by blocking reuptake of NE, or blocking uptake of indirect sympathomimetics into the adrenergic neuron.

Clonazepam	Clonazepam increases and Salmeterol decreases sedation.
Cyclizine	Cyclizine increases and Salmeterol decreases sedation.
Dexchlorpheniramine	Dexchlorpheniramine increases and Salmeterol decreases sedation
Diclofenac	Diclofenac increases and Salmeterol decreases serum potassium.
Digoxin	Digoxin increases and Salmeterol decreases serum potassium.
Diphenhydramine	Diphenhydramine increases and Salmeterol decreases sedation.
Dopamine	Salmeterol and Dopamine both increase sympathetic (adrenergic) effects, including increased blood pressure and heart rate.
Ibuprofen	Ibuprofen increases and Salmeterol decreases serum potassium.
Ketoprofen	Ketoprofen increases and Salmeterol decreases serum potassium.
Lorazepam	Lorazepam increases and Salmeterol decreases sedation.
Metoprolol	Metoprolol decreases effects of Salmeterol by pharmacodynamic antagonism.
Piroxicam	Piroxicam increases and Salmeterol decreases serum potassium.
Sotalol	Sotalol decreases effects of Salmeterol by pharmacodynamic antagonism.
Terbutaline	Salmeterol and Terbutaline both decrease serum potassium.
Tramadol	Tramadol increases and Salmeterol decreases sedation.
Ziconotide	Ziconotide increases and Salmeterol decreases sedation.
Sildenafil	
Alpha blockers	Enhanced hypotensive effect when Sildenafil given with alpha-blockers (avoid alpha-blockers for 4 hours after Sildenafil)
Amlodipine	Enhanced hypotensive effect when Sildenafil given with Amlodipine
Atazanavir	Side-effects of Sildenafil possibly increased by Atazanavir
Bosentan	Plasma concentration of Sildenafil reduced by Bosentan, also plasma concentration of Bosentan increased
Cimetidine	Plasma concentration of Sildenafil increased by Cimetidine (consider reducing dose of Sildenafil)
Clarithromycin	Plasma concentration of Sildenafil increased by Clarithromycin (consider reducing dose of Sildenafil)

Cobicistat	Plasma concentration of Sildenafil possibly increased by Cobicistat manufacturer of Cobicistat advises avoid concomitant use of Sildenafil for pulmonary arterial hypertension or reduce dose of Sildenafil for erectile dysfunction consult Stribild product literature
Dapoxetine	Avoidance of Sildenafil advised by manufacturer of Dapoxetine
Disopyramide	Avoidance of Sildenafil advised by manufacturer of Disopyramide (risk of ventricular arrhythmias)
Erythromycin	Plasma concentration of Sildenafil increased by Erythromycin-reduce initial dose of Sildenafil
Etravirine	Plasma concentration of Sildenafil reduced by Etravirine
Fosamprenavir	Plasma concentration of Sildenafil possibly increased by Fosamprenavir
Grapefruit Juice	Plasma concentration of Sildenafil possibly increased by grapefruit juice
Indinavir	Plasma concentration of Sildenafil increased by Indinavir reduce initial dose of Sildenafil
Itraconazole	Plasma concentration of Sildenafil increased by Itraconazole reduce initial dose of Sildenafil
Nicorandil	Sildenafil significantly enhances hypotensive effect of Nicorandil (avoid concomitant use)
Nitrates	Sildenafil significantly enhances hypotensive effect of Nitrates (avoid concomitant use)
Ritonavir	Plasma concentration of Sildenafil significantly increased by Ritonavir avoid concomitant use
Saquinavir	Increased risk of ventricular arrhythmias when Sildenafil given with Saquinavir avoid concomitant use
Telaprevir	Avoidance of Sildenafil advised by manufacturer of Telaprevir
Telithromycin	Plasma concentration of Sildenafil possibly increased by Telithromycin reduce initial dose of Sildenafil
Simvastatin	
Cyclosporin	Cyclosporin will increase the level or effect of Simvastatin by affecting hepatic/intestinal enzyme CYP3A4 metabolis. Increased risk for rhabdomyolysis with medicines that increase Simvastatin systemic exposure.
Gemfibrozil	Gemfibrozil, Simvastatin. Either increases effects of the other by pharmacodynamic synergism.

Ketoconazole	Ketoconazole will increase the level or effect of Simvastatin by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Never use combination. Increased risk for rhabdomyolysis with medicines that increase Simvastatin systemic exposure.
Colchicines	Colchicine, Simvastatin. Either increases toxicity of the other by pharmacodynamic synergism. Increased risk of rhabdomyolysis.
Clarithromycin	Clarithromycin will increase the level or effect of Simvastatin by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Increased risk for rhabdomyolysis with medicines that increase Simvastatin systemic exposure.
Erythromycin	Erythromycin base will increase the level or effect of Simvastatin by affecting hepatic/intestinal enzyme CYP3A4 metabolism. Never use combination. Increased risk for rhabdomyolysis with medicines that increase Simvastatin systemic exposure.
Ritonavir	Ritonavir will increase the level or effect of Simvastatin by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Spironolactone	
Digoxin	Spironolactone will increase the level or effect of Digoxin by P-glycoprotein (MDR1) efflux transporter.
Amiloride	Amiloride and Spironolactone both increase serum potassium.
Tacrolimus	Spironolactone will increase the level or effect of Tacrolimus by P-glycoprotein (MDR1) efflux transporter.
Sulfadiazine	
Ciclosporin	Sulfadiazine possibly reduces plasma concentration of Ciclosporin
Terbinafine	
Antidepressants, Tricyclic	Terbinafine possibly increases plasma concentration of Tricyclics
Ciclosporin	Terbinafine possibly reduces plasma concentration of Ciclosporin
Cimetidine	Plasma concentration of terbinafine increased by Cimetidine
Fluconazole	Terbinafine increases plasma concentration of Fluconazole
Oestrogens	Occasional reports of breakthrough bleeding when Terbinafine given with Oestrogens (when used for contraception)
Paroxetine	Terbinafine possibly increases plasma concentration of Paroxetine

Dextromethorphan	Terbinafine increases levels of Dextromethorphan by decreasing metabolism.
Progestogens	Occasional reports of breakthrough bleeding when Terbinafine given with Progestogens (when used for contraception)
Rifampicin	Plasma concentration of Terbinafine reduced by Rifampicin
Paroxetine	Terbinafine possibly increases plasma concentration of Paroxetine
Tacrolimus	
Itraconazole	Itraconazole will increase the level or effect of Tacrolimus by altering drug metabolism
Ketoconazole	Ketoconazole oral will increase the level or effect of Tacrolimus by altering drug metabolism
Verapamil	Tacrolimus will increase the level of effect of Verapamil
Diltiazim	Tacrolimus oral will increase the level of Dilitazem
Nifedapine	Nifedipine can increase the level of Tacrolimus in your blood, possibly increasing your risk of side effect
Erythromycin	Erythromycin oral will increase the level of effect of Tacrolimus by altering drug metabolism
Chloramphenicol	Chloramphnicol increase Tacrolimus level
Clarithromycin	Clarithromycin increase Tacrolimus level in blood
Phenytoin	Phenytoin decrease the effect of Tacrolimus
Carbamezapine	Carbamezapine decrease the effect of Tacrolimus
Phenobarbital	Tacrolimus decrease the level of Phenobarbital
Lansoprazole	Lansoprazole increase the level of Tacrolimus
Omeprazole	Omeprazole increase the level of Tacrolimus
Metoclopromide	Metoclopromide increase the level of Tacrolimus
Amiloride	Risk of hyperkalaemia may be increased
Tamoxifen	
Letrozole	Tamoxifen decreases levels of Letrozole by unspecified interaction mechanism.
Phenobarbital	Phenobarbital will decrease the level or effect of Tamoxifen by affecting hepatic enzyme CYP2C9/10 metabolism.

Rifampin	Rifampin will decrease the level or effect of Tamoxifen by affecting hepatic enzyme CYP2C9/10 metabolism.
Cimetidine	Cimetidine, Tamoxifen. Affecting hepatic/intestinal enzyme CYP3A4 metabolism. CYP3A4 inhibition decreases metabolism of Tamoxifen to N-desmethyl Tamoxifen (active metabolite with similar biologic activity).
Paroxetine	Paroxetine decreases effects of Tamoxifen by decreasing metabolism.
Tetracycline	
Cholestyramine	Cholestyramine decreases levels of Tetracycline by inhibition of GI absorption. Applies only to oral form of both agents.
Tretinoin	Tetracycline, tretinoin. Either increases toxicity of the other by unspecified interaction mechanism. Never use combination. Both Tretinoin and Tetracyclines can cause increased intracranial pressure.
Pepto-bismol	Bismuth subsalicylate decreases levels of Tetracycline by inhibition of GI absorption. Applies only to oral form of both agents.
Warfarin	Tetracycline increases effects of Warfarin by pharmacodynamic synergism.
Amoxicillin	Tetracycline decreases effects of Amoxicillin by pharmacodynamic antagonism.
Theophylline	
Allopurinol	Allopurinol increases levels of Theophylline by decreasing metabolism.
Carbamazepine	Carbamazepine will decrease the level or effect of Theophylline by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Propranolol	Propranolol, Theophylline. Significant interaction is possible, monitor closely. Beta blockers (esp. non selective) antagonize Theophylline effects, while at the same time increasing Theophylline levels and toxicity (mechanism: decreased Theophylline metabolism). Smoking increases risk of interaction
Interferon	interferon alfa 2b increases levels of Theophylline by decreasing metabolism
Rifampin	Rifampin will decrease the level or effect of Theophylline by affecting hepatic/intestinal enzyme CYP3A4 metabolism.
Verapamil	Verapamil will increase the level or effect of Theophylline by affecting hepatic enzyme CYP1A2 metabolism
Ticlopidine	Ticlopidine increases levels of Theophylline by decreasing metabolism.

Thiopental	
Acetazolamide	Enhanced hypotensive effect
Amiloride	Enhanced hypotensive effect
Amitriptylline	Increased risk of arrhythmias and hypotension
Vancomycin	Hypersensitivity- like reactions can occur with concomitant intravenous vancomycin
Verapamil	Enhanced hypotensive effect and AV delay
Timolol	
Acetazolamide	Enhanced hypotensive effect
Alcohol	Enhanced hypotensive effect
Amiloride	Enhanced hypotensive effect
Thiopental	Enhanced hypotensive effect
Verapamil	Asystole, severe hypotension, and heart failure
Tinzaparin	
Salicylate	Permanent paralysis
Dipyridamol	Either increases the level of the other by added drug effects. Increased risk of bleeding (hemorrhage).
sulfisoxazole	Sulfisoxazole increases effects of Tinzaparin by decreasing metabolism.
Clopidogrel	Tinzaparin, Clopidogrel. Either increases effects of the other by pharmacodynamic synergism. Never use combination. Enhanced risk of hemorrhage.
Ticlopidine	Tinzaparin, Ticlopidine. Either increases effects of the other by pharmacodynamic synergism. Never use combination. Enhanced risk of hemorrhage.
Tobramycin	
Amikacin	Increase toxicity to the kidney that decreases urine formation or impairs hearing.
Amphoteracin B	Increase toxicity to the kidney that decreases urine formation or impairs hearing.
Cisplatin	Increase toxicity to the kidney that decreases urine formation or impairs hearing.
Ibuprofen	Increase toxicity to the kidney that decreases urine formation or impairs hearing.

Rifampin	Rifampin oral will decrease the level or effect of Tobramycin-Dexamethasone opht by altering drug metabolism
Ritabutin	Decrease the effectiveness
Topiramate	
Metformin	Increase in Metformin exposure and decrease in Topiramate exposure
Lithium	Increase Lithium toxicity
Acetazolamide	Either increases toxicity of the other by added drug effects. Increased risk of kidney stones
Dichlorophenaramine	Topiramate decreases levels of Dichlorophenaramine oral by speeding up drug metabolism. May cause liver problems.
Vaccine, influenza	
Dexamethasone	High doses of Dexamethasone impairs immune response
Hydrocortisone	High doses of hydrocortisone impairs immune response
Phenytoin	Enhanced effect of Phenytoin
Prednisolone	High doses of Prednisolone impairs immune response
Warfarin	Effect of Warfarin occasionally enhanced
Vancomycin	
Amikacin	Increased risk of nephrotoxicity and ototoxicity
Streptomycin	Increased risk of nephrotoxicity and ototoxicity
Suxamethonium	Enhanced effects of Suxamethonium
Thiopental	Hypersensitivity reactions can occur with concomitant intravenous Vancomycin
Verapamil	
Acetazolamide	Enhanced hypotensive effect
Alcohol	Enhanced hypotensive effect, plasma concentration of alcohol possibly increased by Verapamil
Fluphenazine	Enhanced hypotensive effect
Furosemide	Enhanced hypotensive effect
Sodium nitropusside	Enhanced hypotensive effect
Spironolactone	Enhanced hypotensive effect

Suxamethonium	Enhanced hypotensive effect
Thiopental	Enhanced effects of Suxamethonium
Timolol	Asystole, severe hypotension, and heart failure
Vencuronium	Enhanced muscle relaxant effect
Vinblastine	
Bleomycin	Increased risk of cardiovascular toxicity
Erythromycin	Increased toxicity of Vinblastine (avoid concomitant use)
Phenytoin	Possibly reduced absorption of Phenytoin
Vaccine	Avoid use of live vaccines with Vinblastine (impairment of immune response)
Vincristine	
Nifedipine	Possibly reduced metabolism of Vincristine
Phenytoin	Possibly reduced absorption of Phenytoin
Vaccine	Avoid use of live vaccines with Vincristine (impairment of immune response)
Warfarin	
Acetylsalicylic acid	Increased risk of bleeding due to antiplatelet effect
Xylometazoline hydrochloricde	
Tranylcybromine	Tranylcypromine increases effects of Xylometazoline by pharmacodynamic synergism.
Methyldopa	Methyldopa increases effects of Xylometazoline by unknown mechanism.
Bromocriptine	Brompheniramine increases and Xylometazoline decreases sedation.
Chlorpromazine	Chlorpromazine, Xylometazoline. Significant interaction is possible, monitor closely. Risk of cardiac arrhythmia or sudden death
Zidovudine	
Stavudine	Zidovudine may decrase the transformation of Stavudine to the active form
Ribavirin	Ribavirin may decrease the transformation of Zidovudine

Doxorubicin	Zidovudine may make some cancer cells resistant to Doxorubicin
Ganciclovir	Concomitant use may increase the risk of toxicity by the two medicines
Zolmitriptan	
MAO-A inhibitor	May result in fetal interactions
Cimetidine	May slow the metabolism of Zolmitriptan
Zuclopenthixol	
Barbiturates	Effect of Barbiturate may enhanced
Metoclopramide	Concomitant use of Zuclopenthixol and Metoclopromide increase the risk of extrapyramidal symptoms
Lithium	Increased risk of severe neurotoxicity
Amiodarone	Increased risk of ventricular arrythmias
Erythromycin	Increased risk of arrythmias
Levodopa	Zuclopenthixol may antagonize the sedative effect of Levodopa

Appendix 2: Drug used during Pregnancy

During pregnancy the mother and the fetus form a non-separable functional unit.

Maternal well-being is an absolute prerequisite for the optimal functioning and development of both parts of this unit. Consequently, it is important to treat the mother when ever needed while protecting the unborn child to the greatest possible extent.

Medicines can have harmful effects on the fetus at any time during pregnancy. It is important to remember this when prescribing for a woman of child bearing age or for a man trying to father a child. However, irrational fear of using medicines during pregnancy can also result in harm. Untreated illness, impaired maternal compliance, suboptimal treatment, and treatment failures may all impose risk to maternal well- being, and may also affect the unborn child. It is important to know the "back ground risk" in the context of the prevalence of drug-induced adverse pregnancy outcomes. Major congenital malformations occur in 2–4% of all live births. Up to 15% of all diagnosed pregnancies will result in fetal loss.

The cause of these adverse pregnancy outcomes is understood in only a minority of cases.

During the first trimester Medicines may produce congenital malformations (teratogenesis), and the greater risk is from the third to the eleventh week of pregnancy. During the second and third trimester Medicines may affect the growth and functional development of the fetus or have toxic effects on fetal tissues. Medicines given shortly before term or during labour may have adverse effects on labour or on the neonate after delivery. Few Medicines have been shown conclusively to be teratogenicin man but no drug is safe beyond all doubt in early pregnancy. Screening procedures are available where there is a known risk of certain defects.

Absence of a medicine from the list does not imply safety

Medicines	Comments
Acyclovir	Not known to be harmful.
Amitriptyline	Manufacturer advises to avoid use unless essential need, particularly during first and third trimesters.
Amlodipine	No information on use in humans, risk to fetus should be balanced against risk of uncontrolled maternal hypertension.
Amphotericin B	Not known to be harmful but use only if potential benefit outweighs risk.
Aspirin	High doses may be related to mitrauterine grown restriction and teratogenic effects, impaired platelet function with risk of hemorrhage, and delayed onset and increased blood loss, can occur if used during delivery, avoid analgesic doses if possible in last few weeks, with high doses, closure of fetal ductus arteriosus in utero and possibly persistent pulmonary hypertension of newborn, kernicterus in jaundiced neonates.
Artemether	Avoid in the first trimester.
Artesunate	Avoid in the first trimester.
Atenolol	May cause intrauterine grown restriction, neonatal hypoglycaemia, and bradycardia, risk is greater in severe hypertension.

Medicines	Comments
Atropine	Not known to be harmful.
Azathioprine	Transplant patients should not discontinue Azathioprine on becoming pregnant, use in pregnancy should be carefully supervised, there is no evidence that Azathioprine is teratogenic but premature birth and low birth weight and spontaneous abortion reported following maternal or paternal exposure
Azithromycin	Limited information available, use only if adequate alternative not available
Meclometasone	Benefit of treatment, for example in asthma, outweighs risk
Benzathine benzyl penicillin	Not known to be harmful
Betamethasone	Benefit of treatment, for example in asthma, outweighs risk
Betaxolol	Beta-blockers may cause intra-uterine growth restriction, neonatal hypoglycaemia, and bradycardia, the risk is greater in severe hypertension. The use of Labetalol in maternal hypertension is not known to be harmful, except possibly in the first trimester. For the treatment of hypertension in pregnancy
Bupivacaine	Third trimester. With large doses, can cause neonatal respiratory depression, hypotonia, and bradycardia after paracervical or epidural block, lower doses of bupivacaine for intrathecal use during late pregnancy
Calcium carbonate + vitamin D3	Patient should seek medical advice before taking the medication
Calcium folinate	Manufacturer advises use only if potential benefit outweighs risk
Carbamazepine	First trimester. Risk of teratogenesis including increased defects (counseling and screening and adequate folate supplements advised, for example, 5mg daily), risk of teratogenicity greater if more than on antiepileptic used, third trimester: may possibly cause vitamin K deficiency and risk of neonatal bleeding, if vitamin K not given at birth, neonate should be monitored closely for signs of bleeding
Carvidilol	Beta-blockers may cause mitra-uterine grown restriction, neonatal hypoglycaemia, and bradycardia, the risk is greater in severe hypertension
Cefdinir	May be acceptable
Cefditoren	May be acceptable
Cefixime	Not known to be harmful

Medicines	Comments
Ceftazidime	Not known to be harmful
Ceftriaxone	Not known to be harmful
Cephadroxin	Not known to be harmful
Cephradine	Not known to be harmful
Chlorambucil	Avoid use of effective contraception during administration to men and women
chloramphenicol	Third trimester. Neonatal grey syndrome chloroquine. First and third trimesters: benefit of prophylaxis and treatment in malaria outweighs risks
Chlordiazepoxide + Clindium bromide	Increased risk of congenital malformations associated with use of benzodiazepines during 1st trimester
Chlorphenamine	No evidence of teratogenicity Chlorpromazine third trimester: extrapyramidal effects in neonates occasionally reported
Ciclosporin	There is less experience of Ciclosporin in pregnancy but it does not appear to be any more harmful than Azathioprine, use in pregnancy should be supervised in specialist unit
Cimetidine	May be acceptable
CiprOfloxacin	Avoid (arthroparny in animal studies), safer alternatives available
Cisplatin	Avoid (teratogenic and toxic in animal studies)
Citalopram	Manufacturer advises that SSRIs should not be used during pregnancy unless the potential benefit outweighs the risk. There is a small increased risk of congenital heart defects when SSRIs are taken during early pregnancy. If SSRIs are taken during the third trimester there is a risk of neonatal withdrawal symptoms, are persistent pulmonary hypertension in the newborn has been reported
Clarithromycin	Manufacturer advises to avoid it, particularly in the first trimester, unless potential benefit outweighs risk
Clindamycin	Not known to be harmful
Clomipramine	Manufacturer advises to avoid it unless essential need is present, particularly during first and third trimesters
Clotrimazole	Minimal absorption from skin, not known to be harmful
Co-amoxiclav	Not known to be harmful

Medicines	Comments
Co-cyprindiol	Avoid-risk of re-minization or mare retus with cyproterone
Cyclophosphamide	Avoid use of effective contraception during and for at least 3 months after administration to men or women
Cytarabine	Avoid (teratogenic in animal studies)
Dacarbazine	Avoid (carcinogenic and teratogenic in animal studies), use effective contraception during and for at least 6 months after administration to men or women
Dactinomycin	Avoid (teratogenic in animal studies)
Daunorubicin	Avoid (teratogenic and carcinogenic in animal studies)
Dexamethasone	Benefit of treatment, for example in asthma, outweighs risk, risk of intrauterine growth retardation on prolonged or repeated systemic treatment, corticosteroid cover required by mother during labour, monitor closely if fluid retention
Dexamethasone + Neomycin + Polymicin	Use with caution if benefits outweigh risks
Diazepam	Avoid regular use (risk of neonatal withdrawal symptoms), use only if clear indication such as seizure control (high doses during late pregnancy or labour may cause neonatal hypothermia, hypotonia, respiratory depression)
Diclofenac	Most manufacturer advice avoiding the use of NSAIMs during pregnancy or avoiding them unless the potential benefit outweighs the risk. NSAIMs should be avoided during the third trimester because use in associated with a risk of closure of fetal ductus arteriosus in utero and possibly persistent pulmonary hypertension of the new born. In addition, the onset of labour may be delayed and its duration may be increased
Diloxanide furoate	Manufacturer advises to avoid it
Diltiazem Hydrochloride	Avoid
Dorzolamide	Avoid
Doxorubicin	Avoid (teratogenic and toxic in animal studies), with liposomal product use effective contraception during and for at least 6 months after administration to men
Doxycycline	First trimester, effects on skeletal development in animal studies Second and third trimesters: dental discoloration, maternal hepatotoxicity with large doses (avoid Efavirenz) (potential teratogenic effects)

Medicines	Comments
Enalapril	ACE inhibitors should be avoided in pregnancy unless essential need is ppresent. They may adversely affect fetal and neonatal blood pressure control and renal function, skull defects and oligohydramnios have also been reported.
Ephedrine	Increases fetal heart rate reported
Esomeprazole	Manufacturer advises cautions- no information available
Etoposide	Avoid teratogenic in animal studies
Fenofibrate	Avoid
Fluorouracil	Avoid (teratogenic)
Fluxoetine	Manufacturer advises use only if potential benefit outweighs risk
Fluphenazine	Third trimester: extrapyramidal effects in neonate occasionally reported
Fluocinolone acetonide	Avoid unless potential benefit outweighs risk
Fluvastatin	Statin should be avoided in pregnancy as congenital anomalles have been reported and the decreased synthesis of cholesterol possibly affects fetal development. Adequate contraception is required durin treatment and for 1 month afterwards
Furosemide	Not used to treat hypertention in pregnancy
Gentamicin	Second and third trimesters. Auditory or vestibular nerve damage, risk probably very small with gentamicin, but avoid unless essential (if given, serum gentamicin concentration monitoring essential)
Gemfibrozil	Manufacturers advice avoid unless necessary
Glibenclamide	Third trimester, neonatal hypoglycaemia, insulin is normally substituted in all diabetics, if oral medicines are used, therapy should be stopped at least 2 days before delivery
Haloperidol	Third trimester: Extra-pyramidal effects in neonates is occasionally reported
Halothane	Third trimester: Depresses neonatal respiration
Heparin	Maternal osteoporosis has been reported after prolonged use, multi-dose vials may contain benzyl alcohol, some manufacturers advise to avoid
Hydralazine	Avoid during first and second trimester, no reports of serious harm following use in third trimester

Medicines	Comments
Hydrocortisone	Benefit of treatment, for example in asthma, outweighs risk, risk of intrauterine growth retardation on prolonged or reported systemic treatment, corticosteroid cover required by mother during labour, monitor closely if fluid retention is present
Ibuprofen	Avoid unless potential benefit outweighs risk third trimester, with regular use closure of fetal ductus arteriosus in utero and possibly persistent pulmonary hypertension in the newborn, delayed onset and increased duration of labour
Ketoprofen	Avoid, especially in the third trimester because use is associated with risk of closure of fetal ductus arteriousus in utero and possibly persistent pulmonary hypertension of the new born. Although the onset of labour may be delayed and its duration may be increased
Ketotifen	Most manufacturers of antihistamines advise avoiding their use during pregnancy, however, there is no evidence of teratogenicity except for Hydroxyzine where toxicity has been reported with high doses in animal studies. The use of sedating antihistamines in the latter part of the third trimester may cause adverse effects in neonates such as irritability, paradoxical excitability, and tremor
Levodopa + Carbidopa	Toxicity in animal studies
Lidocaine	Third trimester: With large doses, neonatal respiratory depression, hypotonia, and bradycardia after paracervical or epidural block
Lincomycin	Use with caution in benefits outweigh risks situations
Lithium	First trimester: Avoid if possible (risk of teratogenicity including cardiac abnormalities) second and third trimester: dose requirements increased (but on delivery return to normal abruptly), close monitoring of serum Lithium concentration advised (risk of toxicity in neonate)
Magnesium Sulphate	Third trimester: Not known to be harmful for short term intravenous administration in eclampsia but excessive doses may cause neonatal respiratory depression
Maprotilline	May be acceptable
Mefloquine	Manufacturer advises adequate contraception during prophylaxis and for 3 months after stopping
Meropenem	Use only if potential benefit outweighs risk

Medicines	Comments
Methotrexate	Avoid (teratogenic), fertility may be reduced during therapy but this may be reversible, use effective contraception during and for at least 6 months after administration to men and women
Methoxsalen	Use with caution if benefits outweigh risk
Methyl prednisolone	There is no convincing evidence that systemic corticosteroids increase the incidence of congenital abnormalities such as cleft palate or lip, when administration is prolonged or repeated during pregnancy, systemic corticosteroids increase the risk of intra-uterine growth restriction, there is no evidence of intra-uterine growth restricition following short term treatment (e.g prophylactic treatment for neonatal respiratory distress syndrome)
Metoprolol tartrate	There is no convincing evidence that systemic corticosteroids increase the incidence of congenital abnormalities such as cleft palate or lip, when administration is prolonged or repeated during pregnancy, systemic corticosteroids increase the risk of intra-uterine growth restriction, there is no evidence of intra-uterine growth restriction following short-term treatment (e.g. prophylactic treatment for neonatal respiratory distress syndrome).
Minoxidil	Avoid- possible toxicity including reduced placental perfusion, neonatal hirsutism reported
Mometasone furoate	Can be given by inhalation route to reduce reaching of the drug to the fetus
Morphine	Third trimester: Depresses neonatal respiration, withdrawal effects in neonates of dependent mothers, gastric stasis and risk of inhalation pneumonia in mother during labor
Paracetamol	Not known to be harmful
Phenobarbital	First and third trimesters: congenital malformations, risk of teratogenicity greator if more than one antiepileptic used, may possibly cause vitamin k deficiency and risk of neonatal bleeding, if vitamin k not given at birth, neonate should be monitored closely for signs of bleeding
Phenytoin	First and third trimesters: congenital malformations (screening advised), adequate folate supplements should be given to mother (for example, Folic acid 5mg daily), risk of teratogenicity greater if more than one antiepileptic used, may possibly cause vitamin k deficiency and risk of neonatal bleeding, if Vitamin k not given at birth, neonate should be monitored closely for signs of bleeding

Medicines	Comments
Povidone iodine	Sufficient Iodine may be absorbed to affect the fetal thyroid in the second and third trimester
Praziquantel	T. solium infections in pregnancy should be treated immediately, treatment in schistosomiasis outweighs risk, if immediate treatment not considered essential for fluke infections, treatment should be delayed until after delivery
Prednisolone	Benefit of treatment, for example in asthma, outweighs risk, risk of intrauterine growth retardation on prolonged or repeated systemic treatment, corticosteroid cover required by mother, during labor, monitor closely if fluid retention is present
Primaquine	Third trimester: Neonatal haemolysis and methaemoglobinaemia, delay treatment until after delivery
Promethazine	No evidence of teratogenicity
Propranolol Hydrochloride	Beta blockers may cause intra-uterine growth restriction, neonatal hypoglycaemia and bradycardia, the risk is greater in severe hypertension. The use of Labetalol in maternal hypertension is not known to be harmful. Except possibly in the first trimester
Pyrantel pamoate	Use with caution if benefits outweigh risk
Pyrazinamide	Use only if potential benefit outweigh risks
Pyridostigmine	Third trimester: Neonatal myasthenia with large doses
Pyrimethamine	First trimester: Theoretical teratogenic risk (Folate antagonist), adequate folate supplements should be given to the mother, avoid in pneumocytosis and toxoplasmosis
Salbutamol	Appropriate to use for asthma, high doses should be given by inhalation only- parenteral use can affect the myometrium and possibly cause cardiac problems
Streptomycin	Second and third trimesters: auditory or vestibular nerve damage, avoid unless essential (if given, serum streptomycin concentration monitoring essential)
Sulfasalazine	Theoretical risk of neonatal haemolysis in third trimester, adequate folate supplements should be given to mother
Suxamethonium	Mildly prolonged maternal paralysis may occur
Terbinafine	Manufacturer advises use only if potential benefit outweighs risk
Tinzaparin sodium	Not known to be harmful, vials contain benzyl alcohol- manufacturer advises to avoid it

Medicines	Comments
Thiopental	Third trimester: depresses neonatal respiration, dose should not exceed 250mg first trimester: Teratogenic risk (folate antagonist)
Tobramycin + Dexamethasone	Use with caution if benefits outweigh risk
Tretinoin	Topical retinoids are contra-indicated in pregnancy, women of child-bearing age must use effective contraception (oral progestogen-only contraceptives not considered effective)
Urea	Use with caution if benefits outweigh risk
Yellow fever Vaccine	First trimester: Theoretical risk of congenital malformations, however need for vaccination may outweigh possible risk to fetus , pregnant women should be adviced not to travel to areas where there is a risk of exposure to yellow fever
Valporic acid	First and third trimesters: Increased risk of congenital malformations and developmental delay (counseling and screening advised- Folic acid supplements may reduce risk of neural tube defects), risk of teratogenicity greater if more than one antiepileptic used, neonatal bleeding (related to hypofibrinaemia) and neonatal hepatotoxicity also reported
Vancomycin	Use only if potential benefit outweighs risk- plasma Vancomycin concentration monitoring essential to reduce risk of fetal toxicity.
Vinblastine	Avoid (limited experience suggests fetal harm, teratogenic in animal studies). Avoid Vincristine (teratogenicity and fetal loss in animal studies).
Warfarin	Congenital malformations, fetal and neonatal.
Zidovudine	Treatment of HIV infection in pregnancy aims to reduce the risk of toxicity to the fetus (although information on the teratogenic potential of most antiretroviral medicines is limited), to minimize the viral load and disease progression in the mother, and to prevent transmission of infection to the neonate. Combination antiretroviral therapy maximizes the chance of preventing transmission and represents optimal therapy for the mother. However, it may be associated with a greator risk of preterm delivery.

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