MEDICINE INFORMATION

for

Primary

Care

Reviewed by :
Directorate of Pharmacy Services
Ministry of Health & Child Welfare
Republic of Zimbabwe

Table of Contents

Acknowledgments

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Printed by World Health Organization with Humanitarian Aid Department of the European Commission (formerly: European Community Humanitarian Aid Office) ECHO funds

Foreword

Background and objectives

This book is one of a series of publications produced by the Directorate of Pharmacy Services since 1988. The series contains policy documents and clinical and medicines management information, and is intended to promote the sound management and rational use of medicines.

The objective of this book is to provide health workers with easily accessible information on important aspects of the medicines commonly used at primary care level in Zimbabwe. Medicines are a crucial part of the management of most of our patients, yet many medicines are potentially dangerous if not used correctly (by either prescriber or patient). It is important to have up-to-date information not only on the indications for, and the dose of a particular medicine, but also the contra-indications and reasons for special care, possible side effects and interactions with other medicine or medicines. The patient must also have information on how to use the preparation, what side effects may occur, and when to return for help.

The book is primarily a reference manual. The information is consistent with, and complements, the national guidelines given in the latest EDLIZ, the Expanded Programme on Immunisation manuals, and the Zimbabwe National Family Planning Clinical Procedure Manual. However, recommended treatment schedules and doses occasionally change, especially for treatment of infectious diseases (such as Tuberculosis). Health workers should also refer to the latest EDLIZ and guidelines. Blank pages have been provided at the end of the book so that updated or new information can be recorded.

Who should use the book?

The book can be used by all health workers. However, it will be particularly useful to those who are involved in health care at primary level (primary health care centres, clinics and rural hospitals), where reference material is not readily available. Health workers often have to rely on their own pharmacological knowledge which may be out-of-date or incomplete.

It is our hope that all health workers in both public and private sectors will find this book a useful and informative supplement to existing reference materials

This book has been produced to fill a gap which currently exists in the availability of standardised reference materials on medicines and other pharmaceutical preparations, particularly at primary care level.

The Ministry of Health and Child Welfare has provided every health facility in Zimbabwe with a copy of EDLIZ. This publication, which is updated regularly, aims to promote the rational use of medicines or medicines throughout Zimbabwe, in order to ensure both optimal patient management and the efficient use of scarce resources. As well as the list of essential medicines to be stocked by the National Pharmaceutical Company (NatPharm), EDLIZ provides standard treatment guidelines for the vast majority of health problems.

This invaluable handbook has been acknowledged as the "bible of therapeutics" and is widely used at all levels of the health system in Zimbabwe. However it does not provide all the necessary information on the essential medicines themselves, such as how they work, who should avoid them and what their side effects might be. If this information were to be included in EDLIZ itself, it would become too bulky and less easy to use.

This book has therefore been produced to supplement the EDLIZ. It is an easy-to-use reference manual for all medicines which are available at primary care level in Zimbabwe, including vaccines and contraceptives (the C-list medicines). Some B-list items have also been included. This is because health centre staff sometimes has to treat or review patients who are taking B-list medicines which have been prescribed at a referral hospital. The primary health centre staff needs access to information about these medicines, such as the possible side effects. They need to be able to check for interactions with additional medicines the patient may need.

Medicines are presented by pharmaceutical category, in alphabetical order according to the generic name, which should always be used.

Where necessary, reference is made to appropriate sections of EDLIZ for further information. For some medicines, the book also contains reminders of important practical points.

☞	*ART/TB and STI treatment schedules and doses change periodically depending on local sensitivities - consult the latest guidelines*

Each monograph provides the following information on the medicine:

- the formulations (e.g. tablet, injection, unit size) available at the NatPharm including the NatPharm code number and VEN classification (see below).

- the indications for use.
- contraindications and reasons for special care in prescribing.
- interactions with other medicines or medicines.
- the dose and common side effects.
- labelling requirements.
- information to give to the patient.

VEN Classification
Based on economic considerations, medicines listed in the Essential Medicines List are further classified according to their priority in health care as a whole.

This is also the system used by NatPharm to categorise supplies according to priority for purchasing. Every item on the Essential Medicines List has been classified as either V, E or N.

- *V= VITAL:* These items have first priority for procurement. If these items are not available, it could mean the death of a patient or irreparable damage.
- *E = ESSENTIAL:* These items have second priority. Unavailability causes pain or great discomfort.
- N = *NECESSARY:* These items are regarded as needed, but have lowest priority.

When there are budgetary constraints, priority is given to purchasing V and E items first.

The information in the monographs has been collated from the following sources:

1. EDLIZ 2011 - Ministry of Health and Child Welfare
2. ZNFPC Clinical Procedure Manual
3. EPI modules - Ministry of Health and Child Welfare
4. Martindale –Extra Pharmacopeia 33rd Edition
5. British National Formulary (BNF) 61th Edition
6. British National Formulary for Children 2009

The book is intended for quick reference. To keep it readable and a reasonable size, only the most important information about selected commonly used medicines has been included. If you are uncertain about anything in the book, or have further questions, please contact your Provincial Pharmacist/Pharmacy Manager

Comments and suggestions

If you have any comments or suggestions please send them to:

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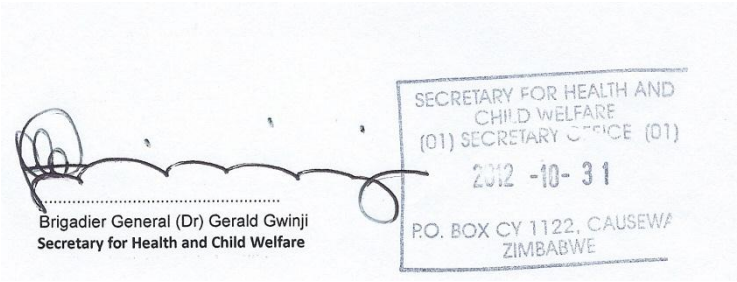
 The production has been generously supported by WHO through financial support from Humanitarian Aid Department of the European Commission (formerly: European Community Humanitarian Aid Office) ECHO. We hope you will find this formulary useful and hope you will take the time to read and learn from it.



Brigadier General (Dr) Gerald Gwinji
Secretary for Health and Child Welfare

List of Abbreviations and nomenclature used

ADR	Adverse Medicine Reactions
BP	Blood pressure
COC	Combined Oral Contraceptive pill
EDLIZ	Essential Medicines List for Zimbabwe
EPI	Expanded Programme on Immunisation
g	gram
Hb	Haemoglobin
HIV	Human Immunodeficiency Virus
hr	hour
kg	kilogram
l	litre
min	minute
MCAZ	Medicines Control Authority of Zimbabwe
mcg	microgram
mg	milligram
mmol	millimole
MOHCW	Ministry of Health and Child Welfare
NatPharm	National Pharmaceutical Company
NSIADs	non-steroidal anti-inflammatory medicines
mth	month
POC	Progestin Only Contraceptive pill
ppm	parts per million
STI	Sexually Transmitted Infections
TB	Tuberculosis
VEN	Vital, Essential, Necessary classification
wks	weeks
yrs	years
ZNFPC	Zimbabwe National Family Planning Council

Special Symbols

The following symbols have been used throughout the book

Symbols	Explanation
	Means special information to be noted
	Shows what should be written on the label
●●	Explains what information to give to the patient/client

Remember, every time you prescribe a medicine:

- tell your patient what is wrong with them and how the medicine will help
- ask what other medicines your patient is taking and check for medicine interactions in this book
- check the expiry date of all medicines
- show your patient the medicine, and explain how to take it
- tell him/her what side effects she/he may experience, and ask him to return if they are severe, or there are any other problems
- remind him/her to finish the whole treatment course, even if they feel better before the course has been finished

Chapter 1: C-List Medicines

Tablets, Suspensions and Capsules

ALBENDAZOLE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Chewable /non-chewable tablets	200 mg	100	24/0200	E

Indications Broad spectrum anthelmintic, effective against round worm, whipworm, thread-worm, hookworm, strongyloides, tapeworm, & sandworm (see Helminthiasis in EDLIZ).

Contra-indications Pregnancy (especially in first trimester) - may cause damage to the foetus. Treat after delivery

Special care Treatment of heavy infestations of roundworm may result in expulsion of the worms through the nose and mouth

Interactions Nil

Dose

	Child		Adult
	< 2 yrs	> 2yrs	
Roundworm, hookworm, threadworm & whipworm	200mg single dose	400mg single dose	400mg as a single dose
Strongyloides, tapeworms, sandworms	200mg daily for 3 days 200mg once daily for 7 days	400mg daily for 3 days 400mg once daily for 7 days	400mg daily for 3 days 400mg once daily for 7 days

Side Effects Mild gastro-intestinal disturbances only - abdominal pain, diarrhoea.

Labelling
- Tablets to be chewed if chewable

Patient Information
- ••All members of the household also need medicine
- ••To prevent worms use latrines, wear shoes, wash hands, clean fingernails, cook meat thoroughly
- ••Worms die slowly, may take 3 days to be expelled

AMITRIPTYLINE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	25mg	B/1000T	24/0400	V

Indications
Severe depression (tricyclic antidepressant) - particularly if sedation is required.
Post-herpetic neuralgia (pain after herpes zoster) or trigeminal neuralgia(*non C list)
*Peripheral neuropathy (non C list)

Contra-indications
Recent myocardial infarction.
Cardiac arrhythmias.
Mania.
Severe liver disease.

Special care
History of cardiac disease, epilepsy (may increase convulsions),
urinary retention, glaucoma, mania, psychosis.
Pregnancy & breast-feeding.
Elderly.
Thyroid or liver disease

Interactions
Alcohol, antihistamines, hypnotics, anxiolytics (e.g. diazepam, lorazepam) may enhance sedative effect.
Effect may be reduced by rifampicin, some anti-epileptics and oral contraceptives.
Effect may be increased by antipsychotics and ranitidine.
May decrease hypotensive effect of methyldopa (stabilise blood pressure before treatment).

Dose (depending on Indication)

Starting dose	**Usual maintenance dose**	**Maximum daily dose**
25 - 75 mg	50 - 100 mg daily	150mg per day
Usually given as single bed-time dose (but see Practical Points below).		
Increase starting dose gradually if necessary. Therapeutic effect may take up to 14 days.		
☞	*NOT recommended in children under* 16 *years.* *Reduce dose in elderly.* *Withdraw treatment gradually*	

Side Effects

Side effects are relatively common, especially in elderly - reduce by starting with low dose. Often decrease with time.
Anticholinergic - dry mouth, blurred vision, sweating, constipation, urinary retention.
Cardiovascular - postural hypotension (very common especially in elderly), tachycardia, palpitations, cardiac arrhythmias.
Neurological - drowsiness, dizziness, confusion, tremor, tinnitus, headache, insomnia, numbness, tingling and paraesthesia of extremities.
May increase convulsions in epileptics. Behavioural disturbances.
Metabolic - weight gain, occasionally gynaecomastia, galactorrhcea, hyponatraemia (low serum sodium).
Others - sexual dysfunction (e.g. impotence), allergic skin rashes, rarely blood dyscrasias.

PRACTICAL POINTS

- Generally, tablets should be taken in the evening because of sedation and side-effects.
- But avoid large bed-time doses in the elderly - hypotensive effect may cause falls at night.
- Do not give too many tablets at once. Amitriptyline overdose is dangerous - more than 1 g. (40 tablets) is seriously toxic.

Labelling

May cause drowsiness.

Patient Information

- These tablets will take 14 - 28 days to start working, so do not give up.
- Finish the whole course of tablets and come back come back for review - you may need more.
- Do not stop taking the tablets without medical advice.
- You may get some side effects (e.g. dry mouth etc.), which will probably wear off over the next few weeks.
- If you have a dry mouth, chew gum, mints or suck hard sweets.
- Stand up slowly from a sitting or lying position to avoid dizziness.
- If the tablets make you drowsy, do not drive a vehicle or operate machinery.
- Do not drink alcohol when taking these tablets.
- If you need treatment for any other problem, tell the doctor or nurse you are taking these tablets.
- Do not take any non-prescription medicines without consulting a nurse or doctor - they may contain medicines which interact.

AMOXICILLIN

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Capsules	250 mg	1000T	24/0451	V
	Powder/Syrup	125mg/5ml	100ml	26/0456	V

Indications Antibacterial, acute ear infection in children ,infection of the genitourinary tract during pregnancy, mild /moderate sepsis, STI prophylaxis in sexual assault survivors, HIV related respiratory conditions, infection in COPD, prophylaxis against endocarditis, Pylori eradication, traumatic eye conditions, necrotising gingivitis, periodontitis, stomatitis, acute otitis media, chronic sinusitis, acute laryngitis and antibacterial therapy in sickle cell anaemia

Contra-indications Allergy to amoxicillin and penicillin hypersensitivity

Special care Renal impairment, history of allergy

Interactions

Dose See EDLIZ

Side Effects Gastro-intestinal - nausea, vomiting, abdominal discomfort , diarrhoea
Antibiotics associated colitis.

Labelling Finish the course

Patient Information •• Finish all the capsules, even if you feel better. If you stop taking them too soon, the infection may return.

ASPIRIN (ACETYL SALICYCLIC ACID)

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	300 mg	1000	24/0600	V

Indications Analgesic (painkiller) for mild to moderate pain, such as headache, muscle or joint pain and period pain (see Pain Management in EDLIZ).
First line anti-inflammatory medicine for rheumatoid arthritis and osteoarthritis (but not acute gout).
Antipyretic (reduces fever) - don't use in children under 5 years'.
Anti-platelet effect at low doses - helps prevent blood clot formation in arteries. Used in angina, and after myocardial infarction and stroke to help prevent further clots (see Angina and Myocardial Infarction in EDLIZ

Contra-indications Children under 16 years and breast-feeding women - possibility of Reye's Syndrome (a very rare but serious childhood disease of the liver and brain).
History of gastro-intestinal ulcers or bleeding disorders such as haemophilia.
Acute gout.
Hypersensitivity to aspirin or other anti-inflammatory (such as indomethacin or ibuprofen).

Special care Asthma or history of allergies; impaired renal or hepatic function (avoid if severe); last trimester of pregnancy; elderly more susceptible to side effects; G6PD-deficiency (high doses)

Interactions Warfarin and other anti-coagulants - anti platelet effect.
Other anti-inflammatory medicines like indomethacin, ibuprofen or prednisolone - increased side effects.

Dose ***NB. Aspirin should not be given to children under* 16 *years***
*(*except where specifically indicated (e.g. juvenile arthritis)

	Child : C/I	**Adult**
Analgesia fever		300 - 900mg every 4 - 6 hrs. Maximum 3.6g (12 tabs.) per day.
Anti-inflammatory		300-900mg every 4 - 6 hrs. Maximum 3.6g per day. (Little anti-inflammatory effect in doses less than 3g)
Anti-platelet effect		75-150mg *(1/4 -1/2* tab.) once a day

Side Effects Gastro-intestinal: Upset stomach, nausea & vomiting and indigestion (more common at higher doses). Reduce by taking tablet with food.
Slight gastro-intestinal bleeding common & often asymptomatic.
Acute bleeding/ulceration more likely in patients who take aspirin regularly (more than 15 tablets per week??).
Hypersensitivity: Symptoms such as bronchospasm & skin rashes - more likely in asthmatics and people with other allergies.
Aspirin may induce* an *asthma attack. Anaphylactic shock may occur even in patients who have taken aspirin before without problems - occurs 15 mins. - 3 hrs after taking dose.
If hypersensitive to aspirin may also be hypersensitive to other anti-inflammatories (e.g. indomethacin & ibuprofen), & to tartrazine (a yellow food colouring).

	Increased bleeding time & reduced clot formation: Stop aspirin few days before dental procedures, delivery, & surgery. Salicylate toxicity (at high doses): dizziness, tinnitus (ringing in the ears) and deafness - reduce the dose.
Labelling	To be taken with food. *Do not write "ASA" on label as patients may not know what this means.*
Patient Information	••Always take aspirin with or after food ••Do not take aspirin at the same time as alcohol as they both irritate the stomach. ••Aspirin loses it strength when exposed to humid conditions. •• Don't take aspirin if you have a history of stomach ulcers.

ARTEMETHER WITH LUMEFANTRINE

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablets	20/120mg		Various	V

Indications	Antimalarial, treatment of acute uncomplicated falciparum malaria after parasitological or rapid diagnostic tests confirmation or after microscopic slides confirmation
Contra-indications	Allergy to any one of the component, History of arrhythmias, clinically relevant bradycadia, and of congestive heart failure, Children under 5kg , First trimester of pregnancy
Special care	Renal and hepatic impairment, electrolyte disturbances
Interactions	Amitryptyline ,chlorpromazine, ranitidine increase the likelihood of arrhythmias and bradycadia, May decrease effectiveness of contraceptive pill (see chapter on Contraceptives) Avoid concomitant use of macrolides e.g. erythromycin and quinolones, e.g. ciprofloxacin Do not use with quinine, increased risk of arrhythmia

Dose

Dosage		Day one		Day two		Day three	
Weight (Kg)	Age (Yrs)	Stat dose , after 8 hrs		AM	PM	AM	PM
5-14	<3	1	1	1	1	1	1
15-24	3-8	2	2	2	2	2	2
25-34	9-14	3	3	3	3	3	3
>35	>14	4	4	4	4	4	4

Side Effects

Gastro-intestinal - nausea, vomiting, abdominal discomfort, diarrhoea - reduce by taking with or after food.
Anorexia, palpitation, cough, headache, dizziness, sleep disturbances
Asthenia, paraesthesia, arthralgia and myalgia
Allergies - pruritus, rashes.
Rare – ataxia, hypoesthesia

Labelling

- Finish the course
- Take with food

Patient Information

- Finish aII the tablets, even if you feel better. If you stop taking them too soon, the infection may return
- If you do not feel better after 48 hours come back to the health centre
- If the initial dose is vomited within 30 minutes repeat dose
- Tablets should be taken with food.
- In the event the patient is unable to swallow the tablets, such as infants and children, the tablets may be crushed and mixed with a small amount of water.
- This medication may make you dizzy, or cause you to feel tired or weak, do not drive ,use machinery or perform any activity that requires alertness until you are sure you can perform such activities safely
- Seek immediate medical attention if any of these rare but serious side effects occur : chest pain, severe dizziness, fainting, fast/irregular/pounding heartbeat

BENZHEXOL

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	5mg	B/100T	24/1040	V

Indications Parkinson's disease.
To reduce extrapyramidal symptoms induced by antipsychotic medicines (but not tardive dyskinesia - see *Chlorpromazine).*

Contra-indications Urinary retention, glaucoma, gastrointestinal obstruction.

Special care Cardiovascular disease, hepatic or renal impairment.

☞	*Patients can become addicted to benzhexol, which is liable to abuse. Watch out for "shopping around".*

Interactions Side effects of benzhexol increased by amitriptyline and antihistamines.
Reduces absorption of ketoconazole (antifungal).

Dose

Starting dose	Usual maintenance dose
2mg daily	5 – 15 mg
3 - 4 divided doses, increase gradually	

Avoid abrupt withdrawal

Side Effects Common - dry mouth, gastrointestinal disturbances, blurred vision, and dizziness.
Less common - urinary retention, tachycardia, hypersensitivity, nervousness.
High doses - occasionally mental confusion, excitement, or psychiatric disturbances.

Labelling ✎ May cause drowsiness.

Patient Information
- •• Don't drive a vehicle or operate machinery if these tablets make you feel drowsy.
- ••If the tablets make you feel nauseous, take with food.
- •• If you have a dry mouth, chew gum, mints or suck hard sweets
- •• Do not stop taking the tablets without medical advice.

BISACODYL

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet (enteric coated)	5mg	1000	24/1190	N

Indications Laxative for treating constipation. Stimulates the large bowel to move faster. Use only if dietary measures have failed on their own (see Constipation in EDLIZ).
Used for emptying colon and rectum before certain X-ray examinations.

Contra-indications Undiagnosed abdominal pain.
Absent bowel sounds.

Special care Do not use Bisacodyl for long term treatment as it can cause the colon to loose its motility.
Use with caution throughout pregnancy.
Avoid in children and in patients with history of inflammatory bowel disease.

Interactions Nil

Dose *Oral tablets act within* 6 - 12 *hours. A tablet taken at night will cause* a *bowel action by morning*

	Child 4-10yrs	**Adult**
Constipation	5mg at night	5-10mg at night (up to 20 mg before radiological procedures and surgery

Side Effects Abdominal cramping.
Diarrhoea if prolonged use or overdose

Labelling Tablets to be swallowed whole

Patient Information
- Swallow tablet whole, & do not take with milk.
- These tablets usually work within 6 to 12 hours.
- Drink more water, eat unrefined foods, e.g. straight run mealie meal instead of refined mealie meal, brown bread instead of white, more fruit & vegetables, exercise more e (if appropriate).

CHLORPHENIRAMINE MALEATE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	4 mg	1000	24/1940	E

Indications Allergies such as hay fever, urticaria,
Allergic reactions to medicines, insect bites, stings
Anti-histamine (i.e. helps block the effects of histamine, such as itching, oedema, runny nose & eyes). \
Treating itching in eczema (see Skin Conditions in EDLIZ).
Anti-emetic - travel sickness, severe vomiting in pregnancy.

Contra-indications Allergy to chlorpheniramine

Special care Patients with epilepsy, prostatic enlargement, glaucoma or hepatic disease (anti muscarinic effect). Do not use for treating coughs & colds

Interactions Alcohol - increases sedation.
Other CNS depressants - increases sedation and other side effects.

Dose

	< 1 (1 month-2 yrs)	1 to 5	6 to 12	Adult
Allergy ,urticaria, itching	1mg twice daily (hay fever & urticaria)	1-2mg (1/4 - 1/2 tab)	2 – 4mg (1/2 – 1 tab)	4mg
		3 times a day		
Vomiting in pregnancy				4mg at night. If severe, 4mg 2 - 3 times a day

Side Effects Sedation and dry mouth common but vary from person to person (CNS stimulation can also occur, especially in children).
Occasionally gastro intestinal side effects - reduce by taking with food.
Others - headache, tightness of chest, blurred vision, urinary retention, constipation, heartburn, palpitations and arrhythmias.
Hypersensitivities - rashes and photosensitivity reactions

Labelling	✎ May make you drowsy. ✎No alcohol.
Patient Information	•• If these tablets make you too drowsy, only take them after school/work, and at bedtime ••Don't take these tablets with alcohol; you may become even more drowsy. •• See what effect these tablets have on you, before you drive. •• If these tablets cause dry mouth, try chewing gum, mints or sucking sweets

CHLORPROMAZINE HYDROCHLORIDE

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablets	100 mg	1000	24/2001	V
	Tablets	25mg	1000	24/2000	V

Indications	Acute psychosis such as thought disorders, hallucinations and delusions (See Psychiatric conditions in EDLIZ). ,intractable hiccups
Contra-indications	Depression or coma, bone marrow suppression, allergy to chlorpromazine or other phenothiazines
Special care	Epileptic patients - Chlorpromazine lowers the seizure threshold. Elderly and debilitated patients are more susceptible to the adverse effects of Chlorpromazine - avoid extremes in temperature and strong sunlight. Cardiovascular, cerebrovascular or respiratory disease, parkinsonism, acute infections, renal and hepatic impairment, closed angle glaucoma, diabetes mellitus, hypothyroidism, myasthenia, or prostate enlargement. Third trimester of pregnancy - extrapyramidal symptoms have been reported in neonate. Breastfeeding - may cause drowsiness in infant.
☛	*Avoid abrupt withdrawal of chlorpromazine*

Interactions

Alcohol, sedatives and hypnotics - increased sedative effect;
Anaesthetics - increased hypotensive effect;
Anti-arrhythmics - increased ventricular arrhythmias;
Anti-depressants - increased antimuscarinic and extrapyramidal symptoms;
Anti diabetics - changed glucose tolerance;
Anti-epileptics - changed seizure threshold;
Antacids - reduce absorption of chlorpromazine;
Anti-coagulants - alters stability of control.
Laboratory results often affected, e.g. pregnancy tests, glucose, urate, cholesterol levels.
Dose required varies from person to person.

Dose

N.B. Elderly or debilitated adults - give a third to a half of the adult dose

☛ *40-50mg of chlorpromazine hydrochloride by mouth = 20-25mg chlorpromazine hydrochloride by IM injection (i.e. use half the oral dose for IM injection*

	Child	Adult
Schizophrenia and other psychoses, mania,	3mg/kg/24 hours in 4-6 divided doses per day (Maximum 50mg/day)	Initially 100 - 400mg within 24 hours in 3 divided doses (some patients may need up to 1g per day) Maintenance 50-100mg at night

Patients on long term treatment should be reviewed every 6 months by a psychiatric nurse or doctor.

PRACTICAL POINTS

- Can cause contact dermatitis - wear gloves when handling.
- Keep ampoules out of light, especially in the emergency tray.
  If it has turned yellow, discard it.
- Chlorpromazine injection is painful - give IM injections slowly and deep into the tissue.
- Use different injection sites each time.
- Patients should remain sitting for half an hour after an injection because of postural hypotension.

Side Effects

Sedation - usually decreases in the first few days of treatment.
CNS stimulation - agitation, photophobia, excitement.
Anti-muscarinic symptoms - dry mouth, blurred vision, urinary retention, constipation, nasal congestion.
Extrapyramidal symptoms (see below)
Cardiovascular- hypotension (low blood pressure - especially in the elderly) tachycardia and changes in ECG.
Seizures - chlorpromazine lowers the seizure threshold.
Hypersensitivity - urticaria, dermatitis, photosensitivity.
Hypothermia (sometimes pyrexia).
Endocrine disturbance - menstrual irregularities, impotence, weight gain, change in blood glucose tolerance, galactorrhoea.
Rarely, skin and eye pigmentation, blood disorders.

Extrapyramidal symptoms
e.g. strange facial expressions, strange postures or movements, tremor, rigidity, salivation, restlessness of hands and legs,

- Symptoms respond to lowering the dose benzhexol or diazepam,
- Prolonged use may lead to tardive dyskinesia (strange facial movements and involuntary jerking of the limbs and trunk) which is often not reversible.

Labelling

- May cause drowsiness,
- Avoid alcohol

Patient Information

☞	***Compliance is one* of *the most common problems with chlorpromazine treatment,* so *patient education about their medicines is very important***

•• Write down the instructions for them and remind them at every visit.
•• You may have to keep taking these tablets for some months or even years. Do not stop taking them without talking to your doctor or nurse.
•• Swallow the tablets whole, and do not take with antacids.
••The tablets might make you sleepy so don't try to drive until you know how they affect you.
•• They may make you dizzy, so get up slowly from a chair or bed.
••Alcohol could irritate your stomach, and cause drowsiness or dizziness.
•• You may get a rash in strong sunlight - avoid excessive exposure to sunlight
•• If your mouth feels dry, try chewing gum or sucking sweets.
••Sometimes these tablets may change the colour of your urine to pink or red, or make it difficult to urinate. Try to urinate just before your next dose. If you get pain as well, see a health provider

COTRIMOXAZOLE

(SULPHAMETHOXAZOLE AND TRIMETHOPRIM)

Cotrimoxazole is a mixture of sulphamethoxazole (a sulphonamide) with trimethoprim in the proportions of 5 to 1.

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Adult tablets	400-80 mg	1000	24/2381	V
	Paed. Tablets	100-20 mg	500	24/2382	V
	Syrup	240mg/5ml	100ml	26/2387	V

Indications Antibacterial against a wide range of gram positive and gram negative bacteria, and some protozoa, including *Pneumocystis Jiroveci Pneumonia (Carinii).*
Commonly used for respiratory tract infections, Pneumocytis Jiroveci Pneumonia(PCP), prophylaxis in patients with AIDS defining illness (see appropriate sections in EDLIZ).

Contra-indications

Third trimester of pregnancy - risk of neonatal haemolysis indications Infants under 6 weeks old - may cause jaundice. Hypersensitivity to sulphonamides or trimethoprim.

G6PD deficiency - may lead to acute haemolytic anaemia. Severe renal or hepatic impairment. Blood disorders, porphyria and systemic lupus erythematosis.

Special care

First and second trimester of pregnancy - give with folic acid.
For high dose Cotrimoxazole give 5mg Folic Acid daily
Renal impairment - if moderate, halve normal dose; if severe, avoid.
Elderly patients - more susceptible to blood and skin reactions.
Maintain adequate fluid intake.
Long term or high dose therapy - regular blood counts.
Laboratory tests may be altered (thyroid, plasma-urea, creatinine, urinary glucose and urobilinogen).

Interactions

Increases effects of warfarin (shortens bleeding time), glibenclamide (risk of hypoglycaemia), phenytoin (toxicity). Pyrimethamine/dapsone and Pyrimethamine/sulphadoxine adds to anti-folate effect.

Dose

	Child			**Adult**
	6wks - 5 mths	6 mths-5yrs	6-12yrs	
Simple infection	120mg twice a day for 5-7 days	240mg twice a day for 5 days	480mg twice a day for 5 days	960mg twice a day for 5 Days
Pneumo-cystis Carinii	***60(EDLIZ)120mg(bnf)/kg/24* hours in 3 to 4 divided doses for14 days (Treatment)			1920 mg . 3 times a day For 21days
Prophylaxis in HIV and related diseases				
	for 21 days			

Prophylaxis HIV related illness	**Adults**: 960mg (2 tablets of 480mg) once a day for life or until CD4>350 for at least 6 months **Children>1year** :480 mg **Children between 6-12 months**:240mg **Children less than 6 Months**:120mg

Side Effects

Severe side effects are rare, and more common with elderly patients .
Gastro intestinal disturbances - nausea and vomiting, diarrhoea.
Skin reactions - rash, urticaria, dermatitis, Stevens-Johnson Syndrome (see below), Blood disorders - e.g. agranulocytosis, purpura, leucopenia, megaloblastic anaemia

Stevens-Johnson Syndrome (see EDLIZ) Rare but serious medicine-induced reaction which is sometimes fatal especially in HIV patients. Refer immediately if suspected. Also occasionally caused by aspirin, pyrimethamine/sulphadoxine, griseofulvin, nitrofurantoin, and phenobarbitone	
☞	*If blood disorders or rashes occur, treatment with cotrimoxazole should* be *stopped immediately.*

Labelling

✎ Finish the course. Take with plenty of fluids

Patient Information

- Finish the whole course of tablets, *even* if you feel better. If you stop taking the tablets too soon, the infection may return.
- Take with plenty of water to *prevent* kidney stones.
- If you get *fever* or sore throat or any rash or unusual bruising, go to your clinic or doctor straight away.

DOXYCYCLINE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Capsule	100 mg	1000	24/3140	V

Indications
Wide spectrum tetracycline antibiotic, also *active* against some protozoa. Moderate sepsis, Mild or moderate Pelvic Inflammatory disease, post exposure prophylaxis in Sexual assaults survivors, urethral discharge in men, gonococcal,, and bacterial vaginosis, granulating ulcers without buboes, acute epididymo-orchitis, tick typhus, hepatic encephalopathy
Used to treat syphyllis, anthrax ; severe acne; Severe malaria (with quinine - see EDLIZ and *Malaria Case Management Guideline*); chronic bronchitis.

Contra-indications
Allergy to doxycycline
Children under 8 years, pregnant or breastfeeding women-

Special care
Impaired liver function
Avoid direct sunlight to reduce chance of photosensitivity

Interactions
Reduced absorption with antacids and iron tablets – take at least 2 hours apart.
Warfarin, carbamazepine and phenytoin levels may be increased.
Laboratory tests (e.g. urinary glucose levels) may be altered.

Dose
NOT recommended in children under 8 years or pregnant or breast-feeding women

	Child > 8 yrs	ADULTS
Second line treatment for uncomplicated malaria	100mg daily for 7 days + quinine (*see EDLIZ)*	100 mg daily for 7 days + quinine
other conditions	See relevant sections in EDLIZ	

Side Effects
Gastro-intestinal - nausea, vomiting, diarrhoea, dry mouth, mouth, irritation. To reduce, take with food and water whilst sitting or standing, not lying down.
Candidiasis (thrush) - in mouth and vagina.
Discolouration and weakening of growing teeth and bone in children under 8 years.
Rarely hypersensitivity, blood disorders, liver damage and colitis

☞	*Expired doxycycline can be toxic **DO NOT** use.*

Labelling	✎ Finish the course. ✎ Swallow whole with food and water
Patient Information	•• Finish all the capsules, even if you feel better. If you stop taking them too soon, the infection might come back. •• Swallow whole with food and plenty of water, sitting or standing up, not lying down. •• Don't take antacids or iron tablets within 2 hours of taking these tablets/capsules. •• (STI treatment) Your partner(s) should also be treated.

ERYTHROMYCIN

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Capsules	250 mg	1000	24/3470	V
	Powder/Syrup	125mg/5ml	100	26/3477	V

Indications	Antibacterial, often used as alternative in cases of penicillin allergy. STI treatment in pregnant and breast-feeding women (instead of doxycycline); ophthalmia neonatorum. (see *Management of STI* latest guideline).used in rheumatic fever, impetigo, management of contaminated burns
Contra-indications	Allergy to erythromycin
Special care	Hepatic and renal impairment Neonates under 2 weeks Use with caution with anti-malarials
Interactions	Warfarin, theophylline, and carbamazepine levels increased by erythromycin. Effects of digoxin increased.

Dose

See EDLIZ or Guidelines for *Management* of *STI*

Ophthalmia neonatorum	16mg/kg three times a day for 14 days

Pregnant and breast-feeding women:

PID/genital ulcers/mixed infections (if allergic to penicillin)	500mg 4 times a day	for 14 days
Genital ulcers in men and women with/without buboes		for 14 days

Only reconstitute Erythromycin syrup when required.

Side Effects	Gastro-intestinal - nausea, vomiting, abdominal discomfort , diarrhoea - reduce by taking with or after food. Allergies - urticaria, rashes. Rare - hearing loss, jaundice, chest pain and arrhythmias, Steven Johnson's syndrome
Labelling	✎ Finish the course
Patient Information	•• Finish all the capsules, even if you feel better. If you stop taking them too soon, the infection may return. ••These capsules work best if you take them on an empty stomach, but if they upset your stomach, take them with or just after food.

FERROUS SULPHATE

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Base tablets*	60 mg	1000	24/3645	E

*preparations contain 60mg of elemental iron

☞	*Note: 200mg* of *ferrous sulphate* is *equivalent to 60mg* of *"elemental" (i.e. available) iron* ***Ferrous fumarate?* *The mixture of ferrous and folic is also 60mg of elemental iron*

Indications	Prevention and treatment of iron deficiency anaemia, microcytic anaemia in pregnant women, prophylaxis in antenatal care, (see Haematology and blood and obstetrics and gynaecological conditions sections in EDLIZ).
Contra-indications	Patients on **repeated blood transfusions.** Injection - **hypersensitivity** to iron
Special care	Anaemia not caused by iron deficiency (e.g. haemolytic anaemia) - find out the type and cause of anaemia first. Inflammatory bowel disease
Interactions	**Antacids, Quinolones (Ciprofloxacin, Norfloxacin)** and **Doxycycline** reduce absorption. **Ascorbic acid** (vitamin C) helps absorption of iron **Zinc** reduces the absorption of oral iron

Dose

	Child	Adult
Treatment of iron deficiency	Paeds: 12mg elementary iron and Children<1 yr :6mg elemental iron or 5ml three times a day (2.5 ml if under 1 yr.)	200mg three times a day
	Continue treatment for 3 *months after the Hb* is *normal*	
Prophylaxis* (e.g. **in pregnancy)**		200mg (1 tablet) once a day.
Treatment of microcytic anaemia*		200-400mg 3 times a day
***Ferrous is taken together with folic acid**		

☞ *Hb should* rise *by 19/dl/week. If it doesn't- check* if *patient* is *taking tablets,* or *look for Other cause* of *anaemia*

Side Effects

Gastro-intestinal (nausea, abdominal pain, diarrhoea, constipation, black stools) - take with food or reduce dose.

Labelling

✎ Take with food.

☞ *Do not write* "FeS04" *on the label - many people do not know what this means. Do not put folic acid tablets in the same packet* as *ferrous sulphate tablets*

Patient Information

- •• Swallow the tablets whole, with or just after food.
- •• Your stools (faeces) may become very dark/black.
- •• If the tablets cause stomach upset, constipation or diarrhoea, reduce dose to one tablet daily, then increase to twice a day after a week.
- •• Iron tablets need to be taken for at least several months, even if you feel better.
- ••Encourage patients to eat fruits and green vegetables, eggs, fish and any meat .

FOLIC ACID

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	5 mg	1000	24/3800	E

Indications Treatment of anaemia due to folic acid deficiency (megaloblastic anaemia), often due to repeated pregnancies and/or poor nutrition.
Prophylaxis in pregnancy, sickle cell disease, premature babies.
Folic acid is a vitamin , necessary for maturation of red blood cells.
Daily requirements increase in pregnancy and lactation, and in patients with haemolytic anaemia

Special care Do not treat megaloblastic anaemia with folic acid alone until Vitamin B12 deficiency has been excluded

Interactions May reduce phenytoin and phenobarbitone levels.

Dose

	Child	Adult
Treatment:	2mg/kg/day for 3 months	5mg daily for 3 months
Prophylaxis in pregnancy, prematurity:*	2mg/kg/week	5mg weekly throughout pregnancy
For prophylaxis in specific disease conditions, see *appropriate section in EDLIZ.*		
Folic acid used together with Ferrous sulphate		

Side Effects Folic acid is generally well tolerated

Labelling

Patient Information

•• These tablets are good for your blood.

•• Do not mix in the same packet as ferrous sulphate.

HALOPERIDOL

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	1.5mg	1000	24/4320	V
	Tablets	5mg	1000	24/4322	V

Indications Used as alternative therapy and rapid tranquilisation in non-organic psychosis and as maintenance therapy.
Organic psychosis (See Psychiatric conditions in EDLIZ)

Contra-indications Depression or coma, bone marrow suppression, allergy to haloperidol or other butyrophenones

Special care

Epileptic patients - lowers the seizure threshold.
Elderly and debilitated patients are more susceptible to the adverse effects of haloperidol but it can be used for agitation and restlessness in the elderly - use with caution in extremes in temperature .
Cardiovascular, cerebrovascular or respiratory disease, parkinsonism, acute infections, renal and hepatic impairment, closed angle glaucoma, diabetes mellitus, hypothyroidism, myasthenia, or prostate enlargement.
Third trimester of pregnancy - extrapyramidal symptoms have been reported in neonate. Breastfeeding - may cause drowsiness in infant.

☞	*Avoid abrupt withdrawal of haloperidol*

Interactions

Alcohol, sedatives and hypnotics - increased sedative effect;
Anaesthetics - increased hypotensive effect;
Anti-arrhythmics - increased ventricular arrhythmias;
Anti-depressants - increased antimuscarinic and extrapyramidal symptoms;
Anti diabetics - changed glucose tolerance;
Anti-epileptics - changed seizure threshold;
Antacids - reduce absorption of haloperidol;
Anti-coagulants - alters stability of control.
Laboratory results often affected, e.g. pregnancy tests, glucose, urate, cholesterol levels.

☞ *For all patients start at a lower dose and increase slowly, dosage should be individualised according to the needs and response of each patient. To determine the initial dosage, consideration should be given to the patient`s age, severity of illness, previous response to antipsychotics medicines and concomitant medication or disease state.*

Dose

	Alternative therapy	**Rapid tranquilisation**
Non organic psychosis	1.25-5mg , 2-3 times daily continually	2-6mg (up to a maximum of 18mg) IM initially then can be repeated after 6 hours until calm or can be given oral medication
Organic psychosis	**Maintenance therapy**	
	1.5-6mg (1 to 4 tablets of 1.5mg) 3 times a day continually	

Patients on long term treatment should be reviewed every 6 months by a psychiatric nurse or doctor.

Side Effects

Sedation - usually decreases in the first few days of treatment.
CNS stimulation - agitation, photophobia, excitement.
Anti-muscarinic symptoms - dry mouth, blurred vision, urinary retention, constipation, nasal congestion.
Extrapyramidal symptoms (see below)
Cardiovascular- hypotension (low blood pressure - especially in the elderly), tachycardia and changes in ECG.
Seizures - haloperidol lowers the seizure threshold.
Hypersensitivity - urticaria, dermatitis, photosensitivity.
Hypothermia (sometimes pyrexia).
Endocrine disturbance - menstrual irregularities, impotence, weight gain, change in blood glucose tolerance, galactorrhoea.
Rarely, skin and eye pigmentation, blood disorders.

Extrapyramidal symptoms
e.g. strange facial expressions, strange postures or movements, tremor, rigidity, salivation, restlessness of hands and legs,

- Symptoms respond to lowering the dose, benzhexol or diazepam,
- Prolonged use may lead to tardive dyskinesia (strange facial movements and involuntary jerking of the limbs and trunk) which is often not reversible.

Labelling

- Name only, no special requirements
- May cause drowsiness, avoid alcohol

Patient Information

☞ ***Compliance is one* of *the most common problems with haloperidol treatment,* so *patient education about their medicines is very important***

- Write down the instructions for them and remind them at every visit.
- You may have to keep taking these tablets for some months or even years. Do not stop taking them without talking to your doctor or nurse.

- Swallow the tablets whole, and do not take with antacids.
- The tablets might make you sleepy so don't try to drive until you know how they affect you.
- They may make you dizzy, so get up slowly from a chair or bed.
- Alcohol could irritate your stomach, and cause drowsiness or dizziness.
- You may get a rash in strong sunlight - avoid going out and always wear a hat.
- If your mouth feels dry, try chewing gum or sucking sweets.

HYDROCHLOROTHIAZIDE

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Scored Tablets	25 mg	1000	24/4740	V

Indications
Diuretic. Reduces oedema due to mild/moderate heart failure.
First-line medicine for hypertension, except for diabetes and gout patients.

Contra-indications
Renal or hepatic impairment, hypercalcaemia

Special care
Diabetes and gout may get worse

Interactions
Digoxin - hypokalaemia (low blood potassium) may cause digoxin toxicity - monitor potassium levels if also taking digoxin for cardiac failure.
Increased diuretic effect with frusemide
May reduce action of antidiabetic medicines.
Postural hypotension effect (see side-effects) may be increased by alcohol, methyldopa, and phenobarbitone.

Dose

	Child	**Adult**
Hypertension		12.5mg - 25mg once daily.

Side Effects

Serious effects rare at low doses.
Mild gastro-intestinal upset and skin rashes.
Metabolic imbalance - hyperuricaemia (gout), hyperglycaemia and glucosuria in diabetics, dehydration.
Hypokalaemia (symptoms - muscular pain, cramps).
Dizziness (often clears with time), rarely postural hypotension.
Impotence (reversible).

Labelling

Take in the morning

Patient Information

- These tablets are to get rid of the excess water in your body / to lower your blood pressure (whatever is appropriate). You will pass more urine than usual.
- Take them in the morning or you will have to wake during the night to urinate.
- You will probably need to take the tablets for a long time - do not stop taking them unless told to by a nurse or doctor. Come back for more when they are nearly finished.
- (for hypertension) They may take several weeks to start working - don't give up!
- At first, these tablets might make you dizzy when you stand up, so get out of bed, or a chair slowly.
- Try to eat the following foods which are high in potassium -avocados, bananas, grapefruit, oranges, watermelon and pineapple.

IBUPROFEN

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet	200mg	B/1000T	24/4810	V

Indications

A non-steroidal anti-inflammatory medicine (NSAID), useful for musculoskeletal pain and inflammation. Analgesic for mild - moderate pain (including dysmenorrhoea). Antipyretic

Contra-indications

Active gastro-intestinal ulceration or bleeding (epigastric pain, passing black stools and/or haematemesis).
History of hypersensitivity (e.g. asthma, urticaria, rhinitis) to aspirin or other NSAID.

Special care

History of gastrointestinal bleeding.
History of asthma or other allergies (may make it worse) .
Elderly.
Pregnancy (first and third trimester).
Cardiac, hepatic and renal impairment - may reduce renal function.

Interactions

Increased side effects if given with other NSAIDs (aspirin, indomethacin etc.).
Reduces effectiveness of anti-hypertensives (propranolol).
Increased risk of gastrointestinal bleeding with corticosteroids.

Dose

Child	Adult
20mg/kg daily in 3-4divided doses	200 - 400 mg every 4 - 6 hours
Maximum dose 2.4g (200mg x 12) daily *NOT recommended for children under 7kg	

Side Effects

Gastrointestinal side effects common (10 - 30%): nausea, anorexia, vomiting, dyspepsia, heartburn, abdominal discomfort - reduce by taking with or after food.
Bleeding and haematemesis may occur.
Headache, dizziness, tinnitus, insomnia, fluid retention - common.
Rarely may provoke asthma attack.
Hypersensitivity reactions rare but can be serious - fever, rash, abdominal pain, liver damage
High doses prolong bleeding time.

Labelling

Take with or just after food.

Patient Information

- Stomach upsets are common - reduce by taking tablets with or just after food or milk.
- If you start wheezing, have difficulty breathing, develop a skin rash or swollen lips see a doctor or nurse.
- If your stool becomes black, or you vomit blood, stop taking the tablets and see the doctor or nurse

LORAZEPAM

Formulations	Strength	Unit	NatPharm Code	VEN
at NatPharm				V

Indications

Used as in rapid tranquilisation in non-organic psychosis (See Psychiatric conditions in EDLIZ)

Contra-indications

Respiratory depression, severe hepatic impairment.
indications narrow angle glaucoma, sleep disturbances

Special care	Respiratory disease, muscle weakness Reduce dose if hepatic or renal impairment, elderly or debilitated. Pregnancy third trimester - causes neonatal respiratory depression and drowsiness. breastfeeding History of drug or alcohol abuse

Interactions	Increases sedative effect of anti-histamines, phenobarbitone and alcohol. Increases hypotensive effect of antihypertensives. Increases effect of digoxin and amitriptyline. Effects of diazepam increased by cimetidine and isoniazid. Effect reduced by rifampicin and aminophylline. Diazepam injection forms a precipitate when mixed with many medicines.	
Dose		**Adults only**
	Rapid tranquilisation	1-2mg IM diluted with equal amount of water for injection or normal saline
Side Effects	CNS effects -.drowsiness and light headedness, depression, confusion and ataxia (especially the elderly). IV use may cause thrombophlebitis. Respiratory depression, hypotension	

MAGNESIUM TRISILICATE COMPOUND

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablet	250 mg magnesium trisilicate + 120 mg Aluminium hydroxide	1000	24/5520	N

Indications	Antacid - relieves pain of dyspepsia, peptic ulcers and reflux oesophagitis. Heartburn in pregnancy. Before surgery. (Works by neutralising acid in stomach. Promotes ulcer healing).
Contra-indications	
Special care	If the pain is not relieved or antacids are required regularly, refer for further examination
Interactions	May impair absorption of other medicines, including those with enteric- coating. Tablet should not be taken within 2 hours of any other medicine.

Dose

	Adult
Dyspepsia	1 to 2 tablets chewed when required, between meals *and / or* at bed-time

NB: one tablet is approx. equivalent to 10ml of *mixture.*

Side Effects Diarrhoea

Labelling May be chewed

Patient Information

- These tablets are for treating upset stomach *1* ulcers (whatever is appropriate).
- Do not take these tablets at the same time as other medicine. Wait for at least 2 hours."
- Drink lots of water or milk and don't smoke tobacco.

METRONIDAZOLE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	200 mg	100	24/5840	V

Indications
Treatment of anaerobic bacteria (Clostridium, bacteroides and campylobacter) in pelvic inflammatory disease, vaginal discharge, puerperal and post-abortal sepsis, tetanus, HIV-related acute diarrhoea, and gingivitis.
Treatment of protozoal infections (amoebiasis in amoebic dysentery, giardiasis and trichomonas vaginalis), Pylori eradication.

Contra-indications
Active central nervous system disease.
History of blood disorders
First trimester of pregnancy - refer if treatment needed.

Special care
Avoid high doses during lactation - breast milk may taste sour.
Reduce dose if severe liver disease.

Interactions
Alcohol - avoid during treatment and for 3 days after 2g dose (patients may experience abdominal pain, flushing, severe headache, vomiting, even acute psychosis and confusion.)
Enhances the anti-coagulant effect of warfarin.
May increase levels of phenytoin and lithium resulting in toxicity.
Phenobarbitone may decrease blood metronidazole level.

Dose

	Child	Adult
Anaerobic infection, vaginal discharge	7.5mg/kg/8 hourly for 7 days	400mg three times a day for 7 days
Intestinal amoebiasis	*10mg/kg/ 8 hourly* for 5 days	800mg three times a day for 5 days
Giardiasis	*5mg/kg/* 3 times daily for 5 day	400mg (1 tablet) 3 times for 5 days

Side Effects

Mild gastro-intestinal upsets common - nausea, anorexia, abdominal pain and cramping, vomiting.
Furry tongue, sore mouth;' metallic taste in mouth. Dark urine.
Occasionally headaches, dizziness, difficulty with co-ordination

Labelling

- Finish the course.
- Avoid alcohol

☞	*NOTE: make sure your patient is not in the first trimester* of *pregnancy.*

Patient Information

- ••Take these tablets until they are all finished, even if you feel better, otherwise, the infection may return.
- ••Take with food to reduce stomach upset.
- •• Do not drink alcohol while you are taking the tablets or you might be very sick.
- •• Your urine may change colour.
- •• (STI treatment) Your sex partner(s) must come for treatment

NORFLOXACIN

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablets	400 mg	100	24/6660	V

Indications Used in Urinary tract infections caused by gram negative bacteria such as cystitis and acute pyelonephritis

Contra-indications Pregnancy , breast feeding and children

Special care History of epilepsy or G6PD deficiency.
Hepatic and renal impairment.
Patients taking non-steroidal anti-Inflammatory medicines (e.g. ibuprofen, indomethacin).

Interactions Antacids and iron reduce absorption.
Effect of warfarin and glibenclamide enhanced.
Theophylline levels increased.

Dose

	Adult
Cystitis	400mg 2 times a day for 3 days
Acute pyelonephritis	400mg 2 times a day for 2 weeks

Side Effects Gasto-intestinal upsets-nausea, vomiting, abdominal discomfort.
Rashes, hypersensitivity, occasionally Stephens-Johnson syndrome, tinnitus, rarely pancreatitis

Labelling
Patient Information
•• Do not take iron tablets or tablets for indigestion for 2 hours after this medicine.
••Limit exposure to direct sunlight

PARACETAMOL

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablets	500 mg	1000	24/7020	E
	Paed syrup	120mg/5ml	1000	26/7021	E

Indications **Analgesic** for mild to moderate pain.
Antipyretic to reduce fever above 38.5°C.
Similar effects as aspirin but has no anti-inflammatory activity. Use for patients with peptic ulcer, allergy to aspirin.

☞	*Do not give paracetamol to an infant under 2 months old with fever* of *unknown origin - give antibiotic and refer.*

Contra-indications **Liver failure**

Special care **Liver and renal impairment** and **alcohol dependence**

Interactions Pethidine reduces absorption-of paracetamol.
Effect of warfarin may be increased by prolonged use of paracetamol.
Use other medicines which can cause liver damage with caution.

Dose

Child over 2 months		**Adult**
	10 mg/kg/dose every 6 hrs	500-1000mg every 4 to 6hrs. Maximum 4g (8 tablets) daily
Long-term use - do not exceed 2.5g per day		

Side Effects Rare - rashes, blood disorders, liver damage after overdose (10g or more).

Labelling ✎ Take when needed for pain or fever

Patient Information
- •• Do not take more than 8 tablets in one day (24 hours)
- ••Do not take other painkillers which also contain paracetamol as well

PHENOBARBITONE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Scored Tablets	30 mg	1000	24/7430	V

Indications A barbiturate anti-convulsant for all kinds of epilepsy (except absence seizures - see *Epilepsy* in EDLIZ). *No longer used as* a *sedative because* of *dependency.*

Contra-indications Severely impaired hepatic, renal or respiratory function (e.g. chronic bronchitis.

Special care Pregnancy - caution in first and third trimester. Breast feeding - may cause drowsiness in infant, and reduce sucking reflex.
Reduce dose in hepatic, renal or respiratory impairment

Interactions
CNS depressant effect increased by other CNS depressants, especially alcohol
Complex interactions with other anti-convulsants (especially phenytoin and sodium valproate) - careful monitoring needed
Effect increased by diazepam.
Reduces effect of other medicines, e.g. warfarin, chlorpromazine, amitriptyline, chloramphenicol, metronidazole, doxycycline, rifampicin, griseofulvin, prednisolone, oral contraceptives and folic acid.

☞	*Phenobarbitone reduces effectiveness* of *oral contraceptives - women should use additional barrier method or other method - see Chapter 4.*

Dose

Child	Adult
5mg/kg at night	Up to 120mg at night

Side Effects Sedation - lethargy, mental depression, drowsiness. Excitability
and irritability, usually in children and the elderly.

PRACTICAL POINTS

- May cause drowsiness initially, so start with low dose and gradually increase over 2 weeks.
- There is considerable variation in patient response, so increase the dose gradually to get the best control with the lowest dose.
- Full effect will be reached in about 2 weeks on the prescribed dose.
- Phenobarbitone induces liver enzymes which break down the medicine more quickly. This is called tolerance and may mean that after some time the dose has to be increased to maintain the same control.
- Sudden withdrawal of phenobarbitone may cause rebound seizures - reduce dose gradually by about 30mg per week.
  An alternative medicine may be started at the same time as withdrawal is started, for seizure cover.
- Signs of withdrawal are similar to alcohol withdrawal i.e. .anxious, shaky, restless, delirium and convulsions

Labelling

- May cause drowsiness
- Avoid alcohol

Patient Information

Patient compliance is essential for seizure control, so *give careful explanations at the time* of *starting the medicine.*

•• These tablets will help to stop your fits. Please record the dates of any fits that you have on your patient card or in a book, and show it each time you come for check-up.

••You may need to take these tablets for months or even years to prevent the fits, so even if you feel completely well, and you haven't had any fits for a long time, do not stop taking these tablets. Collect new supplies before the others run out (give a date to return).

••This medicine may make you drowsy, especially in the first few weeks. If this happens, do not drive or operate machinery.

•• Don't drink alcohol, or it will make you drowsy.

••If you have a sore throat, or fever or easy bruising, come straight back to the clinic.

PRAZIQUANTEL

Formulations		Strength	Unit	NatPharm Code
at NatPharm	Tablets	600 mg	100	24/7710

Indications Treatment of infections due to Schistosoma haematobium and Schistosoma mansoni.

Contra-indications Hypersensitive to praziquantel ,

Special care Should be avoided in pregnancy and breastfeeding

Interactions Its effect is reduced by antiepileptic medicines such as phenytoin, phenobarbitone and carbamazepine, Its plasma level is increased by ,ketoconazole, and erythromycin

	Children and Adult
Schistosoma haematobium	**40mg/kg as a single dose at once taken at bedtime**
Schistosoma mansoni	60mg/kg once daily for 3 days

Side Effects Malaise, headache, dizziness, abdominal discomfort with or without nausea, rarely urticarial

Labelling ✎May cause drowsiness

Patient Information

☞	*Patients should be warned not to drive a car and not to operate machinery on the day of taking the medicine or the following day.*

•• You should avoid playing with stagnant water

PYRIMETHAMINE/DAPSONE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	12.5 mg pyrimethamine + 100mg dapsone	100	24/8041	E

Indications Medicine of choice for malaria prophylaxis in Zimbabwe for non- immune persons and persons with sickle cell anaemia traveling to malaria area (see EDLIZ).
The addition of dapsone increases the effectiveness of pyrimethamine and reduces resistance.

Contra indications

Megaloblastic anaemia or other folate deficiencies.
Pregnancy in the first trimester (due to teratogenic effects)
G6PD deficiency - may induce haemolytic anaemia (see below)

Special care

Pregnancy in second and third trimester - supplement with folic acid 5mg daily.
Renal and hepatic impairment.

Interactions

Bone marrow depression may be enhanced if given with **other folate-inhibiting medicines** (e.g. cotrimoxazole, phenytoin).

Dose

Child				Adult
under 6 **weeks**	**6 wks -1 yr**	1 - **5 years 10 - 19kg**	6 - **11 yrs 20 - 39kg**	over 40 **kg**
not recomm-ended	1/8 tablet or 2.5ml syrup weekly	1/4 tablet weekly	1/2 tablet weekly	one tablet weekly

Start one week before entering malarial area and continue for 4 weeks after leaving

Side Effects

Blood disorders - megaloblastic anaemia, rarely agranulocytosis

Glucose-6-Phosphate Dehydrogenase (G6PD) Deficiency

G6PO deficiency is common in Africa, most parts of Asia, the Pacific and Mediterranean. Several common medicines will precipitate acute haemolytic anaemia In people with G6PO deficiency (e.g. **cotrimoxazole, nalidixic acid norfloxacin dapsone/pyrimethamine** and sometimes **aspirin** and **chloroquine).** The risk is mostly dose-related.

Labelling Patient Information

✎ Take once a week

•• Use personal protection, mosquito nets and mosquito repellents to avoid being bitten as the most preferred method, taking malarial prophylaxis only reduces the risk of getting malaria

•• Start taking these tablets one week before entering a malarial area and continue for at least 4 weeks after leaving.

•• Taking malarial prophylaxis only reduces the risk of getting malaria. Take other measures also to prevent being bitten (mosquito nets, repellents, clothes etc.).

••These tablets are for prevention only. Do not use them for

treatment.

SALBUTAMOL

Formulations at NatPharm		Strength	Unit	NatPharm Code	VEN
	Inhaler	200 doses	100mcg	26/8247	V

Indications

Bronchodilator used to treat asthma and chronic obstructive pulmonary disease (COPD) with airway obstruction Used for the symptomatic relief of an acute attack, emergency treatment of acute severe asthma(see *Conditions* in EDLIZ).
May also help in chronic bronchitis.
Works by relaxing smooth muscle in the lungs (selectively stimulates beta$_2$-adrenoceptors).

Contra-indications

Special care

Interactions

Dose

	Child		Adult *
	1-4 years	5-12 years	
Inhaler	100 mcg	100 mcg	100-200 mcg

How to use a salbutamol inhaler

=> Remove the mouthpiece and shake the inhaler.

=> Hold it upright with the mouth piece at the bottom. Breathe out slowly and fully,

=> Place the mouth piece into the mouth, close the lips around it and tilt the head back a little.

=> Press the canister downward and at the same time inhale rapidly and deeply. Hold the breath as long as possible (10 seconds). Breathe out slowly through the mouth.

=> Allow one minute to pass if taking a second inhalation.

=> Replace mouth piece.

=>In an emergency, 6 puffs should be taken immediately and then one puff every 5 minutes, while seeking medical attention. If patient has problem using inhaler, puff the inhaler twice into a 2 litre plastic bottle and then breathe the salbutamol from the container.

=>Placebo inhalers are produced to help teach patients how to use inhalers. Ask your district pharmacy staff.

Side Effects	**NOT** usually troublesome at normal doses. Fewer side effects with inhaled salbutamol. Fine tremor (usually hands) and palpitations common. Headache, hypotension; muscle cramps, Low serum potassium levels - monitor in severe asthma. Very occasionally - hallucinations.
Labelling **Patient Information**	

SULPIRIDE

Formulations	**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm				V

Indications	Used as first line medicine in non-organic psychosis (See Psychiatric conditions in EDLIZ)
Contra-indications	Depression or coma, bone marrow suppression, allergy to sulpiride or other substituted benzamides.
Special care	Elderly and debilitated patients are more susceptible to the adverse effects of sulpiride ,avoid extremes in temperature and strong sunlight, in patients with epilepsy, dementia, mania Cardiovascular, cerebrovascular or respiratory disease, parkinsonism, acute infections, renal and hepatic impairment, closed angle glaucoma, diabetes mellitus, hypothyroidism, myasthenia, or prostate enlargement, Breastfeeding - may cause drowsiness in infant.
☞	*Avoid abrupt withdrawal of sulpiride. After a long time of use withdrawal should be gradual and monitored to avoid the risk of acute withdrawal syndromes*
Interactions	Alcohol, sedatives and hypnotics - increased sedative effect; Anaesthetics - increased hypotensive effect; Anti-arrhythmics - increased ventricular arrhythmias; Anti-depressants - increased antimuscarinic and extrapyramidal symptoms; Anti diabetics - changed glucose tolerance; Anti-epileptics - changed seizure threshold; Antacids - reduce absorption of haloperidol; Anti-coagulants - alters stability of control. Laboratory results often affected, e.g. pregnancy tests, glucose, urate, cholesterol levels
☞	*For all patients start at a lower dose and increase slowly, dosage should be individualised according to the needs and response of each patient. To*

		determine the initial dosage, consideration should be given to the patient`s age, severity of illness, previous response to antipsychotics medicines and concomitant medication or disease state.
Dose	First line Medicines in Organic psychosis	50-200mg three times a day continually

Patients on long term treatment should be reviewed every 6 months by a psychiatric nurse or doctor.

Side Effects

Sedation - usually decreases in the first few days of treatment.
CNS stimulation - agitation, photophobia, excitement.
Anti-muscarinic symptoms - dry mouth, blurred vision, urinary retention, constipation, nasal congestion.
Extrapyramidal symptoms (see below)
Cardiovascular- hypotension (low blood pressure - especially in the elderly), tachycardia and changes in ECG.
Seizures - haloperidol lowers the seizure threshold.
Hypersensitivity - urticaria, dermatitis, photosensitivity.
Hypothermia (sometimes pyrexia).
Endocrine disturbance - menstrual irregularities, impotence, weight gain, change in blood glucose tolerance, galactorrhoea.
Rarely, skin and eye pigmentation, blood disorders.

Extrapyramidal symptoms
e.g. strange facial expressions, strange postures or movements, tremor, rigidity, salivation, restlessness of hands and legs,

- Symptoms respond to lowering the dose, benzhexol or diazepam,
- Prolonged use may lead to tardive dyskinesia (strange facial movements and involuntary jerking of the limbs and trunk) which is often not reversible.

Labelling Patient information

Do not stop taking your medicine until you are advised to do so by a doctor or nurse

PRACTICAL POINTS

- Sulpiride can affect your ability to drive or operate machinery
- Do not take alcohol while on this medicine. Alcohol may increase the effects of this medicine.
- Breastfeeding is not recommended while taking this medicine

THEOPHYLLINE

Formulations		Strength	Unit	NatPharm Code	VEN
at GMS	Scored Tablets	200 mg	1000	24/0200	E

Indications

Bronchodilator, used to treat severe chronic asthma, (see *Respiratory Conditions* in EDLIZ).

Works by relaxing smooth muscle in the lungs, but also stimulates the CNS and heart, causing more side effects.

Contra-indications

Special care

Cardiac disease, hypertension, hyperthyroidism, peptic ulcer, epilepsy.

Hepatic impairment (reduce dose).

Elderly. Patients taking other medication (see Interactions).

Tobacco smoker –higher doses may be needed.

Pregnancy - may need to change the dose.

Breast feeding - may cause irritability and restlessness in infant

Interactions

Ciprofloxacin, erythromycin, propranolol and oral contraceptives may increase blood levels of theophylline.

Tobacco, phenobarbitone, phenytoin, carbamazepine, rifampicin, and isoniazid decrease blood levels of theophylline.

Halothane anaesthesia - risk of arrhythmias.

Increased risk of hypokalaemia with diuretics, salbutamol (high doses), and corticosteroids.

Dose

Child over 6 months	Adult
5mg/kg/dose,	200 mg three times a
2 - 4 doses per day.	day.

Theophylline has a narrow margin between therapeutic and toxic

doses. Individuals also vary in response. It is not easy to determine correct dosage, and side effects and overdosage are not uncommon. Be careful when changing the dose, adding other medicines, or changing drinking or smoking habits.

☞	*In an acute asthma attack, do not give IV aminophylline if the patient has taken theophylline in the previous 8 hours.*

Side Effects	Common. Gastro intestinal upsets, nausea, vomiting, abdominal pain, bleeding CNS stimulation - restlessness, insomnia, hyperventilation, headache, palpitations, dizziness. Cardiac stimulation - tachycardia, palpitations, arrhythmias
Overdosage	Symptoms: vomiting, agitation, restlessness, dilated pupils, hypokalaemia, convulsions, arrhythmias. Refer.
Labelling	✎ Take with or after food
Patient Information	•• If you feel any nausea or dizziness this could be a sign that you are getting too much theophylline, and you should come back to the nurse or doctor immediately. ••If your doses are three times a day, try to space them exactly every 8 hrs and take them strictly at the same time each day. •• You may need a different dose if you take other medicines, or change your smoking habits. Always tell the doctor or nurse if you are taking theophylline, and before changing your routine

VITAMIN A (RETINOL)

Formulations	**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Capsules			V

Indications	Treatment and prevention of Vitamin A deficiency. Prevention of eye damage in measles. Fat soluble vitamin necessary for normal function of epithelial and mucosal cells, and for vision. Deficiency usually caused by poor diet
Contra-indications	Pregnancy in the first trimester - high doses may be teratogenic.
Special care	
Interactions	Excessive amounts of liquid paraffin reduces absorption

Dose

	Children		
	Less than 6 months	Between 6-12 Months	Between 1-5 years
Treatment Of Vit. A deficiency in Malnutrition	50,000 IU immediately at the clinic, then 50,000 IU on the following day	100,000IU once at the clinic and 100,000IU at home	200,0001U immediately at the clinic , then 200,000IU at home
Prevention Of Vit. A deficiency	50,0001U every 3 - 6 months	100,0001U every 3 - 6 months	200,0001U once every 3 to 6 months

Side Effects

Few side effects at the above doses.
Excessive doses over long periods can lead to rough skin, dry hair, and enlarged liver.

Labelling
Patient Information

- These capsules are vitamins to help your eyes.
  information
- Foods which have a lot of vitamin A are liver, milk and eggs, carrots, dark green and yellow vegetables

MULTI VITAMINS

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets		1000	24/9740	E
	Syrup		2 litres	26/9747	N

Indications

Prevention and treatment of general vitamin deficiency, usually
due to inadequate diet, impaired absorption, alcohol dependence, or HIV related wasting syndromes. One tablet contains Vitamins A, 81 (thiamine), 82 (riboflavine), C (ascorbic acid), D and nicotinamide.
Vitamins have no effect as 'pick-me-ups' or 'appetite stimulants'.

Contra-indications

Special care

Interactions

Chronic use of liquid paraffin may reduce absorption of vitamins A and D.

Dose

Child		Adult
under 5 yrs	over 5 yrs	
5 - 10 ml once daily	1 tab. Daily	2 tabs daily

Higher doses than this are not absorbed, and would be wasteful
Leaves an after-taste

Side Effects

Labelling

Patient Information

- Try to eat a lot of fresh fruit and vegetables, and cereals. If you do not feel like eating try to eat a little, often.

Chapter 2: Injections

Strapping ampoules

- **Never** cover the top of half-used ampoules with plaster, even if the medicine is in short supply.
- Glass ampoules are single use containers and do not contain any preservative. They become contaminated as soon as they are opened. The open ampoule cannot be protected by covering with plaster.
- If the remaining medicine in the ampoule will be used within the next hour, draw it into a syringe and cap the needle. Discard if not used within an hour.
- For all injectables and IV fluids protect from light

ADRENALINE (=EPINEPHRINE) INJECTION

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection	1 mg/ml =1 in 1,000	1ml Amp	25/0080	V

Indications Emergency treatment of anaphylaxis, severe asthma, cardiopulmonary resuscitation.
Combined with local anaesthetics for dental use.
Main effects include increased speed and force of cardiac contraction, increased blood flow to skeletal muscles, increased glucose output and oxygen consumption

Contra-indications

Special care Hyperthyroidism, cardiovascular disease, hypertension, diabetes.

Interactions Effects enhanced by reserpine, thyroxine, and amitriptyline. Hypertension with beta-blockers (e.g. propranolol).

Dose

	Child	Adult
Asthma	0.01 ml/kg sub-cutaneously to a maximum of 0.25ml. Can repeat after 20 mins.	0.5ml s/c repeated every 1-2 hour if necessary.
Anaphylaxis	1 - 5 yrs: 0.1ml.IM 6 - 12 yrs: 0.2ml. IM	0.5 - 1.0ml. IM
	repeat every 10 minutes until improved.	

Side Effects Generally mild at above doses.
CNS reactions - anxiety, restlessness, tremor, dyspnoea.
Cardiac reactions - tachycardia, palpitations, sweating, vomiting, weakness, dizziness, headache, coldness of extremities

PRACTICAL POINTS

- Protect from light - discard any discoloured solution.
- Rotate injection sites.
- Always have adrenaline close by when giving penicillin injections.
- Penicillins can lead to anaphylactic shock
- Keep at least 2 ampoules in the emergency tray.

DARROWS HALF STRENGTH IN 2.5% DEXTROSE

Formulations	Strength	Unit	NatPharm Code	VEN
at NatPharm	12 mmol sodium 3.4 mmol potassium 10 mmol chloride 5.4 mmol lactate 5 9 dextrose (20 calories)	200 ml.	25/2630	V

Indications Replacement and maintenance hydration therapy for dehydrated children, including extensive burns (see EDLIZ).
The sodium and potassium are for electrolyte replacement, the lactate provides bicarbonate to correct the acidosis that often accompanies severe dehydration, and the dextrose is an energy source.

Special care Renal failure.

Interactions

PRACTICAL POINTS:

- Check that the fluid is clear and the seal is intact before use.
- Offer sugar salt solution or oral re-hydration solution by mouth as well.
- Check regularly for tissuing (IV cannula has pierced the vein and fluid accumulates in surrounding tissue).
- Fill in fluid balance records (volume of urine, diarrhoea, vomitus and any oral fluids).

Infusion rate Severely dehydrated children: 30ml/kg/hr for first hour then progressively reduce rate over next few hours to an average rate of
6ml/kg /hour (see box).

To calculate drip rate

At primary care level, the usual IV solution giving set is an adult one and delivers 15 drops per ml.

The formula for calculating drip rate is:

$$\frac{\text{Volume (in mls) x drops per ml (of set)}}{\text{time in minutes}}$$

Example:
A severely dehydrated 10kg child should receive 30ml/kg/hr. in the first hour:

That is 30 x 10 = 300ml/hr so $\frac{\text{300ml x 15 drops/ml}}{\text{60 minutes}}$

= 75 drops/minute

This is almost the same as 1 drop per second.

Then the rate is reduced to 6ml/kg/hr:

That is 6 x10= 60ml/hr so $\frac{\text{60ml x 15 drops/ml}}{\text{60 minutes}}$

= 15 drops/minute

(which is the same as 1 drop every 4 seconds).

DEXTROSE 5% (GLUCOSE 5%) IN WATER

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Bag	5% dextrose	1000ml	25/2700	V

Indications Intravenous fluid replacement when there is no significant loss of electrolytes, i.e. where pure water loss predominates (febrile illness, pneumonia, and asthma).
Can be used as a vehicle for administering some medicines

Special care Head injury patients - may cause cerebral oedema.
Diabetes.

Interactions Ampicillin will lose 24% activity in 8 hours if diluted in 5% dextrose

Infusion rate Volume required varies, usually within 2 to 10 litres.

Side Effects Can cause irritation to the vein.
Prolonged administration of large volumes may lead to oedema or water intoxication, presenting as headache, Changes in mental status, lethargy, and confusion

PRACTICAL POINTS:

Check that the fluid is clear and the seal is intact before use.

Check regularly for tissuing (IV cannula has pierced the vein and fluid accumulates in surrounding tissue).

Fill in fluid balance records (volume of urine, diarrhoea, vomitus and any oral fluids).

DEXTROSE 50% INJECTION

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Injection	50% dextrose	20ml vial	25/2707	V

Indications Treatment of severe hypoglycaemia induced by diabetes mellitus or quinine treatment and in status epilepticus. (see EDLIZ).

Special care 50% Dextrose may cause pain, vein irritation and thrombophlebitis at injection site. Give slowly IV

PRACTICAL POINTS:

- Check to ensure catheter or needle is inside vein, as injection of concentrated glucose into the tissues causes inflammation and necrosis.
- Dextrose 50% is supplied as a rubber capped vial suitable for multi-use.
- Discard it within 7 days of opening, regardless of whether it is empty or not. Write date of opening on the label.
- Keep 1 vial in the emergency tray.

Dose

Child	Adult
1 ml/kg diluted in equal amount of Water for Injection	up to 50 ml

DIAZEPAM INJECTION

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Injection	5 mg/ml	2ml Amp	25/2744	V

Indications Anti-convulsant used in status epilepticus, febrile convulsions and eclampsia, while making arrangements to transfer.
Skeletal muscle relaxant (controls muscle spasm in tetanus).
Relieves withdrawal symptoms of alcoholism (oral medication if possible).

Contra-indications Respiratory depression, severe hepatic impairment. indications Narrow angle glaucoma

Special care

Respiratory disease.
Reduce dose if hepatic or renal impairment, elderly or debilitated.
Pregnancy third trimester - causes neonatal respiratory depression and drowsiness.

Interactions

Increases sedative effect of anti-histamines, phenobarbitone and alcohol.
Increases hypotensive effect of antihypertensives.
Increases effect of digoxin and amitriptyline.
Effects of diazepam increased by cimetidine and isoniazid.
Effect reduced by rifampicin and aminophylline.
Diazepam injection forms a precipitate when mixed with many medicines.

Dose

	Child	**Adult**
Anti-convulsant	0.2 to 0.5mg/kg/ dose, per rectum (PR) or very slow IV (1 ml/min). Repeat as necessary	10mg as a first dose, PR or very slow IV (1 ml/min), repeat as necessary; or by IV infusion in normal saline or 5% dextrose, to a maximum of 200mg (or 3mg/kg) in 24 hours
Sedative or muscle relaxant	0.2mg/kg slow IV or PR.	10 to 20mg slow IV or PR

☞ ** IM administration is painful and absorption is erratic - preferably give per rectum (PR) or slowly IV. The effect* of *diazepam is very variable between patients.*

Side Effects

CNS effects -.drowsiness and light headedness, depression, confusion and ataxia (especially the elderly).
IV use may cause thrombophlebitis.
Respiratory depression, hypotension

PRACTICAL POINTS

- Use a 1 ml syringe without the needle for administration per rectum.
- Do not mix IV diazepam with other medicines.
- Diazepam adsorbs to PVC plastic bags and tubing so use it as soon as it drawn up.
- Monitor vital signs when giving diazepam IV.
- Give IV diazepam slowly (1ml/minute) to avoid hypotension- patient should remain lying down or seated for at least one hour.
- Advise patient not to try to drive, not to drink alcohol after an injection of diazepam.
- Keep at least 2 ampoules in the emergency tray.

ERGOMETRINE INJECTION

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection	0.5 mg/ml	1ml Amp	25/3404	V

Store between +4 *and* +8 ^{O}*C ,heat stable formulations are also available*

Indications

Prevention and treatment of post-partum haemorrhage (PPH).
Given routinely IM with or after delivery of the anterior shoulder for active management of third stage of labour - reduces the risk of post-partum haemorrhage by about 40%.
Treatment of bleeding due to incomplete abortion.
Works by producing sustained contraction of the uterus in contrast to the more rhythmic natural uterine contractions.

Contra-indications

During induction, first or second stage of labour - could cause a hypertonic uterus, uterine rupture and/or foetal death.
Severe cardiac or vascular disease - may lead to tissue hypoxia or gangrene.
Sepsis, severe hypertension, and eclampsia.
Impaired hepatic, renal or pulmonary function.

Special care

Cardiac disease, hypertension, hepatic or renal impairment, multiple pregnancy

Interactions

Halothane may decrease the effect of ergometrine

Dose

	Adult
Management of third stage	0.5mg (IM or slow IV)after delivery of the anterior shoulder
Management of PPH and incomplete abortion	One dose of ergometrine is usually sufficient but a second dose can be given after 10 minutes if uterine bleeding continues
	.

Uterine contractions start about 7 minutes after IM injection (1 minute after IV) and last for 2 to 3 hours.

Side Effects

Gastro-intestinal disturbances - nausea, vomiting, abdominal pain

Generalised vasoconstriction - transient hypertension (especially after rapid IV injection), headache, dizziness, tinnitus, chest pain, palpitations.

PRACTICAL POINTS

- Monitor blood pressure, pulse and uterine state frequently post-partum for about 2 hours.
- Ergometrine is unstable and may lose potency even before the expiry date: do not use if the solution is coloured at all.
- Keep ergometrine protected from light in a box in the refrigerator. Do not keep it in the emergency tray.
- EPI department has agreed that the EPI refrigerator may be used for storing ergometrine and oxytocin if there is not a separate refrigerator.
- See "Oxytocin" for advantages over ergometrine

KANAMYCIN INJECTION

Formulations	Strength	Unit	NatPharm Code	VEN
at NatPharm	Powder	1 g capped vial	25/5224	V

Indications

Management of severe pneumonia, together with Benzyl penicillin in paediatrics. Syndromic-approach treatment of genital discharge in men and women (active against gonorrhoea.)
Ophthalmic neonatorum. Pelvic inflammatory disease. Acute epididymo-orchitis.
NOT absorbed by mouth, must be given by injection.

☞	** STI treatment schedules change periodically depending on local sensitivities - consult latest guidelines*

Contra-indications	Allergy to aminoglycosides, Parkinsonism, other forms of muscle weakness
Special care	Elderly - more susceptible to side effects. Mild renal impairment - reduce dose. Impaired hepatic function, impaired auditory function, bacteraemia, fever - risk of ototoxicity (damage to hearing) increased (see side effects).
Interactions	Other nephrotoxic medicines like frusemide and amphotericin increase risk of renal damage. Indomethacin increases blood levels of kanamycin. Incompatible with cloxacillin - do not mix in same syringe or bag
Dose	***NB*** *partner(s) should also be treated*

Ophthalmia neonatorum (plus erythromycin).	25 mg/kg IM in single dose (maximum 75mg)
Genital discharge and acute epididymo-orchitis (plus doxycycline).	2g IM as single dose (1g in each buttock)
PRACTICAL POINTS Give 1g in each buttock. Warn patient that it may be painful. Check manufacture's guidelines on reconstitution volumes	

Side Effects	Few side effects at these doses. Local irritation or pain after injection

LIGNOCAINE HYDROCHLORIDE INJECTION

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection	2% (20 mg/ml)	20ml vial	25/5401	V
	Dental cartridge	2% with adrenaline	50 x 2.2c	25/5409	E

Indications	Local anaesthesia (plain injection) and dental anaesthesia (plus adrenaline in dental cartridge). Works by causing a reversible block to conduction along nerve fibres
Contra-indications	Complete heart block. Do not use solutions containing adrenaline for fingers and toes
Special care	Epilepsy, hepatic or respiratory impairment, heart problems, elderly or debilitated - reduce dose
Interactions	Combination with adrenaline slows rate of absorption and prolongs effect. Propranolol and cimetidine increase the effect of lignocaine.
Dose	Local infiltration prior to suturing clean cuts under 12 hours old or prior to incision and drainage. Do not exceed dose shown below.

Child				Adult
3 - 24 mths	2 - 4 yrs	5 - 9 yrs	10 -14 yrs	
up to 1ml	up to 2ml	up to 3ml	up to 4.5ml	up to 10ml (200mg)

Side Effects CNS effects if given IV by mistake - light headedness, tinnitus,
visual disturbances, muscle twitching, numbness of mouth

PRACTICAL POINTS

- If suturing extensive areas, be aware of maximum dose of lignocaine.
- Do not use in infected or inflamed tissue.
- **Do not give IV. (causes heart block)**

MAGNESIUM SULPHATE

Formulations	**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection	B/100	25/5604	V

Indications Treatment of imminent eclampsia to prevent eclampsia (life threatening convulsions) and eclampsia to stop the convulsions of eclampsia.

Contra-indications

Special care Hepatic and renal impairment ,in severe hypomagnesaemia, monitor blood pressure, respiratory rate and urinary output
Parkinsonism (may be made worse).

Interactions Profound hypotension with calcium channel blocker, Enhances effects of non-depolarising muscle relaxants and suxamethonium.

Dose

Imminent eclampsia	Eclampsia
4g IV in 200mls of normal saline over 20 minutes plus 5g in each buttock as the loading dose followed by 5g in alternate buttocks every four hours until 24 hours after delivery	4g IV in 200mls of normal saline over 20 minutes plus 5g in each buttock as the loading dose followed by 5g in alternate buttocks every four hrs until 24 hours after the last fit whichever is the later

Side effects Generally associated with hypermagnesium nausea, vomiting, thirst, flushing of skin, hypotension, arrhythmias, coma, respiratory depression, drowsiness, confusion, muscle weakness

☞	*Signs of complications (usually associated with magnesium overdose) are :**cardiac arrest, pulmonary oedema, chest pain, cardiac conduction defects, low blood pressure, low calcium, increased urinary calcium, visual disturbances, respiratory depression, muscular hyper excitability***

OXYTOCIN INJECTION

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection	10 units/ml	1ml Amp	25/6900	V

Indications

Prevention and treatment of post-partum haemorrhage (see O*bstetrics and Gynaecological conditions* in EDLIZ).

First line in active management of third stage of labour. More stable than ergometrine and works faster but the effect is shorter. Can also be given by infusion for persistent haemorrhage in prolonged rupture of membranes (PROM).

Induction and augmentation of labour (at hospital only)

Contra-indications

Induction if grand multiparity, disproportion, malpresentation, obvious foetal distress, antepartum haemorrhage, obstructed labour.

Special care

Pregnancy-induced hypertension, cardio-vascular disorders,
women over 35 years, uterine scar, foetal death

Interactions

Anaesthetics may reduce oxytocic effect

Dose

Management of third stage	5 units IM after delivery of the anterior Shoulder (alternative to ergometrine).
Management of PPH and incomplete abortion.	10 units IV.
	If uterus remains atonic, give IV infusion - 20 units in 1 litre normal saline at 10- 60 drops/minute.

Induction of labour should only take place at hospital - see EDLIZ for dose.

PRACTICAL POINTS

- Protect from light and keep in the refrigerator (may be kept in the vaccine refrigerator).
- If giving oxytocin IV, give slowly.
- If giving infusion, ensure oxytocin is well mixed.
- Closely monitor maternal and foetal condition during induction.

Side Effects	Nausea; vomiting. Rarely - arrhythmias, rashes and anaphylaxis, Excessive doses during induction may hyper stimulate the uterus and cause foetal distress and asphyxia, or uterine rupture.

PENICILLIN BENZYL INJECTION

Formulations			**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Powder	3g (5 Mega Units =1 in 1,000		25/7297	V

Indications	Bactericidal antibiotic for meningitis**, severe pneumonia**, empyema septicaemia, **infected burns**, **tetanus**, anthrax, endocarditis. Obstetric & gynaecological conditions: severe post-abortal or puerperal sepsis, severe pelvic inflammatory disease (PID), prolonged rupture of membranes (see relevant chapters in EDLIZ).
Contra-indications	Penicillin hypersensitivity
Special care	History of allergy - use erythromycin or an antibiotic from another class. Commonly cross hypersensitivity to cephalosporins and other types of penicillins. Elderly, very young, renal impairment - reduce dose
Interactions	Solutions of benzyl penicillin in dextrose 5% lose potency after 6 to 8 hours Probenicid given at the same time as benzyl penicillin delays its _excretion and gives prolonged blood levels. May interfere with urine glucose and protein tests.
Dose	1 mega unit (MU) = 1,000,000units = 600mg. See manufacturer's instructions for reconstitution volumes. Can be given IV or IM.

	Child		**Adult**
	< 1 month	> 1 month	
Severe pneumonia or sepsis	100,000 units/kg/ dose given 2 - 4 times a day	see below for weight chart	1 to 3MU every 6 hrs.
Tetanus, Severe PID meningitis			5MU every 6 hrs

	Child		Adult
Anthrax			1- 2MU every 6 hrs
Severe infection in children			
3 - 5 kg		¼ mega unit (250,000 units)	
6 – 14 kg		½ mega unit (500,000 units)	
> 15 kg:		1 mega unit (1,000,000 units)	
Duration of treatment *(see* EDLIZ)			
Severe pneumonia		5 - 7 days	
Septicaemia		10+ days	
Meningitis		10 – 14 days	
When patient has improved, treatment can often be completed with another form of penicillin (except for meningitis), i.e. procaine or phenoxymethyl penicillin, or amoxycillin.			

Side Effects

Hypersensitivity reactions occur in 5 to 10% of patients - skin rashes, urticaria, fever, joint pains, and anaphylaxis.

A **skin test** can be done to test for serious allergy in patients at high risk (asthmatics, patients with allergy to other medicines, suspected allergy to penicillin).
Make some small scratches on the skin on the back of the hand and apply one drop of reconstituted benzyl penicillin. If an allergy is present, there will be a wheal and flare response that is several millimetres in diameter within 30 minutes.

PRACTICAL POINTS

- If the entire contents are not going to be used in one dose write date and time of reconstitution on the vial '
- Discard reconstituted solution after 2 days if kept at room temperature, and after 4 days if kept in a refrigerator.
- Keep emergency tray with adrenaline nearby when you are injecting benzyl penicillin.
- Record details of any kind of hypersensitivity reaction at front of patient's notes. "Allergy to penicillin" is not detailed enough.
- Encourage patients to obtain a Medi-alert disc if an allergic reaction occurs.
- Avoid skin contact because of skin sensitisation.

PENICILLIN PROCAINE INJECTION

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Suspension	300 mg/ml	20ml vial	25/7298	V

Indications

Moderate ARI in children, otitis media, congenital and late syphilis, diphtheria. Also often used to complete course of Benzyl penicillin (except for meningitis).
Intramuscular depot preparation - provides therapeutic tissue concentrations for up to 24 hours.

☞	** Do not use for serious illness as it does not give high enough blood levels, or work fast enough- use benzyl penicillin instead*

Contra-indications

Penicillin hypersensitivity

Special care

History of allergy - use erythromycin or an antibiotic from another class. Commonly cross hypersensitivity to cephalosporins and other types of penicillins.
Elderly, very young, renal impairment - reduce dose

Interactions

As for benzyl penicillin
300mg = 300,000units = 1 ml

Dose

Congenital syphilis - give for 10 days (early) or 21 days (late).
See *Management of STI* module.

Neonate	Child	Adult
50,000units /kg daily IM	250,000units/kg daily IM	600,OOOunits daily IM (2ml)
Usually give course of 5 days.		

☞	**** Do not give IV:*** *If depot penicillin is accidentally injected into a blood vessel, a panic reaction can occur. Patients may experience fear of death, confusion, hearing and visual hallucinations, and possibly palpitations and cyanosis (Hoigne's syndrome). These symptoms disappear within several minutes to an hour. They should not be confused with anaphylaxis - they often do not occur if penicillin is given again*

Side Effects

Hypersensitivity reactions occur in 5 to 10% of patients - skin rashes, urticaria, fever, joint pains, and anaphylaxis.

PRACTICAL POINTS

- Keep cool, preferably between 8° and 15°C.
- Do not use if the clear liquid on the top of the vial has turned yellow.
- **Do not give IV** - withdraw a little after insertion of needle, to ensure it is not in a blood vessel.
- Record doses on the patient's card.
- Keep a register to follow up patients who do not come back to the clinic to complete a course.

PENICILLIN BENZATHINE INJECTION

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection #		1.44g	25/7295	V

Indications

Syndromic treatment for genital ulcer (plus cotrimoxazole) - specifically for syphilis.
Streptococcal tonsillitis and pharyngitis.
Treatment of, and prophylaxis after rheumatic fever.
Pneumococcal prophylaxis for sickle cell anaemia.
Benzathine penicillin is a slow release, once-only, depot form of benzyl penicillin. Therapeutic blood levels reached after about 24 hours, lower than with benzyl penicillin but last for 3 to 4 weeks

Contra-indications

Penicillin sensitivities

Special care

As for benzyl penicillin.

Interactions

As for benzyl penicillin.

Dose

2.4 mega units (MU) = 2,400,000units = 1440mg = 1.44g
900mg benzathine penicillin is approx. = 720mg benzyl penicillin.
Give 2.4 MU dose in two doses, half in each buttock

	Child		Adult
	< 5yrs	6-12yrs	
Treatment	0.6MU IM one dose	1.2MU IM one dose	2.4MU (1.2MU for tonsillitis)
Prophylaxis (monthly)	1.2 MU.		2.4MU
Syphilis in pregnancy			2.4MU weekly for 3 weeks

Side Effects Hypersensitivity reactions occur in 5 to 10% of patients - skin rashes, urticaria, fever, joint pains, and anaphylaxis.
Occasionally patients with syphilis who are treated with penicillin develop a **Jarisch-Herxheimer reaction** - chills fever, headache, aches and pains, nausea and tachycardia.
More common in early syphilis but more serious in late syphilis.
Develops soon after injection, may last several hours.
Do not confuse with penicillin allergy -does not occur with second or subsequent injections.
Treat with aspirin and rest.

PRACTICAL POINTS

- Do not shake the vial vigorously to reconstitute - roll gently to prevent foaming.
- Write the date of reconstitution on the vial, if the entire contents are not going to be injected straight away.
- Reconstituted vial may be kept in the refrigerator for up to 20 days - mix well prior to use.
- **Do not give IV**

SODIUM CHLORIDE INJECTION

(Also called physiocological saline solution)

Formulations		**Unit**	**NatPharm Code**	**VEN**
at NatPharm		1000ml bags	25/8540	V
	Composition	0.9 % sodium chloride w/v Theoretical Osmolarity:308 mOsm/l Electrolytes: Sodium 154.0 mmol/l and Chloride 154.0 mmol/l Water for injection to volume		
Indications	Fluid and electrolyte replacement in severe dehydration in adults where there has been electrolyte loss or shock from blood loss. Other medicines which are given by injection s are diluted with sodium chloride Used also as sterile irrigation solution			
Special Care	Hypokalaemia, hypernatraemia, hyperchloraemia Generalised oedema, pulmonary oedema, hypertension, eclampsia , severe renal insufficiency			
Contraindications	Congestive heart failure, Severe renal impairment, conditions of sodium retention and oedema Liver cirrhosis			

Interactions Additives in some medicines may be incompatible with sodium chloride

Side Effects Thrombophlebitis on the injection site, nausea, vomiting and diarrhoea

Reduced saliva or dry eyes, headache, tiredness, confusion, increased sweating, increased thirst

•Most of the side effects may be as a result of hypernatraemia

PRACTICAL POINTS

- Single dose container ,discard any unused solution
- Solution should be used immediately after opening the container
- Before use, check the fluid is clear , colourless and the seal is not broken.
- When mixing with other medicaments, possible incompatibilities should be considered

PHYTOMENADIONE NEONATAL (VITAMIN K) INJECTION

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection	2 mg/ml	0.5ml Amp	25/7504	V

Indications Routine use for **prophylaxis of vitamin K deficiency** in new born babies.

Vitamin K is necessary for the production of blood clotting factors, and for bone calcification.

Dose

	Preterm	Full Term
Prophylaxis (single dose)	0.5mg (0.25ml) IM	1 mg (O.5ml) IM

Side Effects Rare

RINGER LACTATE SOLUTION

(Also called Hartmann's solution)

Formulations		**Unit**	**NatPharm Code**	**VEN**
at NatPharm		1000ml bags	25/8300	V
	Composition	0.24% lactic acid v/v 0.32% sodium lactate *w/v* 0.6% sodium chloride w/v 0.04% potassium chloride *w/v* 0.027% calcium dihydrate w/v		

Indications	Fluid and electrolyte replacement in severe dehydration in adults where there has been electrolyte loss or shock from blood loss. Lactate ions provide bicarbonate which are used to correct metabolic acidosis induced by diabetes mellitus, violent exercise, convulsions, or severe diarrhoea and vomiting
Interactions	May cause precipitation of alkaline medicines
Side Effects	Overuse may result in alkalosis

PRACTICAL POINTS

- Before use, check the fluid is clear and the seal is not broken.
- Record fluid balance

EMERGENCY TROLLEY CONTENTS

Adrenaline injection
Atropine injection
Calcium gluconate
Chlorpromazine injection
Dextrose 50%
Diazepam Injection
Haloperidol injection
Hydrocortisone injection
Lignocaine injection
Lorazepam injection
Magnesium sulphate injection
Medroxyprogesterone injection
Promethazine injection
Sodium Chloride 0.9%
Vitamin B Co injection
Water for Injection

WATER FOR INJECTION (WFI)

Formulations		**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Injection	50ml vial	25/9915	V

Indications	Reconstitution of injectable medicines. 50ml glass bottle designed for repeated withdrawals - contains bacteriostatic agent to minimise contamination.
Contra-indications	

Special care

Write the date of opening on the bottle.
Discard 7 days after opening.
Swab the rubber capped vial with alcohol, when opening and before re-using.

PRACTICAL POINTS

- If WFI is out of stock, dextrose 5% can be used for reconstituting benzathine penicillin and kanamycin.
- Reconstitute the number of vials which are likely to be used in a week,
- Write the date of reconstitution on the vial and store in the refrigerator.
- Discard unused dextrose 5%.
- Discard unused, reconstituted vials at the end of the week.

Chapter 3: Other Syrups and Suspensions

External products

PRACTICAL POINTS

- If patient supplies the container, re-wash at the clinic to make sure it is clean.
- Apply a secure label with medicine name, patient name and instructions.

BENZOIC ACID COMPOUND OINTMENT

(Also known as Whitfield's Ointment)

Formulations		**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Ointment	1 kg tins	27/1060	E

Ingredients	Benzoic acid 6%, salicylic acid 6%, mixed in white soft paraffin.
Indications	Anti-fungal ointment for treating ringworm and other mild to moderate fungal skin infections (as effective as miconazole but slower to work). Less useful for serious fungal infections of the scalp, toe-nails or finger-nails. NOT effective against candida (thrush).
Contra-indications	
Special care	Avoid using on large areas as absorption of salicylic acid may occur.
Application	Apply twice a day for at least 10 days, usually longer
Side Effects	Burning sensation - avoid in babies and use very sparingly on sensitive skin such as genital areas, armpits and breasts.
Patient Information	•• Rub in well to the affected areas twice a day. ••This ointment works slowly; it will take time to clear the infection. ••Continue for at least one week after the infection seems to have disappeared. •• It may need to be used for several weeks

CALAMINE LOTION AQUEOUS 5%

Formulations			Unit	NatPharm Code	VEN
at NatPharm	Cream	5%			N
Ingredients	Calamine powder		astringent		
	Zinc oxide		astringent		
	Bentonite		thickening agent		
	Trisodium citrate		stabiliser		
	Glycerine		for easier mixing with the powders		
	Liquefied phenol		preservative, anti-pruritic, antiseptic		

Indications Relief of skin irritation in shingles, after scabies treatment, chicken pox, measles and itching allergies

Special care Zinc can promote healing but can also be toxic in large doses.
Do not apply to large wounds, as the zinc and phenol may be absorbed systemically and cause toxicity

Application Apply liberally when required, up to ten times a day.

Patient Information
- ••Shake the bottle well before use as the powder sinks to the information bottom.
- •• Avoid contact with the eyes

CRYSTAL VIOLET PAINT AQUEOUS 0.5%

(Also called gentian violet)

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Powder	0.5%	25g for mixing to 5 litres	27/2448	V

Indications Oral thrush (candida).
Otitis externa.

Contra-indications

Special care Do not apply to ulcerative lesions on the face as permanent pigmentation may occur.
Avoid applying to herpes zoster (shingles) lesions as it may cause keloids.

Application

Oral thrush, athletes foot	Apply twice a day for 7 days

Side Effects Stains both skin and clothing (remove stains on hands by dilute hydrochloric acid or alcohol. Rinse immediately under running water.)
May cause irritation or ulceration to mucous membranes.

PRACTICAL POINTS

- To make 1% Crystal Violet solution:
- Empty the 25g sachet of powder into a clean 5 litre container.
  Fill container with clean water and mix very thoroughly.
- Never use directly from stock bottle - pour into a small receiver and apply from that.
- Pour from the stock bottle with the label facing upward to avoid staining the label.
- Give the patient a supply to take home in a container with a lid.

Patient Information

•• This paint will stain your clothes and hands.
•• Do not swallow the paint.
•• (Vaginal thrush) Take the swab out tomorrow morning. For the next 4 evenings, soak a cotton wool swab (or tampon) in the paint and push it high up into your vagina. Remove it each morning.
•• Wear a sanitary pad to stop staining of underwear

EMULSIFYING OINTMENT BP

Formulations at NatPharm		Unit	NatPharm Code	VEN
	Ointment	1 kg	27/3278	N

Indications
Moisturises dry skin; soap substitute in the treatment of eczema;
Promotes healing in dry skin conditions like dermatitis, pellagra, leprosy and eczema

Ingredients

Emulsifying wax	30g (makes it easy to wash off with water)
White soft paraffin	50g
Liquid paraffin	20g

GAMMA BENZENE HEXACHLORIDE LOTION BASE

(Also called Lindane)

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Lotion	1%	200 ml	27/4010	V

Ingredients

Indications
Chlorinated pesticide used for treating pubic and head lice, and scabies.
Prepared in a lotion with liquid paraffin

Contra-indications

Special care

☞ *Gamma benzene hexachloride is toxic to humans and the environment - use an alternative if possible, such as benzyl benzoate*

Potentially toxic if abused. Keep out of reach of children.
Avoid in pregnancy and lactation - use benzyl benzoate instead.
Avoid shaving hair, hot water and scrubbing - increases systemic absorption
Do not apply to open sores - treat sores and apply lotion when sores are dry.

Application

Avoid repeated applications - do not repeat within 8 days

Pubic and head lice	**Scabies**
Apply to the hairy areas (do not shave) and wash after 24 hours. Repeat after 7 - 10 days.	Apply to the whole body except the head, paying special attention to web spaces between the fingers, toes and groin (no need to wash first). Allow application to dry and wash off after 6 hours.

CAUTIONS: *In prepubertal children the gamma benzene hexachloride is washed off after 12 hours. Hot baths and scrubbing should be avoided to prevent systemic absorption.

Side Effects

Treat all contacts and wash all bedding and clothing at the same time.
Repeat treatment should not be necessary
Irritant to eyes, mucosa and skin.
Can cause adverse effects if absorbed through the skin (CNS stimulation - nervousness, irritability. insomnia, nausea, vomiting, numbness, giddiness, and tremor.)

PRACTICAL POINTS

- Apply the lotion within the clinic if possible to ensure correct application.
- Give lotion for contacts (10-20mls for adults and 5-10ml for children).
- Write full name on container label, not 'GBHL' as patients may not know what this means.
- Give counselling on good hygiene.

Patient Information	••Itching may take several days or weeks to disappear (moisturising lotions or antihistamines may relieve it). •• Apply the lotion to everyone in the family (except pregnant and breast-feeding women). At the same time, wash all clothes, bedding and sleeping mats - put mattresses in the sun. ••It is poisonous - keep well out of reach of children.

GLYCERIN SUPPOSITORIES

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Suppository				N
Indications	Laxative for treating constipation. Stimulates the large bowel to move faster. Use only if dietary measures have failed on their own (see Constipation in EDLIZ).				
Contra-indications					
Special care	Use with caution throughout pregnancy. Avoid in children and in patients with history of inflammatory bowel disease.				
Dose	Insert one suppository as required				
Side Effects	Abdominal cramping, loss of normal bowel response when used for a long time, rectal irritation				
Labelling	Insert per rectum				
Patient Information	•• Drink more water, eat roller meal instead of pearlenta, brown bread instead of white, more fruit & vegetables, take more exercise (if appropriate).				

MICONAZOLE

This medicine presents as a topical cream or Vaginal cream or pessaries or oral gel and each formulation is used for different purpose (Refer to latest EDLIZ)

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Cream	2%	T/15g		V
	Oral gel		T/40g	27/5934	V
	Pessary	100ml			V
Indications	Oral and vaginal discharge during pregnancy (candida), Tinea pedis (athletes foot),Tinea Corporis, Tinea Versicolor, acute paronychia				
Contra-indications	Hepatic impairment				

Special care Contact with eyes and mucous membranes should be avoided

Application

Oral thrush,	Apply twice a day for 7 days, the oral gel should stay in the mouth for sometime
Vaginal Discharge	Insert one pessary once daily for 3 days or insert one applicatorful into the vagina
Body ringworm/ Athlete`s foot	2-3 times a day for 7 more days after resolved
Pityriasis Vesicolor (Tenea Versicolor)	2 times a day for two weeks.

Apply the topical cream sparingly on the lesion and do not swallow the topical cream

Practical Points

Stains both skin and clothing (remove stains on hands by dilute hydrochloric acid or alcohol. Rinse immediately under running water.)

Side Effects

Occasional local irritation and hypersensitivity reactions including mild burning sensation, erythema and itching

For oral route :Nausea and vomiting, diarrhoea with long term treatment.

Labelling Complete prescribed course even if you get better before finishing

Patient Information

•• **Miconazole Cream**: Use this medication on the skin only.

••Clean and thoroughly dry the area to be treated.

••Apply this medication to the affected skin

••Do not share this medication with others.

••If prescribed by your doctor or nurse or Pharmacist, this medication should be used for your current condition only.

••Do not use it later for another infection unless told to do so by your doctor or nurse or pharmacist.

••Use this medication for the full amount of time prescribed by your doctor or as recommended in the package even if you begin to feel better.

••Your symptoms may improve before the infection is completely healed.

POVIDONE-IODINE ANTISEPTIC SOLUTION 10%

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	solution	10%	5 litre	27/7709	V

Indications Disinfectant for small wounds. Skin preparation before surgery.
Bactericidal, virucidal and mycobacteriocidal, but requires prolonged exposure against most fungi and spores

Special care Large wounds or burns - can be absorbed systemically.
Pregnancy - second and third trimester (if sufficient iodine is absorbed it may affect the foetal thyroid). Do not use with hydrogen peroxide - may be explosive.
Activity reduced by alkaline solutions and protein (e.g. blood)

Application Once to twice a day, directly to the wound on a dressing soaked in the solution.

Side Effects **Hypersensitivity reactions have been recorded, but are rare**
Adverse effects related to systemic absorption - metabolic acidosis, hypernatraemia, renal function impairment, hypo or hyperthyroidism

PRACTICAL POINTS
- only pour amount required into the gallipot.
- Never return unused solution to the stock container

TETRACYCLINE EYE OINTMENT

Formulations		Unit	NatPharm Code	VEN
at NatPharm	Sterile ointment	3.5g tube	27/9029	V

Indications Bacterial eye infections, especially effective against chlamydia (trachoma); prevention of ophthalmia neenatorum and in traumatic eye conditions such as corneal abrasion and chemical burns.

Special care Bacterial contamination of tube possible -discard unused ointment 30 days after opening.
Eye ointment should not be used for skin sores as this will encourage formation of resistance.

Application **How to apply to eye:**
⇒ Clean exudate or crusting from the lids and corners of the eye.

⇒ Gently hold out the lower lid and ask the patient to look up.

⇒ Starting from the inside, squeeze approx. one centimetre of ointment along the lower lid without touching the eye with the tube (discard the first 1 centimetre of ointment).

⇒ Pull out the top lid and place it well over the bottom lid.

⇒ If the eye has been very red and irritated, the ointment will sting initially.

⇒ Do not allow patient to rub the eye (vision will be blurred for some minutes after application).

⇒ Small child - lay him down and hold their head steady in your lap between your knees.

Dose

Prevention of ophthalmia neonatorum	Apply to both eyes immediately after birth
Treatment of bacterial conjunctivitis	Apply three times a day for 7
Trachoma	Apply four times a day for 6 weeks. ***Provide education in personal and environmental hygiene for prevention of this condition with emphasis on face washing***

PRACTICAL POINTS

- Mark the tube with date of opening and discard after 30 days.
- Ensure that a full label is on the tube when dispensing.

Do not label "TEO" as the patient may not know what this means

Chapter 4: Disinfectants

CHLORHEXIDINE CONCENTRATED SOLUTION 5%

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Solution	5%	5 litre	28/1182	V

Indications

Antiseptic and disinfectant used to clean skin, wounds, and burns.
Mouthwash for gingivitis, oral thrush, and aptnous ulcers.
Bactericidal against most gram positive bacteria and fungi, but less effective against viruses and gram negative bacteria.

☞	** NOT effective against mycobacterium tuberculosis (TB)*

Special care

Inactivated by cork - use metal or plastic lids.
Activity is reduced in the presence of serum, blood, pus and other
organic matter, soaps and anionic detergents.
Starch will inactivate chlorhexidine in solution

Dilutions

Pre-operative skin disinfection; handwashing before aseptic procedures	0.5% solution in 70% alcohol (900ml of methylated spirits + 100ml of chlorhexidine concentrate 5%, add water up to one litre).
Wound disinfection	0.5% solution in water. (100ml chlorhexidine concentrate 5%, add water up to one litre)
Mouthwash	0.1 to 0.2% solution, used 3 times a day. 0.1 % solution - 4ml of chlorhexidine concentrate 5%, add water up to 200ml. 0.2% solution - 8ml concentrate. Dilute further if necessary.)
Emergency disinfection of clean instruments	Immerse for 2 minutes in 0.5% chlorhexidine in 70% alcohol. Called *tincture* of *chlorhexidine.*

** measure with syringe*

The 5% concentrate contains a red colouring to indicate dilution.

Once diluted, solutions should preferably be used within 24 hours.
Discard solutions after 48 hours - chance of microbial contamination.

Side Effects May be irritant to the skin, so avoid on sensitive tissue.
Burning sensation (mouthwash) - dilute 1 in 2 with water.
May cause reversible discoloration of the teeth and tongue.
Fabrics which have been soaked in chlorhexidine solution first may
turn brown if then soaked in hypochlorite solution.

PRACTICAL POINTS

- Check manufacturer's instructions for dilution.
- Do not use hot water.
- Mix equal parts of concentrate with water until mixed and then dilute further, to produce a milky solution.
- Always add water into concentrate.
- **Do not add to soap or detergents**.
-

SODIUM HYPOCHLORITE 5% CONCENTRATE

Formulations		**Unit**	**NatPharm Code**	**VEN**
at NatPharm	5% (50 000 ppm)	5 litre	28/1850	V

Indications Fast-acting, broad spectrum, inexpensive disinfectant.
Most suitable for **low and high level disinfection of surfaces only,** in concentrations between 1,000 - 10,000ppm (0.01 - 0.1%) - *see Dilution below.*
Can be used for **soaking contaminated linen**
May be used for **disinfecting body fluid spills,** but a stronger solution is preferred. Irritant to skin so not often used on wounds.
Can be useful for **desloughing of necrotic tissue** in burns and ulcers.
Bactericidal, fungicidal, also active against viruses (including HIV and hepatitis B), yeasts, protozoa and algae. Less active against *Mycobacterium Tuberculosis* (TB) and spores.

Special care **Inactivated by organic matte**r like blood, dirt and tissue - first clean items with soap and water, and rinse.
Do not mix with **strong acids or ammonia,** or use to decontaminate urine spills as poisonous chlorine (or chloramine) gas will be released.
Powerful bleaching agent - will bleach most fabrics.

Dilution

Potency is measured by 'available' chlorine, expressed as 'ppm' (parts per million).

Surfaces contaminated with blood or body fluids	10,000ppm (1%) (200mls of 5% solution made up to 1 litre with clean water)
Minor surface disinfection (damp dusting) and soaking	1000ppm (0.1%) (20mls of 5% solution made up to 1 litre with clean water)
contaminated linen	Linen - soak for 30 minutes, then rinse. Prolonged soaking damages the cloth.
Decontaminating fluid spills (not urine):	Place absorbent paper over the spill, then pour 0.1 % sodium hypochlorite over the paper. Leave for 10 minutes before scraping up and removing
Disinfecting baby bottles	200ppm (0.02%) (4mls of 5% solution made up to 1 litre with clean water).

Diluted sodium hypochlorite is unstable and its action is brief even at room temperature.
Corrodes metal - make solutions in glass or plastic containers

PRACTICAL POINTS

- Make fresh solutions each morning - sodium hypochlorite loses its strength quickly and must be discarded at the end of each day.
- Do not use to soak dressing towels or coloured linen.
- If not available, brand preparations containing sodium hypochlorite can be used (check concentration).

METHYLATED SPIRITS

Formulations			**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Spirits	70% 95% (industrial)	5 litre	47/5918	E

Ingredients

Ethanol 95% and additives (butyl alcohol, paraffin, petrol, crystal violet) as an identification, and to prevent abuse by drinking.
70% ethanol solution is a more potent disinfectant than more concentrated or more dilute forms

Indications

Disinfecting skin prior to injection, venepuncture or surgical procedures.
Swabbing rubber capped vials and IV fluid packs before piercing.
Disinfecting hands and physically clean surfaces (alone or in combination with chlorhexidine) - useful if no running water.
Bactericidal and fungicidal activity, active against *Mycobacterium Tuberculosis* (TB) but not against spores.
Active against many viruses, but low activity against hepatitis B and HIV.

☞	** Methylated spirit works quickly, evaporates quickly and has no lasting effect.* ** Allow to dry on skin for 30 seconds before insertion of needle.*

Special care

Store 70% methylated spirit in glass or plastic containers as it will rust tin.
Flammable - do not use close to an open flame.

Dilutions

1 litre of 70% methylated Spirit	737ml of 95% ethanol, plus 263ml clean water
5 litres of 70% methylated Spirit	3,684ml of 95% ethanol, plus 1,316ml clean water.

PRACTICAL POINTS

- Label diluted methylated spirit with the new strength and date of dilution.
- Use diluted methylated spirit within 3 months.
- Methylated spirit dries skin, a moisturising hand lotion may be needed.

MEDICAL OXYGEN

99% oxygen supplied in white metal cylinders with black bottoms, rented from BOCGAS.
Cylinder sizes: 6,800 litre, 3,400 litre, 1,360 litre, 680 litre, 68 litre and 34 litre.

Indications

Given by inhalation to raise oxygen levels in the blood. Used in pneumonia, chronic bronchitis, asthma, general anaesthesia and in treating carbon monoxide poisoning.

Caution

Oxygen is flammable - do not smoke or have a naked flame close by. Do not use grease or oil on regulators - risk of explosion

Flow rates

High flow treatment:
Pneumonia, asthma, carbon monoxide poisoning, pulmonary oedema
- up to 6 litres/minute.
Low flow treatment:

Chronic bronchitis, emphysema - 2 litres/minute of 28% oxygen (if higher percentages are used, the urge to breathe is reduced)
Severe ARI in children - 1 to 2 litres/minute intra-nasally.
Neonates - if not breathing well, and airway is clear - 0.5 litres/minute intra-nasally.

☞	* *Rate of oxygen flow should be reduced* as *soon* as *possible to avoid toxicity*

PRACTICAL POINTS

- Oxygen is usually inhaled through a mask, or nasal catheter (a naso-gastric tube can be used as a substitute) - insert to a depth equal to distance from the side of the nose to the front of the ear. Tape to the skin.
- Oxygen regulators are screwed onto the cylinder and regulate oxygen flow. Oxygen flow is measured in litres per minute.
- The correct flow will depend on the condition being treated (see above).
- Oxygen concentration is controlled by a disc on the ventimask which mixes oxygen with air to give a 28% mixture.
- Clean and disinfect all tubing and masks after each use.
- Keep a full cylinder on stand-by - check the content regularly, as sometimes they leak.

Chapter 5: Anti-Tuberculosis Medicines

Tuberculosis treatment schedules and doses change periodically -
refer to latest Zimbabwe Tuberculosis Control Programme guidelines
and EDLIZ.

☞	*Patients with tuberculosis must never be treated with one medicine alone .Fixed dose combinations are now the mainstay of treatment at all levels of health care. NB: Isoniazid and/or Ethambutol may be added as single dose formulations.*
	Desensitisation in the event of adverse medicine reaction is done at secondary and tertiary levels only.

For all antituberculous medicines:

Patient Information

- TB Fixed Dose Combinations (FDCs) are now being used
- You must take the tablets everyday until the doctor tells you to stop for the period you have been prescribed
- Do not stop taking the medicine unless you are told to, even if you feel better.
- Come back to the hospital or health centre for more tablets a few days before your supply runs out (give date to return).
- If you have any side effects, come back straight away - do not wait for next appointment.

Key to Medicines Abbreviations

H=Isoniazid **Z=Pyrazinamide.**

R=Rifampicin

E=Ethambutol **S=Streptomycin**

ETHAMBUTOL

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	400 mg	B/1000T	24/3491	V
	Tablets	100mg	B/500T		
FDC	Tablets RHZE	275mg	B/500T	24/8309	V
Formulations	Tablets RHE	275mg	B/672T	24/8311	V

Indications Treatment of tuberculosis cases in both adults and children, in combination with other medicines. Used for new, relapses and treatment failure cases
Acts against Mycobacterium Tuberculosis, but not against other bacteria.

Contra-indications Poor vision or optic neuritis.
Renal impairment. Known hypersensitivity

Special care Elderly are more prone to side effects.
Gout, diabetes, especially with any visual impairment.
Young children (may not be able to report visual problems).

Interactions Nil

Dose *Adults and children.* See *latest* EDLIZ *or National TB Guidelines for up-to -date treatment schedule*

Weight Band (Kg)	Intensive Phase Category 1 (Number of tablets) 2 RHZE New cases	Intensive Phase Category 11 RHZE retreatment	Continuation Phase 5RHE retreatment	E 100mg
3-5.9	1.5	1.5		1
6-10.9	2			
11-15.9	1	1	1	
16-20.9	2	2	2	
21-30.9	2	2	2	
30-39	2	2	2	
40-54	3	3	3	
55-70	4	4	4	
>70 Kg	5	5	5	

☞	* *Stop ethambutol if any signs* of *visual disturbance*

Labelling Finish the course

Patient Information (in addition to general information above)
If you notice any changes with your vision, stop taking these tablets and go straight back to the hospital.

ISONIAZID

(USED AS FDC)(ADDITIONAL INH IN CHILDREN)

(Sometimes called INH-isonicotinylhydrazide and abbreviated H in National TB guidelines and EDLIZ)

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablet	100mg	B/1000	24/5030	V
FDC	Tablet RH	150mg		24/8305	V
Formulations	Tablet RHZE	75mg	B/672	24/8300	
	Tablet RHE	75mg	B/672	24/8311	
	Tablet RH	30mg	B/90	24/8313	
	Tablet RHZ	30mg	B/90	24/8314	

Indications Treatment of tuberculosis in adults & children, in combination with other medicines.
Prophylaxis in some high risk cases (e.g. non-symptomatic children under 5 years in close contact with sputum positive case).

Contra-indications Active liver disease, including medicine-induced liver disease

Special care Malnourished, very young, elderly, hepatic impairment, diabetes, alcoholism - more prone to side effects.
Renal impairment - maximum daily dose 200mg.
History of psychosis or convulsions.
Breast-feeding - monitor possible toxicity in infant.

Interactions Antacids reduce absorption
Effect of phenytoin and Carbamazepine. increased - may need dose adjustments.
Effect of diazepam increased
May increase theophylline blood levels

Dose

Child	**3-5.9kg**	**6-10.9kg**	**11-15.9 kg**	**16-20.9kg**	**21-30.9 kg**
Treatment	70mg (1.5 FDC plus 1/4 tab additional H	110mg (2 tabs FDC plus ½ tab additional H	125 mg (1 tab FDC plus 1 tab additional H	250mg (1 tab FDC plus 1 tab additional H	350m g (2 tabs FDC plus 2 tab additio nal H

Child	**3-5.9kg**	**6-10.9kg**	**11-15.9 kg**	**16-20.9kg**	**21-30.9 kg**
		daily for 6 months or daily for 8 months(8months schedule			
Prophyl axis		5mg/kg/day			
Adult	30-39 Kg	40-54 kg	55-70 kg	>70kg	
Intensive Phase	150mg (2 tablets)	225mg (3tablets)	300mg (4tablets)	375mg (5tablets)	
Continuation Phase	225mg (1.5 tablets)	300mg (2tablets)	450mg (3tablets)	450mg (3tablets)	
		daily for 6 months (6 month schedule), or daily for 8 months (8 month schedule)			

Nausea and vomiting.

Side Effects

Peripheral neuropathy (due to vitamin B6-deficiency) - about 2% of patients, usually malnourished, diabetic or alcohol-dependent patients. Presents as numbness or tingling in the fingers and toes, rarely convulsions and psychotic reactions. Prevent with pyridoxine Prophylaxis 25mg tablet daily, treat with pyridoxine 100-150 mg daily for 10 days.

Rare - hepatitis, blood disorders, pellagra (treat with nicotinamide), hyperglycaemia, urinary retention, gynaecomastia, visual disturbances, skin rash.

Labelling

- Finish the course

Patient Information

In addition to general information above:

- If these tablets upset your stomach, take them with or after food.
- If you constantly feel like vomiting, or feel weak, or if your eyes turn yellow, it may be a problem with your liver - come straight back to the hospital.
- If you notice tingling or numbness in your feet and fingers, tell the nurse or doctor at your next review.

PYRAZINAMIDE

(Also abbreviated Z)

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablets	500mg	B/1000	24/8020	V
FDC	Tablets RHZE	400mg	B/672	24/8300	V
Formulations	Tablets RHZ	150mg	B/90	24/8314	V

Indications Treatment of tuberculosis in adults and children. Used in the initial intensive phase only.
Used in combination with other medicines in the treatment of medicine resistance TB (MRTB)

Contra-indications Pre-existing liver damage.

Special care Diabetic control is sometimes more difficult.
Gout.
Renal impairment.

Interactions Anti-gout preparations
See latest EDLIZ *and National TB Control Guidelines for most up-to-date treatment schedule*

Dose

Childr en	3-5.9kg	6-10.9kg	11-15.9 kg	16-20.9k g	21-30.9 kg
	225mg (1.5tab)	300mg (2tabs)	400mg (1 tab adult FDC formulati on	800mg(2tablets	800mg(2tablets
	daily for 2 months only				

Adults	30-39 Kg	40-54 kg	55-70 kg	>70kg
	800mg (2 tablets)	1200mg (3Tablets)	1600mg (4 tablets)	2000mg (5 tablets)
	daily for initial 2 months only, (3 months for retreatment)			

Nausea, vomiting, anorexia.

Side Effects Liver damage - approx. 3% of patients on less than 3g daily.
Fever, urticaria, joint pains.

Labelling Finish the course

Patient Information
•• In addition to general information above:
•• If you constantly feel like vomiting, or feel weak, or if your eyes turn yellow, it may be a problem with your liver - come/go straight back to the hospital.

RIFAMPICIN

(Also called rifampin or R)

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Capsules	150mg	B/1000	24/8303	V
FDC	Syrup	100mg/5ml	Bt100 ml	26/8308	V
formulations	Tablets RHZE	75mg		24/8300	V
	Tablets RH	60mg	B/90	24/8313	V
	Tablets RHZ	60mg	B/90	24/8314	

Indications Treatment of tuberculosis, used in both intensive and continuation phases.
Must never be used for treating other conditions

Contra-indications Liver failure, known allergy to rifampicin.

Special care Hepatic impairment or alcoholism - reduce dose
Renal impairment - monitor liver function in elderly.
If treatment interrupted, restart at lower dose and increase gradually.

Interactions Decreases effectiveness of contraceptive pill (see chapter 4) - use alternative or additional barrier method.
Absorption reduced by antacids.
Reduces blood levels of warfarin, phenytoin, diazepam, propranolol, prednisolone, theophylline, cimetidine, nevirapine, protease inhibitors

☞	* *Rifampicin reduces effectiveness* of *oral contraceptives - women should* use *additional barrier method or other method* - see *Chapter on Contraceptives*

Dose *See latest* EDLIZ *and National TB Control guidelines for most up-to-date treatment schedule*

Children	3-5.9kg	6-10.9kg	11-15.9 kg	16-20.9kg	21-30.9 kg
New Cases	90mg (1.5 tablets)	120mg (2tablets)	150mg (1 tab adult FDC formulation)	300mg (2tabs adult FDC formulation	300mg(2tabs adult FDC formulation
	Daily for 6 months				
Retreatment Cases	90mg (1.5 tablets)	120mg (2tablets)	150mg (1 tab adult FDC formulation)	300mg(2tabs adult FDC formulation	300mg(2tabs adult FDC formulation
Daily for 8 months					

Adult	30-39 Kg	40-54 kg	55-70 kg	>70kg
New cases-Intensive Phase	300mg (2tablets)	450mg(3tablets)	600mg(4tablets)	750mg(5tab
Continuation Phase	225mg (1.5tablets)	300mg (2 tablets)	450mg(3tablets)	450mg (3 tablets)
	Daily for 6 months			
Retreatment	300mg(2tablets)	450mg(3tablets)	600mg (4tablets)	750mg (5tablets)
	daily for 8 months			

Side Effects

NOT common.

Colours urine, saliva, sputum and tears orange.

Gastro-intestinal - nausea, vomiting, anorexia, diarrhoea.

Liver damage, especially in the elderly or alcoholics.

Influenza-like symptoms.

Skin rash.

Labelling

- Finish the course

Patient Information

In addition to general information above:

- Your urine, tears, saliva and sputum (and contact lenses) may turn orange - this is normal.
- Take 2 hours after meal or last thing at night to help prevent stomach upsets .
- Do not take these capsules/tablets at the same time as medicine for indigestion (antacids).
- If you constantly feel like vomiting, or feel weak, or if your eyes turn yellow, it may be a problem with your liver – *comelgo* straight back to the hospital.
- (if taking an oral contraceptive pill) These capsules/tablets will stop your pills from working well - change to another method or use an additional method (e.g. condom) (discuss with patient).

STREPTOMYCIN SULPHATE

Formulations	Strength	Unit	NatPharm Code	VEN
at NatPharm	1g	Vial	25/8749	V

Indications

Mixed with 8ml water for injection = 5g/10ml or 500mg/ml

Treatment of tuberculosis in intensive phase (sometimes used instead of ethambutol).

NOT used in children under 12 years.

NOT absorbed by mouth, so given by IM injection (not IV - may be toxic).

Contra-indications

Pregnancy - crosses placenta and can damage 8th cranial nerve causing deafness in baby.

Children under 12 years. Impaired hearing. Hypersensitivity to aminoglycosides.

Special care

Renal impairment, underweight, elderly - reduce dose by 50%.

Interactions

Increased risk of ear-damage with other ototoxic medicines like frusemide and cephalosporins

Dose

Retreatment in previously treated adults	30-39kg	40-54kg	55-70kg	>70
	500mg	750mg	1000mg*	1000mg *
	Daily for 2 months deeply IM in the buttocks: 750mg if 60 years and above			

Side Effects

Mostly caused by too high a dose, especially if elderly, underweight or renal damage .

ototoxicity (damages hearing), dizziness, tinnitus (ringing in the ears), ataxia.

Renal damage.

Hypersensitivity reactions (rashes, fever) -

Numbness in and around the mouth.

Labelling

PRACTICAL POINTS

- Wear gloves when handling Streptomycin - can cause contact dermatitis.
- Reconstitute with Water for Injection *or* 0.9% sodium chloride injection.
- It is difficult to reconstitute so use constant shaking and warmth (keep it in your pocket).
- Write date of reconstitution on the label.
- Use reconstituted injection within 4 weeks if kept in the fridge, or within 1 week if not. Do not use reconstituted injection if it changes colour
- Injection is painful- change injection site each day.

Patient Information	•• You must have these injections every day for the next 2 months. •• If you feel dizzy or your hearing is affected, tell the nurse or doctor.

Chapter 6: Antiretrovirals

General information:

Antiretroviral treatment schedules and doses change periodically - refer to latest Guidelines for Antiretroviral Therapy in Zimbabwe and EDLIZ.

☞	*Patients with HIV must never be treated with one medicine alone .Fixed dose combinations are now the mainstay of treatment at all levels of health care*
	Fixed Dose combinations (FDC) are delivered to an approved Primary health care facility .Facilities need to be approved in order to start managing antiretrovirals

Patient Information

for all antiretroviral medicines:

- ART Fixed Dose Combinations (FDCs) are now being used
- You must take the tablets everyday at regular intervals for life. do not stop taking the medicines
- Come back to the hospital or health centre for more tablets a few days before your supply runs out (give date to return).
- If you have any side effects or any unknown reaction you suspect, come back straight away - do not wait for next appointment.

Do not share your medicines with anyone, every patients should be tested and initiated at a health care facility upon assessment.

Key to medicines abbreviations

3TC=lamivudine	**NVP=nevirapine**
D4T=stavudine	**EFV-efavirenz**
TDF=tenofovir	**AZT=zidovudine**

Benefits of Antiretrovirals

1. Decreasing viral load
2. Increasing CD4 counts
3. Decreasing the incidence of opportunistic infections
4. Preventing disease progression
5. Prolonging survival
6. Enabling the patient to lead a productive life
7. Improving quality of life
8. Reducing the risk of transmission

EFAVIRENZ

Formulations At NatPharm		**Strength**	**Unit**	**NatPharm Code**	**VEN**
	Tablets	600mg	B/60	24/3190	V
	Capsules	200mg	B/60		V
FDC formulations	Capsules	50mg	B/30	24/3187	V

Indications

Treatment of HIV infection in combination with other antiretroviral medicines.

Contra-indications Porphyria, not to be given to children under 10kg or children under 3 years.

Special care Chronic hepatitis B or C, hepatic impairment, history of mental illness, elderly

Interactions May interact with other medicines. Efavirenz reduces the concentration in the blood of the following ARVs: atazanavir, indinavir, amprenavir. it increase the blood concentration of other protease inhibitors –ritonavir and nelfinavir

Paediatric dosing chart

weight	*10-13.9*	*14-19.9*	*20-24.9*	*25-29.9*	*30-34.9*
dose	*200mg (1cap)*	*300mg (1*200 mg+2*50mg)*	*300mg (1*200 mg+2*50mg)*	*400mg (2*200 mg)*	*400mg (2*200 mg)*

Side Effects At the start of treatment: Frequently headache, vertigo, insomnia, problem with concentration, sleepiness, nightmares, rarely hallucinations, risk of allergy, agitation in children

During treatment: Problems such as vertigo, insomnia, nightmares might continue, inflammation of the liver, gynaecomastia

Labelling Take at night

PRACTICAL POINTS

- Avoid very oily or fatty food before taking efavirenz because such food can increase side effects from the medicine

Patient Information

- •• You must take this medicine always at the same time each day. If you forget to take the medicine at the same time, take the medicine as soon as you remember.
- •• You should not stop the medicines unless you are told to do so by your doctor/nurse
- •• Take your medicine preferably in the evening or after meal and before going to bed.

LAMIVUDINE

Formulations At NatPharm		Strength	Unit	NatPharm Code	VEN
	Tablets D4T/3TC	150mg	B/60	24/8740	V
FDC formulations	Tablets D4T/3TC/NVP	150mg	B/60	24/8742	V
	Tablets D4T/3TC/NVP	30mg	B/60	24/5346	V
	Tablets TDF/3TC	300mg	B/30	24/5355	V
	Tablets ABC/3TC				
	Tablets AZT/3TC/NVP	150mg	B/60	24/5353	V
		30mg	B/60	24/9708	V
	Tablets AZT/3TC	150mg	B/60	24/5352	V
	Tablets	30 mg	B/60	24/5351	V

Indications Treatment of HIV infection in combination with other antiretroviral medicines and as prophylaxis in post-partum tailing off of nevirapine as well as post exposure prophylaxis

Contra-indications

Special care Should not be used with patients with , history of pancreatitis or concomitant use with other medicines

Interactions No major interaction. NOT used with zalcitabine

Dose

Adults: Treatment of HIV	300mg Once daily for life or 150mg (1) twice daily for life
Paeds	See doses in EDLIZ

Side Effects Sometimes serious fatigue, muscle spasm and frequent cramps, abdominal pain, nausea, vomiting, difficulty in breathing

Labelling Finish course

Patient Information

- •• You must take this medicine always at the same time each day. If you forget to take the medicine at the same time, take the medicine as soon as you remember.
- •• You should not stop the medicines unless you are told to do so by your doctor/nurse
- •• If side effects occur consult your doctor, pharmacist or nurse

TENOFOVIR

Formulations At NatPharm		Strength	Unit	NatPharm Code	VEN
	Tablets TDF/3TC	300mg	B/30	24/5355	V
	Tablets TDF/3TC/EFV	300mg	B/30		V

Indications	Treatment of HIV infection in combination with other antiretroviral medicines and post exposure prophylaxis
Contra-indications	Renal failure
Special care	
Interactions	Tenofovir should not be used with other medicines that are toxic to the kidneys, it increase the blood concentration of didanosine
Dose	**Adults**: Treatment of HIV — 300mg once daily for life
Side Effects	Fatigue, vertigo, nausea, vomiting, diarrhoea, flatulence and kidney failure
Labelling	Finish course
Patient Information	•• You must take this medicine always at the same time each day. If you forget to take the medicine at the same time, take the medicine as soon as you remember. •• You should not stop the medicines unless you are told to do so by your doctor/nurse

ZIDOVUDINE

Formulations At NatPharm		**Strength**	**Unit**	**NatPharm Code**	**VEN**
FDC formulations	Tablets	300mg	B/60	24/9780	V
	Tablets AZT/3TC	300mg	B/60	24/5352	V
	Tablets AZT/3TC	60mg	B/60	24/5351	V
	Tablets AZT/3TC/NVP	300mg	B/60	24/5353	V
	Tablets AZT/3TC/NVP	60mg	B/60	24/9708	V

Indications	Treatment of HIV infection in combination with other antiretroviral medicines. Prevention of maternal-foetal HIV transmission
Contra-indications	Abnormally low neutrophil counts or haemoglobin values ,neonates with hyperbilirubinaemia, porphyria
Special care	Monitor full blood count on week 4 of treatment in haematological toxicity, if anaemia or myelosuppression reduce dose or switch to another regimen.
Interactions	Do not use zidovudine with stavudine

Dose

Adults: Treatment of HIV	600mg daily for life or 300mg (1 tablet) twice daily for life		
More Efficacious Regimens (MER)	**Pregnancy** 300mg twice daily	**Labour** 300mg twice daily at Labour	**Postpartum** 300mg twice daily for 7 days
Paeds	See doses in EDLIZ		

Side Effects Nausea, sometimes severe, anaemia, bone marrow failure , muscle pains, headache, mild fatigue, muscle spasm and frequent cramps, abdominal pain, nausea, vomiting ,difficulty in breathing (Lactic acidosis)

Labelling Finish course

Patient Information

- •• You must take this medicine always at the same time each day. If you forget to take the medicine at the same time, take the medicine as soon as you remember.
- •• You should not stop the medicines unless you are told to do so by your doctor/nurse
- •• Report to the Doctor, Pharmacist or nurse if there are any unwanted effects.

NEVIRAPINE

Formulations At NatPharm		**Strength**	**Unit**	**NatPharm Code**	**VEN**
	Tablets/Capsules	200mg	B/60	24/6240	V
	Solution	50mg	100ml	26/6430	V
FDC formulations	Tablets D4T/3TC/NVP	200mg	B/60	24/8742	V
	Tablets D4T/3TC/NVP	50 mg	B/60	24/5346	V
	Tablets AZT/3TC/NVP	200mg	B/60	24/9708	V
	Tablets D4T/3TC/NVP	200mg	B/60	24/8743	V

Indications Treatment of HIV infection in combination with other antiretroviral medicines and as prophylaxis in post-partum tailing off of nevirapine as well as post exposure prophylaxis. Prevention of maternal-foetal HIV transmission

Contra-indications Hypersensitivity to Nevirapine, Porphyria, Post Exposure Prophylaxis

Special care Liver disorders, patients with hepatitis B co-infection

Interactions

Dose

Adults: Treatment of HIV	200mg once daily for 2 weeks then 200mg twice daily for life**.**
Paeds	See doses in EDLIZ
PMTCT dose	See doses in EDLIZ or Guidelines for ART in Zimbabwe

Side Effects Skin rashes, Steven Johnsons Syndrome, pruritis, hepatitis.

Labelling Finish course

Patient

- •• You must take this medicine always at the same time each day. If

Information	you forget to take the medicine at the same time, take the medicine as soon as you remember. •• You should not stop the medicines unless you are told to do so by your doctor/nurse •• If side effects occur consult your doctor, pharmacist or nurse

STAVUDINE

Formulations At NatPharm		**Strength**	**Unit**	**NatPharm Code**	**VEN**
	Tablets D4T/3TC	30mg	B/60	24/8740	V
FDC formulations	Tablets D4T/3TC/NVP	30mg	B/60	24/8742	V
	Tablets D4T/3TC/NVP	6 mg	B/60	24/5346	V
	Tablets D4T/3TC	6 mg	B/60	24/8730	V
	Tablets D4T/3TC	12mg	B/60	24/8733	V

Indications	Treatment of HIV infection in combination with other antiretroviral medicines.
Contra-indications	Hypersensitivity to Stavudine
Special care	Patients with pre-existing peripheral neuropathy, patients on TB treatment, diabetes, alcoholism
Interactions	Interactions NOT to be used together with Zidovudine
Dose	Adults: Treatment of HIV — Take 30mg twice daily for life Paediatrics — See doses in EDLIZ
Side Effects	Lactic acidosis, peripheral neuropathy, pancreatitis, lipodystrophy
Labelling	Finish course
Patient Information	•• You must take this medicine always at the same time each day. If you forget to take the medicine at the same time, take the medicine as soon as you remember. •• You should not stop the medicines unless you are told to do so by your doctor/nurse •• If side effects occur consult your doctor, pharmacist or nurse

Chapter 7: Vaccines

Storage of Vaccines

Most vaccines are very sensitive to temperature and light. The cold chain must always be maintained during transporting and storage. Read *Manage the Cold Chain* produced by the Expanded Programme on Immunisation (EPI) of the MOHCW.

All vaccines should be stored between +2° and +8°C at primary care vaccines level (Polio, BCG and Measles can be stored frozen at Provincial and District levels).

DPT, DPT-HBV, DT, TT and HBV vaccines are damaged by freezing.

Store on the lower shelves of the refrigerator, but not in the door.

Do not place directly against an ice pack in a cool box - always condition them in an ice pack.

Use the shake test (see below) to find out if any of these vaccines have been frozen and thawed.

Use 28 days MDVP on discarding vaccines except for vaccines like BCG and DPT

The Shake Test

Shake the suspected vial. A never-frozen vaccine will be cloudy and smooth, but one which has been previously frozen will appear granular. Allow the vaccine to stand for 10 - 30 minutes. If it has been frozen, thick sediment will quickly form at the bottom of the vial. Use a vial of vaccine from the same manufacturer which you have deliberately frozen as a "control" for comparison

Always discard these vaccines if:

- the content is frozen or fails the shake test
- any remains in an open vial at the end of an outreach immunisation session (see *Open Vial Policy* on next page).
-

If fridge temperatures have been above +8°C check with EPI before discarding

BCG, Polio and Measles vaccines are more sensitive to heat, but are not damaged by freezing.

Do not discard if frozen. Store on the top shelf of the refrigerator and pack at the bottom of a cool box. Diluent should be stored on the lower shelves, with the DPT etc.

For all toxoids observe a 28 day MDVP and check the VVM status

PRACTICAL POINTS

- If necessary, a vial should be opened even for one client.
- Check expiry dates and put older stock at the front of the fridge.
- A child who is well enough to go home can be immunised.
- Direct light will reduce the potency of all vaccines, especially BCG and reconstituted measles - keep in dark or shady area during use. Use soon after reconstitution.
- Use a new syringe and needle for each client, and discard in a sharps container.
- Record the batch no. of the vaccine on the child's health card or the TT card.
- Record each vaccine given on your tally sheet.
- Record the number of doses of any vaccine which is discarded, in order to calculate 'wastage'.
- Remember to fill out an AEFI form (Adverse Events Following Immunisation) if ANY side effects are noted - send a copy to EPI Head Office through your normal channels.

Opened Vial Policy

Opened vials of DPT, DPT-HBV, DT, TT and HBV may be used the following day if they have been kept on ice and DT taken on an outreach. Opened Polio and reconstituted Measles and BCG should be discarded (unless there is a WM -see *Polio Vaccine).*

Vaccine schedule

NEW VACCINES SCHEDULE

	AGE	VACCINATIONS
PRIMARY COURSE	BIRTH/FIRST CONTACT	BCG
	6 WEEKS	PENTAVALENT 1, OPV 1, PNEUMOCOCCAL 1, ROTAVIRUS 1
	10 WEEKS	PENTAVALENT 2, OPV 2, PNEUMOCOCCAL 2, ROTAVIRUS 2
	14 WEEKS	PENTAVALENT 3, OPV 3, PNEUMOCOCCAL 3
	9 MONTHS	MEASLES
BOOSTERS	18 MONTHS	DTP AND OPV

Vaccination Record					
		DOSE			
	VACCINE	1	2	3	4
	ENTER DATE GIVEN AND BATCH NUMBER				
	BCG				
	OPV				
	PENTAVALENT				
	PNEUMOCOCCAL				
	ROTAVIRUS				
	MEASLES				
	DTP BOOSTER				
	DT				

	AGE IN MONTHS				
	6-11	12-23	24-35	36-47	48-59
DOSE	ENTER DATE GIVEN AND BATCH NUMBER				
Jan –June					
July-Dec					

Vitamin A Supplementation Schedule and record	Vitamin A should be given once in the first year of life from 6 months of age, then every 6 months thereafter. All vaccines can safely be given at the same time.

The current recommended schedule for Tetanus Toxoid (TT) immunisation of women of child bearing age is:

TT immunisation schedule for women of childbearing age	
TT1	At first contact or as early as possible during pregnancy
	(including the first trimester)
TT2	At least 4 weeks after TT1
TT3	At least 6 months after TT2 or during subsequent
	pregnancy
TT4	At least 1 year after TT3 or during subsequent pregnancy
TT5	At least 1 year after TT 4 or during subsequent pregnancy
A sixth dose may be given in special circumstances such as a penetrating wound	

NB: A modified schedule can be used for a woman who has had DPT as a child - see TT card

These schedules may change from time to time as vaccines are improved, as new information becomes available or as the pattern of disease changes. Further information can be found in the modules produced by the MOHCW's Expanded Programme on Immunisation.

BCG VACCINE

Formulation			**Unit**	**VEN**
	Powder for reconstitution with its diluent	20 doses	Rubber capped vial	V

Indications BCG (Bacillus Calmette-Guerin) helps prevent more serious forms of tuberculosis (TB) in young infants (such as TB meningitis and miliary TB). Also protects against leprosy.

Contra-indications Clinical symptoms and signs of HIV infection .

Interactions None. Can be given at the same time as all other vaccines if necessary.

Dose and administration

Newborns and under 1 year: 0.05ml

Give by intradermal injection in the right upper arm (see below for technique). Avoid the tip of the shoulder.

- Reconstitute the vaccine with the supplied diluent.
- Shake the vial gently and mix by withdrawing the reconstituted vaccine into the syringe once or twice.
- Swab the skin with water if dirty, but never with alcohol, spirit or disinfectant as this kills the vaccine
- 2 to 6 weeks after immunisation, a small intradermal papule or ulcer will form. It will gradually dry up during the following 2 to 6 months and leave a small scar.
- Discard unused reconstituted vaccine after 8 hours.
- Now using auto disposable BCG syringes

No vaccination for those with no scar and at 5 years

Intradermal injection technique:

- Use a small needle (25G or 26G) and a 0.05ml syringe.
- Swab the skin with water if necessary, and allow to dry.
- Stretch the skin of the right upper arm between your thumb and forefinger.
- Insert the needle, bevel upwards, for about 2mm into the superficial layers of the skin. Hold the needle and syringe almost parallel with the skin surface, or the needle will penetrate too deeply. You should feel considerable resistance when you inject the vaccine.
- If you do this correctly, you will see a raised bleb which looks like orange-skin.

Side Effects

Serious reactions are uncommon.

A local reaction (see above) is normal after BCG and is a sign that the immunisation was successful.

Occasionally keloid formation occurs at the site of injection, especially if it is too high on the arm.

Rarely an abscess may form either at the site of injection or in the lymph glands under the arm - these are usually due to faulty injection technique.

PRACTICAL POINTS

- Advise or educate the mothers about the expected skin ulcer
- Advise them to leave it uncovered or cover with loose dry gauze only

DPT VACCINE

(From 2008, a DPT vaccine is used alone)

Formulation		**Unit**	**VEN**
	Grey white suspension for injection Prepared from the toxins of diphtheria and tetanus bacteria, plus killed pertussis bacteria, adsorbed onto an aluminium carrier to reduce reactions and improve response	10 dose rubber capped vial	V

Indications

Active immunisation against diphtheria, pertussis (whooping cough) and tetanus.
Give routinely in the childhood EPI immunisation schedule for children under 24 months (DT should be given to children over 2 years).

Contra-indications

DO NOT give DPT to a child:

- who had convulsions or shock within 3 days of previous dose (see side effects below).
- who has an evolving neurological disease (e.g. uncontrolled epilepsy or progressive encephalopathy). *(Give children in these two categories DT instead.)*
- with fever ~39°C (risk of febrile convulsion).
- who is ill enough to require hospitalisation - wait until they are well, but give before discharge.

The following are not contra-indications to DPT: fever, malnutrition, allergies, HIV, stable neurological conditions (e.g. cerebral palsy), controlled epilepsy, or a family history of convulsions.

Dose and administration

0.5ml
Shake the vial before use.
Use a 1 ml. syringe and 23g needle (32mm long).
Give by deep subcutaneous or intramuscular injection into the anterolateral aspect of the thigh. In children over one year it may be given into the upper arm or buttock.
Give according to schedule above. Minimum time between doses is 28 days. If a child has missed one dose, do not restart the schedule - just give the next dose.

☞	* *Opened vials* of *DPT do not need to be discarded at the end* of a *session, if they have been kept on ice, and* ***if*** *they have not been taken out* of *the health centre on an outreach clinic*

Side Effects	**Non-serious** (very common) - mild local pain and redness at injection site, fever (38° to 40°C) - paracetamol can be given, especially of child has low grade fever already. Occasionally chills, irritability and crying. Starts within few hours, lasts 1 - 2 days. Treat with antipyretics and tepid sponging. NOT a contra-indication to further doses. **Serious** (very rare) - high fever over 40°C, non-febrile convulsions or persistent screaming, anaphylactic shock, bronchospasm. Such reactions may be due to the pertussis component - complete immunisation schedule with DT PRACTICAL POINTS • Don't forget to warn the mother that DPT may cause slight fever and pain at the site of immunisation. • Paracetamol can be given at the same time as the vaccine (especially if child has slight fever). • If a child has a severe reaction to DPT give DT instead for the rest of the schedule.

DT VACCINE

Formulation		**Unit**	**VEN**
	Grey –white suspension for injection	10 dose, rubber-capped vial	V
Indications	Active protection against diphtheria and tetanus. Use instead of DPT in children 2 - 8 years, and in primary schedule if previous severe reaction to DPT (see side effects of DPT). Compete immunisation schedule with DT until 2013,thereafter follow new schedule		
Contra-indications	Severe reaction to previous dose of DT		
Dose and administration	As for DPT Local reactions as for DPT but less common and milder		

HEPATITIS B VACCINE (HBV)

(From 1999, a combined DPT-HBV vaccine will be available)

Formulation			**Unit**	**VEN**
	Injection	1 dose	amp	V

Inactivated hepatitis B virus surface antigen, adsorbed onto aluminium hydroxide to improve effectiveness. Takes up to 6 months to confer adequate protection, the duration of immunity is thought to last 3 to 5 years.

Indications Protects against Hepatitis B infection which may lead to liver cirrhosis or cancer. Will be introduced in 1999 as combined DPT-HBV injection in the routine childhood EPI immunisation schedule' (see page).

Contra-indications Previous allergy to Hepatitis B Vaccine

Dose and administration

Under 12 years:	0.5ml
Adult	1 ml

Give by intramuscular injection into the anterolateral part of the thigh, or the upper arm if over one year.
Minimum interval between doses is 28 days.

☞	** Opened vials of HBV do not need to be discarded at the end of a session, if they have been kept on ice, and if they have not been taken out of the health centre on an outreach.*

Side Effects Minor local reactions - redness and pain at injection site.
Serious reactions very rare

MEASLES VACCINE

Formulation		**Unit**	**VEN**
	Freeze-dried	0.5ml (single dose) 5ml (10 dose)	V

Live attenuated vaccine. Use single dose vial for routine immunisation, and 10-dose vial for campaigns.

Indications Active immunisation against measles. Give routinely at 9 months in the childhood EPI immunisation schedule, but can be given at 6 months in epidemic (but repeat at 9 months because maternal antibodies might interfere with the vaccine). Given during measles outbreaks (check age group with Provincial EPI manager), and to children aged 9 months - 14 yrs. on National Immunisation Days

Contra-indications - Immunosuppressed patients (e.g. treatment with indications immunosuppressive medicines, rapid Therapy, malignant blood disorders).
Malnutrition and HIV/AIDS are not contra-indications

☞	* *Measles vaccine <u>should</u> be given to a child who requires hospitalisation to prevent catching measles in hospital.*

Dose and administration

0.5 ml subcutaneously in the left upper arm.

- Reconstitute powder with supplied (cold) diluent, shake well and keep on ice.
- Swab the skin with water if dirty, but never with alcohol, spirit or disinfectant as this kills the vaccine.
- Discard unused vaccine at end of session

PRACTICAL POINTS

- Do not mix different brands of vaccine and diluent.
- Diluent must be kept cold - warm diluent will destroy the vaccine's potency

Side Effects

Slight fever, coryza and rash fairly common after 5 - 12 days (actually a mild form of measles which means the vaccine has worked) - warn the mother.
Serious reactions are very rare - include convulsions, encephalitis
and anaphylactic shock (remember the AEFI form).

POLIO VACCINE (OPV)

Formulation	Unit	VEN
Aqueous suspension	10 dose dropper-dispenser	V

Live oral vaccine containing a mixture of attenuated strains of poliomyelitis virus types 1, 2 and 3.
Clear liquid, sometimes pink or yellow. If turbid (cloudy), check with EPI office

☞	* *An opened OPV with a VVM (Vaccine Vial Monitor) on the cap does not have to be thrown away at the end of a session if the monitor indicates that the vaccine is still potent (see Managing the Cold Chain module).*

Indications

Prevents paralysis or death from poliomyelitis. Give routinely in the childhood EPI immunisation schedule, on National Immunisation Days (NIDs), and in polio outbreak response (see EPI Disease Surveillance manual).

Contra-indications

Immunosuppressed patients (e.g. treatment with immunosuppressive indications medicines, radio therapy, malignant blood disorders). Can be used in pregnancy. Diarrhoea and HIV/AIDS are not contra-indications.

Dose and administration	Two drops (0.1 ml) orally according to schedule on page **. Two doses 4 - 6 weeks apart to chidden under 5 years during NIDs. Shake well before use. Turn the cap clockwise to puncture the dropper, then unscrew it. Hold the dispenser at a 45° angle with the dropper down. Squeeze it slightly to give one drop. Turn it upright then tilt again to squeeze the second drop.
Side Effects	Uncommon. Vaccine-induced poliomyelitis extremely rare, risk increased in immunosuppressed individuals and contacts.

PRACTICAL POINTS

- Give OPV before any injectable vaccines, because it is difficult to administer once a child is upset from the injection.
- Avoid contaminating the dispenser with saliva
- If vaccine is spat out or vomited within 20 minutes, give again.
- It is all right to breast feed after immunisation.

TT VACCINE

Formulation	**Unit**	**VEN**
Grey white suspension for injection	10 dose, rubber-capped vial	V

The toxin of Clostridium Tetani is treated with formalin and heat, and adsorbed onto aluminium to improve its capacity to stimulate production of anti-toxin

Indications	Active immunisation against tetanus in infants , children and adults. Included in DPT & DPT-HBV in routine primary immunisation schedule for infants (see above in the schedule). Given to pregnant women and women of child bearing age to prevent neonatal tetanus. Adults in high risk occupations (e.g. farming) and after injuries (dirty wounds, dirty burns, dog bites, compound fractures, snake bites). If never immunised, or status unknown, follow same schedule as for women of childbearing age. No additional dose necessary if full primary course given plus booster within last 5 years. If booster more than 5 years ago, repeat dose. An unimmunised patient with extensively contaminated wounds may require Tetanus Immunoglobulin – refer
Contra-indications	Severe reaction to previous TT injection.
Dose and administration	0.5 ml intramuscularly as for DPT in infants. Shake vial. In older children and adults give in deltoid muscle in upper arm

☞	* *Observe MDVP, Opened vials* of *TT do not need to be discarded at the end of a session, if they have been kept at -2 to +8 degrees Celsius, and if they have not been taken out* of *the health centre on an outreach*

Side Effects

Mild local reactions - fever, redness and pain.
More severe reactions rare - only likely if many booster injections have been given.

PRACTICAL POINTS

- Booster doses only required once every 10 years. Record on patient's OPD card.

Chapter 8: Contraceptives

Contraceptives are methods which are used to prevent pregnancy. They can be hormonal or non-hormonal.
Types of contraception include the short acting, long acting and the permanent methods. These methods however, do not protect against STIs including HIV infection. For added protection against STIs and HIV infection, there is need to use barrier contraceptives; male and female condoms, that is dual protection.
Health care workers should provide adequate information and counselling to ensure a free and informed choice of the different contraceptive methods.

HORMONAL METHODS

Hormonal contraception is the most effective method of fertility control, (99.9%) if used consistently and correctly. These can be administered in three ways that is orally, by injection or implants.
Oral Contraceptives
Combined oral contraceptives, (COCs) contain synthetic oestrogen and progesterone, (biphasic). Those with oestrogen content is 30 to 35 micrograms of ethinyl oestradiol are low doses, while those containing 50 micrograms of oestrogen are referred to as high dose. Taken daily at the same time, they inhibit ovulation.
See also POPs from EDLIZ 2011 page 80

Clients using hormonal methods of contraception require regular check-ups at least yearly and preferably 6 monthly. They should always inform the nurse or doctor if attending for treatment for another illness.

☞	** progestogens only contraceptives do not affect breast milk and can be used if preferred by the client*

COMBINED ORAL CONTRACEPTIVES (COC)

Formulations		**Preparation**	**Unit**	**VEN**
	Monophasic	21 tabs. of 300mcg ethinyl oestradiol & 0.3mg norgestrel + 7 tabs. ferrous fumarate	P/28T	V
	Triphasic	21 tabs. ethinyl oestradiol & levonorgestrel (see below) + 7 tabs. lactose (currently not offered in Zimbabwe)	P/28T	V

All COCs contain two hormones, an oestrogen (e.g. ethinyl oestradiol) and a progestin (e.g. norgestrel).

- Monophasic preparations *(first choice Control Pill*), 21 active tablets all exactly the same.
- 28 pill packets contain 21 "active" pills (i.e. with hormones) and 7 "inactive" pills (ferrous sulphate or lactose).

The mechanism of action of the COCs is by stopping ovulation (release of eggs from the ovaries),
thickening cervical mucus to prevent sperm passing,
and altering endometrium to reduce chance of implantation.

Indications Prevention of pregnancy, control of menstrual irregularities, emergency contraception, (also called morning after pill) See WHO medical eligibility criteria.

Advantages	**Disadvantages**
Safe and highly effective (99.9%) in preventing pregnancy (if used correctly).	No protection against STIs, including HIV.
Effective immediately if started in first 5 days of menstrual cycle.	Client dependent - must be taken daily, needs well motivated client, who can remember.
Suitable for all ages and parities	Need new supply at hand every 28 days.
Easy to use, does not interfere with intercourse	Minor side effects can occur, usually for first few cycles only.
Additional health benefits - regular menstruation, reduces blood loss & dysmenorrhoea.	Very slight risk of serious side effects.
Decreases risk of ectopic pregnancy.	Decreased milk supply if breast feeding.
Few side effects.	
Usually immediate return to fertility.	
Reduces the risk of pelvic inflammatory disease which may be a risk with intrauterine devices	

	Reduces incidence of premenstrual tension	

Contra-indications

Pregnancy. Breastfeeding less than 6 months.
Unexplained abnormal vaginal bleeding (investigate).
Active liver or gallbladder disease.
Past, current or suspected history of breast cancer.
Thrombophlebitis or history of thromboembolism (blood clots e.g. deep vein thrombosis, pulmonary embolism).
Cerebro-vascular or coronary artery disease (including angina).
Hypertension (diastolic ~110 mmHg) - check after 2 -3 weeks.
Severe headaches or history of migraine with visual or other focal neurological symptoms. Severe leg pains, unexplained chest pains or shortness of breath.
Diabetes for more than 20 years or with complications (damage to vision, kidneys, nervous system).

Special care

Certain medical conditions: thyrotoxicosis, moderate hypertension (BP 140/90 - 160/100), renal disease, asthma, severe obesity, diabetes, sickle cell disease, severe depression, inflammatory bowel disease, genital cancer. Refer also to the WHO Medical Eligibility Criteria.
Taking anti-epileptic or anti-TB treatment (see Interactions).
Breast feeding if baby less than 6 months old (reduced quality and quantity of milk) - use other method of contraception (including progestin-only method).
Tobacco smoker aged over 35 years.
Unreliable client (e.g. mental retardation, alcoholism).

Interactions

Some drugs affect the efficacy of COCs, while some medicines are made less effective by the COCs, See EDLIZ page 81.
Rifampicin, all anti-micronials, griseofulvin, anti-epileptic medicines (phenobarbitone, phenytoin, carbamazepine) reduce effectiveness of COCs - use non- hormonal method or additional barrier method during medication and 2 weeks after stopping.
Anticoagulants & antihypertensive may be less effective.
Diazepam & tricyclic antidepressants may require lower doses

Dose

One pill at same time every day, according to packet instructions.
The first pill will be an active one containing hormones.
28-pill packet - start new packet day after old one finished, even if still bleeding.
Withdrawal bleeding (menstrual period) will occur when taking the 7 inactive pills.
When to start:
Any time (if breast-feeding see *Special care).*
If not menstruating use additional back-up method (e.g. condom) for 7 days.
Can start immediately after miscarriage or abortion.
Missed pills: see *Client Information* below.

Side Effects

Mild side effects - nausea, dizziness, breast tenderness, mild headache, weight gain, depression, spotting, light bleeding or amenorrhoea (check for pregnancy). Common at first, usually disappear after 2 - 3 cycles. Continue taking pills if not pregnant. Hypertension (reversible) - stop COC if BP>160/110. See WHO Medical Eligibility Criteria

Serious side effects are very rare (associated with risk factors such as smoking, hypertension, BP > 160/100) - thrombosis (blood clots) in leg,
lung or brain, heart attack, stroke, liver tumour, migraine with focal neurological disorder - COC must be stopped immediately.
GOCs will not damage the foetus if taken accidentally during pregnancy. COCs do not cause abortion even in high doses.
Management of side effects is described in the ZNFPC manual

PRACTICAL POINTS

- Show client pill packet and how to remove pills as you explain the instructions. Ask her to repeat them.
- Explain what to do about missed pills and give condoms for back-up.
- Tell her the common side effects and that they will last only a few months.
- Tell her the (rare) danger signals - severe, constant pain **in** abdomen, chest or legs; sudden breathlessness or coughing blood; unusual severe headache especially if also vision or speech disturbance; jaundice.
- Give instruction pamphlet to client to take home.
- Give three cycles at initial visit and up to 12 months supply afterwards.
- Encourage the use of condoms in addition to COCs for the protection against STIs and HIV infection(see section on *Barrier methods).*

Client information

"Start first pill of first pack today. If you are not menstruating use back-up (abstinence or use of condoms) method for 7 days.

"Take one pill at the same time every day, even if your husband is away.

"Always start a new packet of pills the day after you have finished, even if you have not bled, are still bleeding or have finished bleeding. Come back to the clinic if you do not bleed.

"If you forget to take one pill, take it as soon as you remember and continue as usual. You may take two pills in one day or even at the same time.

"If you miss 2 or more pills in a row, leave forgotten pills and take rest as usual. **Use a back-up method for 7 days.**

"If you vomit within 1 hour of taking a pill, take another one from an extra packet.

"If you have severe diarrhoea and vomiting for more than 24 hours, keep taking the pills but use a back-up method until 7

daysafter the diarrhoea/vomiting has finished.
"CO Cs do not protect against STI or HIV infection - use condoms as well.
"If you attend any clinic or hospital for treatment, report that you are taking the pill.
"Store pills in a dry, cool and safe place, out of reach of children.
"Always have a spare packet of pills - return for more pills when you start the last packet.

PROGESTIN-ONLY ORAL CONTRACEPTIVE (POP)

POPs (progestin-only pills) contain small amounts of only one hormone, a progestin. All packets have 28 pills exactly the same, taken daily without a break

Formulations

	Preparation	**Unit**	**VEN**
Tablets, blister pack	norethisterone 350mcg e.g.	P/3x28T	V
Tablets, blister pack	levonorgestrel 375mcg (Secure)	P/28T	V

Mechanism of action is by thickening cervical mucous to prevent sperm passing through the cervix, altering the endometrium to reduce chance of implantation, and inhibiting ovulation (effect lost quickly if pill not taken after 24 hrs)

Indications

Prevention of pregnancy, especially in breast feeding women, and where oestrogens are contraindicated or risk factors exist.

Advantages	Disadvantages
Safe and highly effective (96-99%) when used correctly. Does not affect breast feeding. No oestrogen side-effects or complications. Less progestin-related effects (e.g. weight gain) than in COCs. Easy regime to follow. Immediate return to fertility when stopped.	Generally same as for COC. Menstrual irregularities common (irregular periods, ammenorrhoea (missed periods), spotting or bleeding between periods. Must be taken at the same time every day, especially by non-breast-feeding women. Does not prevent ectopic pregnancy.
other advantages as for COC.	

Contra-indications

Pregnancy.
Unexplained abnormal vaginal bleeding.
Active liver disease or tumour; hepatitis in last 6 months.
Past or current history of breast cancer. Severe leg pains
Severe arterial disease. Unexplained chest pain or shortness of breath.

Special care Unreliable client (e.g. mental retardation, alcoholism).
Previous ectopic pregnancy.
Taking anti-epileptic or anti-TB treatment (see Interactions).
Uncontrolled diabetes

Interactions Rifampicin, griseofulvin and anti-epileptic medicines also reduce effectiveness of POP (see COC and MEC)

Dose One pill at exactly the same time every day, according to packet instructions. If pill is delayed for more than 3 hours protection may be lost. A new packet is always started on the same day of the week, without any break. Menstruation will occur whilst taking pills.
When to start:
Any time patient is not pregnant.

- If menstruating - no need for back-up.
- Any other time - use additional back-up method (e.g. condom) for 7 days.

Immediately or within 5 days after miscarriage or abortion.
If breast-feeding - 6 weeks after delivery.
If not breast feeding - immediately after delivery or within 4 weeks (if later exclude pregnancy first).
Missed pills: see *Client Information* below.

Side Effects Few side effects, mostly mild - headache, nausea, breast tenderness, depression, weight change, acne.
Common - irregular bleeding, spotting, amenorrhoea, or menorrhagia - usually settles after few cycles. Persistent menorrhagia - consider another method.
Serious side effects very rare. Stop POP if jaundice or very severe headaches with visual disturbance start or become worse after starting POP.
Ectopic pregnancy might occur.

Ectopic pregnancy Slightly more common in pregnancies occurring in POP users. History of missed/very light period, abdominal pain and faintness. Set up IV infusion and refer immediately.
PRACTICAL POINTS As for COCs.

Client information As for COCs, in addition:
"Your periods may not be regular, and if you are breastfeeding you may not have any at all. If your periods stop after being normal, present at your nearest health facility.
"If you miss a pill, take one as soon as you remember and continue as usual, but use back up method for 7 days.

PROGESTIN-ONLY INJECTABLE

Formulations at GMS

Depo-medroxyprogesterone acetate (DMPA *Depo-Provera®, or Petogen)* is an injectable, slow release hormonal contraceptive containing a synthetic progestin similar to the natural hormone.
Does not contain oestrogen.
Mechanism of action is by suppressing ovulation
thickening cervical mucus to prevent sperm passing through the cervix, and
making uterine wall unfavourable for implantation

Indications

Prevention of pregnancy in parous women over 18 years, especially useful if client has difficulty remembering daily pill.
Protects against pregnancy for three months.
Also indicated in the treatment of menorrhagia, dysmenorrhoea and endometriosis.

Advantages	Disadvantages
99% effective in preventing pregnancy. Safe at any age or parity. Does not affect breast feeding. No oestrogen side-effects or complications. No daily pills to remember, only one injection every 3 months. Private & does not interfere with sexual intercourse. Can reduce menorrhagia, dysmenorrhoea and endometriosis. Helps prevent ectopic pregnancy, uterine cancer, fibroids, anaemia.	No protection against STI and HIV infection. NOT immediately reversible if unacceptable side effects develop. Requires injection every 3 Months, by trained person. Menstrual irregularities & mild side effects common. May be delayed return to fertility (average 9 months).

Contra-indications

Pregnancy.
Unexplained abnormal vaginal bleeding.
Active liver disease.
Past or current history of breast cancer.
Severe hypertension see MEC.

Special care

Liver disease.
Diabetes more than 20 years or with complications.
If fast return to fertility is wanted after discontinuation.

Interactions

Can be used with rifampicin and anti-epileptics as higher progestin dose than POPs, less risk of interference.

Dose

150 mg (1 ml) by deep intramuscular injection into buttock or deltoid (if obese give in deltoid).
When to start:
Any time patient is not pregnant.
If not menstruating, use additional back up for 7 days.
Postpartum - any time (exclude pregnancy first if later than 4 weeks).
Immediately or within 7 days after miscarriage or abortion.
Repeat dose every 12 weeks. Record the return date on patient's family planning card and discuss how to remember date.
If client is > 2 weeks late for return visit, check for pregnancy (NB missed periods are common if taking DMPA -see below). If not pregnant, repeat injection.

PRACTICAL POINTS
Shake vial gently before drawing up. Use sterile syringe and 21 gauge needle, and maintain aseptic technique.
Do not give subcutaneously - can cause fat necrosis.
Do not massage the injection site - may cause progestin to be absorbed too fast.
Counselling and reassurance about menstrual disturbances is extremely important (see Side effects

Side Effects

Changes in menstrual bleeding are very common, - spotting, irregular periods and often amenorrhoea. Less than a third of women using DMPA have normal periods.
Heavy bleeding is rare (1-2%) – exclude other disease.
If 1st or 2nd dose, repeat DMPA.
If 3rd or later dose, give low dose COC for 28 days plus ferrous sulphate.
If COC contra-indicated, repeat DMPA and give one POP twice a day for 14 days.
Weight gain common. Occasionally other mild side-effects which gradually disappear - headache, breast tenderness, moodiness, nausea, hair loss, less sex drive, acne.

Client information

- ••You must have this injection every 3 months at any health centre - the next date is shown on your card.
- •• If you are more than 2 weeks late for your next injection, use a back-up method until you can get to a health centre for the next dose.
- •• You may have some mild side-effects, such as weight gain, or changes in menstrual bleeding. You will probably have less bleeding, or even miss periods altogether - this is normal and you don't need to worry.
- •• Come back to the clinic if your periods are extremely heavy or last for more than 7 days, if you start to get very bad headaches with visual disturbances, if your skin or eyes become yellow or if there is pain or swelling at the injection site.
- •• The injection does not protect against STIs or HIV infection - use condoms

SUB-DERMAL PROGESTIN IMPLANT

☞	** Implants should only be inserted and removed by trained health professionals. However, all health staff must be familiar with the method and the side effects, and know the indications for removal.*

Formulations

2 small, soft plastic rods, each containing 36mg of the progestin levonorgestrel *(Jadelle ®).* Rods are implanted in the subdermal tissues (under the skin) of the inside, upper arm.
They slowly release a very low dose of levonorgestrel.
Does not contain oestrogen.
Mechanism of action is by: thickening cervical mucus to prevent sperm passing through the cervix, suppressing ovulation, and thinning the endometrium to prevent implantation.

Indications

Contraception for women requiring a long acting reversible method

Advantages	Disadvantages
Immediate, effective protection (99.8%). Long acting (5 yrs) but completely reversible. Easy to use, nothing to remember. Minimal/no pain on insertion. Does not interfere with sexual intercourse. Fertility returns almost immediately after removal. Does not affect breast-feeding. No oestrogen side-effects. Helps decrease blood loss, prevent ectopics, may help prevent endometrial cancer.	No protection against STIs including HIV infection. Minor surgical procedure required. Client cannot start or stop herself, need insertion & removal by trained provider. Removal may be painful & difficult, with subsequent bruising. Menstrual irregularities common (see *Side effects).* Small risk of skin infection at insertion site.

Contra-indications

Pregnancy.
Past or current history of breast cancer, genital or ovarian cancer
Jaundice or active liver disease.
Unexplained abnormal vaginal bleeding.
Cerebrovascular or coronary artery disease.
Nulliparous women. Check MEC
Hypertension with diastolic ~100mmHg Check MEC

Special care

Taking **anti-epileptic or anti-TB treatment -** (see *Interactions and MEC)*
Diabetes more than 20 years or with complications.
Severe anaemia.
Bleeding disorders or anticoagulant therapy.
Breast-feeding within 6 weeks postpartum.

Interactions	**Rifampicin, griseofulvin** and **anti-epileptic medicines** (phenobarbitone, phenytoin, and carbamazepine) may reduce effectiveness. Use additional barrier method or non-hormonal method during medication and 4 - 8 weeks after stopping
Timing of insertion	**Should be inserted by trained health professional only,** aseptically under local anaesthesia. Can be inserted any time client is not pregnant. After miscarriage or abortion - immediately or within 7 days. Breast-feeding - 6 weeks after delivery. NOT breast feeding - immediately after delivery or within 4 weeks (if later exclude pregnancy first). **Follow-up** at 1 month, and then annually or as necessary. **Remove** (and replace if desired) **after 5 years** or the risk of ectopic pregnancy increases.
Side Effects	**Menstrual irregularities** common (50-80% users) and normal - spotting or light bleeding between periods, amenorrhoea. Prolonged bleeding uncommon and decreases with time. Occasional other effects - headache, dizziness, breast tenderness, weight gain, mood changes, acne. Most decrease or disappear within first year. **Serious side-effects are rare** (as for POP). If a pregnancy does occur (very rare) the chances of an ectopic are increased.
Client information	••Keep the insertion area dry for 3 days. Report to the health facility if there is any pain, redness, heat or discharge near the rods. ••You may have some mild side-effects at first, such as headache. Your periods will probably be irregular, or may stop altogether - this is normal and you don't need to worry. •• Report back if you have very heavy, prolonged bleeding, develop yellow eyes or skin, or develop severe headaches with visual disturbance. ••Report back if you think you are pregnant or have severe low abdominal pain and feel faint. ••The rods will prevent pregnancy for 5 years, after that they must be removed but new ones can be inserted. Report back if you want to become pregnant or want the rods removed. •• Use condoms to prevent STIs and HIV infection

PRACTICAL POINT
Infection at the insertion site: do not remove the implants unless there is an abscess.
Clean the infected area with antiseptic, and give oral antibiotic for 7 days.
Ask the client to return in 1 week.
If not better refer.

BARRIER and CHEMICAL METHOD

☞	*These are the only contraceptive methods which provide some (but variable) degree of protection against STIs, including HIV infection. Use in addition to all other methods if either partner is exposed to the risk of infection.*

MALE CONDOM

Disposable sheath of thin latex rubber. Put on a man's erect penis before intercourse to collect semen ejaculated during intercourse.
(Various types of condom with different materials, shapes, colours, textures, are widely available in Zimbabwe -some treated with spermicide for added protection).
Mechanism of action by: preventing sperm from entering the vagina.
preventing bacteria and viruses passing from one partner to the other.

Indications

Short-acting prevention of pregnancy especially:

- when protection against STIs is also required
- when medical contra-indications to other methods exist
- female partner with cervical lesions
- if infrequent need for contraception
- as back-up to other methods
- premature ejaculation

Advantages	Disadvantages
Effective in preventing pregnancy (88-98% if used consistently and correctly).	User-dependent - effectiveness depends on consistent and correct use
Effective in preventing transmission of STIs, cervical cancer and HIV infection.	by man. Women may require strong negotiating skills.
Useful back-up for other methods.	Need readily available supply close at hand.
Can be used during pregnancy and post partum	Effectiveness may drop if not stored properly
Inexpensive, safe, easy to obtain and use.	Interrupts sexual intercourse.
No medical assessment required	May decrease sensitivity of penis so difficult to maintain erection
No health risks or medical contra-indications to use.	
Promotes male responsibility in family planning.	

Advantages	Disadvantages
May help prolong erection & prevent premature ejaculation. Helps protect against PID which may lead to infertility.	If not properly worn, small possibility of slipping off/tearing. Disposal may be a problem

Special care

Rare allergy to the material or lubricant
Situations where proper, consistent use might be difficult (e.g. mentally retarded, regular alcohol intake, unreliable/uncooperative partner).

Side Effects

Allergies (itchiness, rash, are rare.

PRACTICAL POINTS

- Store somewhere cool and away from light.
- Give as many condoms as requested.
- Give advice as in "Client Information", including how to discuss condom use with partners.
- Demonstrate condom use with penis model.
- Stock cards on condom usage should be maintained

•• Condoms protect against pregnancy and against STIs and HIV infection if used consistently and correctly.

•• Check that the pack is intact

Check expiry date

Tear open the packet from the ragged end to avoid tearing the condom.

•• Unroll the condom over the erect penis before the penis touches the woman's vulva. Don't unroll before use, it will be hard to put on.

•• Leave the teat at the end of the condom free to collect semen. If no teat then leave half an inch of empty space at the end of the condom.

•• Never use oil based lubricants (e.g. Vaseline®, cooking oil, margarine or skin creams) - they may damage the condom. Use water, spermicides, or special lubricants.

•• If a condom breaks (unlikely if new and stored correctly) wash off secretions with plenty of water and report to health facility for PEP

•• Withdraw immediately after ejaculation, before the penis gets soft. Hold the rim of the condom against the penis, so it won't slip off. Take off the condom without spilling semen on the woman's vulva.

••Throw away used condoms in a pit latrine, or burn. Never flush condoms down the toilet and do not let children get hold of them.

••Store condoms in a cool dry place away from sunlight.

•• Do not use condoms if: - packaging torn or damaged;
- after expiry date;

FEMALE CONDOM

Disposable, pre-lubricated sheath for women made of thin, transparent, soft polyurethane or nitrite rubber, with soft plastic rings at both ends, one of which is closed. Placed in woman's vagina before intercourse. The smaller ring with the closed end fits over the cervix.
The open end has a larger ring which lies over the vulva. The penis goes inside the sheath.
Mechanism of action is by: preventing sperm from entering the woman's vagina.
preventing bacteria and viruses passing from either partner to the other.

Indications Generally as for male condom:

advantages Added advantage: controlled by the woman, can be worn before intercourse and does not require an erect penis and covers the vulva

disadvantages Disadvantage: regular, long term use; may be more difficult to use. Requires training by a service provider.

special care

Side Effects None

Client information See package insert for full instructions.
Give advice about storage as for male condoms.
Do not dispose of in a flush toilet - it may block the system
For client information see Family Planning Training Module.

INTRA UTERINE CONTRACETPIVE DEVICE (IUCD)

Formulations

	Unit	**VEN**
Copper T Cu-380A*	each	N
Multiload Cu 250	each	N
Multiload Cu 375	each	N

**most commonly used*

Made from plastic with copper wire wound round the stem, with monofilament nylon thread attached. Mechanism of action is probably by inhibiting the movement of sperm, killing sperm and interfering with egg transport and fertilisation. See ZNFPC training module

Indications Long acting method of Family planning, especially for parous women; if hormonal methods are contra-indicated; unreliable clients; those requiring private method or who don't wish to take daily pills; if regular supplies are difficult to come by.

Advantages	**Disadvantages**
Safe and effective (CuT380A-99.9%)	No protection against STIs and HIV infection.
Does not interrupt intercourse.	STI infection more likely to result in PID.
Continuous supplies not required.	

Advantages	Disadvantages
Only one follow-up visit required, no pills to remember. Long lasting (CuT380A 10 yrs; Multiloads 5 yrs). No hormonal effects (with copper IUCDs). Immediately reversible. Can be used 4 weeks after delivery or immediately after 1 st trimester abortion (see Post abortal care guidelines). Suitable for breast-feeding women. Suitable at any sexually active age.	Requires trained practitioner and medical procedure. Client cannot stop on her own. Insertion and removal may be uncomfortable. May be expelled - woman needs to be able to check for thread Occasional side effects (see below), serious complications rare. Contra-indicated in some Women

Contra-indications

Pregnancy.

Any genital tract infection (except candida) including:

- current, recurrent or recent (within 3 months or since last pregnancy) pelvic inflammatory disease (PID).
- untreated septic abortion or puerperal infection (treat completely first).
- current or recent STI
- pelvic tuberculosis

Undiagnosed abnormal vaginal bleeding.

Uterine abnormalities which distort the shape of the uterus (e.g. large fibroids, bi-cornuate (2-horn) uterus).

Cancer of the genital tract.

Special care

Refer to WHO guidelines. Women at high risk of STIs, because of high risk of PID and subsequent complications (e.g. ectopic pregnancy, infertility).

Advise other method including condoms.

After delivery (see *Insertion* and *Side effects).*

IUCD may make dysmenorrhoea, menorrhagia or anaemia worse.

Impaired blood coagulation (e.g. taking warfarin).

Women who have not had children (risk of PIO and later infertility).

Uterine fibroids or previous uterine surgery (e.g. . .for rupture or removal of fibroid)

Insertions

Only trained professionals should insert IUOs, under strict aseptic conditions. Detailed instructions are given in the ZNFPC training manual and the package inserts. Client should return in 6 weeks to check strings and for any problems.

Timing of insertion:

Post partum: within 48 hours (special training required) or after 4 weeks post partum (see Side effects). Check with MEC

Post-abortion: immediately if no chance of infection.

otherwise: any time not pregnant, easier during menstruation

PRACTICAL POINTS

- Have client wait for 15 to 30 minutes after insertion,
- Teach her how to check for threads.
- Explain common side effects and when to report back at the health facility
- Give her a written record of the IUCD insertion and when it should be removed
- Tell her where she can get it removed if she wishes.

Side effects

Common:

- Feeling faint/fainting on insertion - usually nulliparous women.
- Cramping pain after insertion, usually disappears after 2-3 days.
- Breakthrough bleeding/spotting, vaginal discharge for first few months.
- Heavier bleeding and/or dysmenorrhoea - usually first few cycles only. Ibuprofen may help.

Less common: -

- Persistent heavy bleeding and severe dysmenorrhoea (exclude abortion, PID, partial expulsion of IUCD).
- Expulsion - more common if inserted within 4 weeks postpartum (especially by inexperienced practitioner), occasionally occurs during menstruation - teach woman how to feel for threads after every period.
- Perforation on insertion - more likely if inserted between 48 hours and 4 weeks post partum.
- If pregnancy does occur, slightly increased chance of ectopic.

Indications for removal:

⇒ If client requests it (for pregnancy or other reasons).

⇒ IUCD has been partially expelled.

⇒ STO or PID (treat).

⇒ Pregnancy before 13th week (by doctor only, after this leave in situ).

⇒ At end of effective life of IUCD.

⇒ One year after the menopause.

⇒ Persistent (> 3 months) severe dysmenorrhoea or menorrhagia if anaemic and/or client wishes removal (exclude other pathology).

Client information	••The IUCD is effective immediately so you can have sexual intercourse as soon as you want. ••Check the threads twice a week 6 weeks, then after very period to make sure the IUCD is in place. Wash your hands first and don't pull on the threads. If you cannot feel the threads or you can feel the stem of the IUCD, use condoms until you can come for a check-up. ••Cramping pains may occur for the first 24-48 hours after insertion. You can take aspirin or paracetamol. If the pain does not settle, or becomes severe, report back to the clinic. ••You may get heavier periods or spotting in between, especially for the first few months. •• Use condoms as well to protect against STIs/HIV. ••Come back to the clinic after 6 weeks for a check-up, or anytime if: • you cannot feel the threads, or you feel the plastic end of the IUCD • you have missed a period or have prolonged, heavy bleeding • you have abnormal bleeding with abdominal pain and fainting, fever, discharge, or genital sores • your partner has symptoms of a STI • you have pain during intercourse or bleeding afterwards • you have any other concerns
Emergency contraception after unprotected sex	COC can be given (morning-after pill) or IUCD inserted. Dose of COC: 4 pills containing 30mcg ethinyloestradiol (Control Pill) within 72 hours of unprotected sexual intercourse. 4 more pills exactly 12 hours later. Return if low abdominal pain, heavy bleeding, or abnormal or absent menstruation within 4 weeks. See table in EDLIZ 2011 page 82-3 • If taken within 72 hours of sexual intercourse will prevent about three quarters of expected pregnancies. Acts mainly by stopping ovulation. • Does not disrupt existing pregnancy, but do not give if already pregnant or menstruation overdue. • Give counselling, STI and contraceptive advice. Start family planning method if necessary. COC can be started the day after the emergency dose. Give antibiotic prophylaxis and post exposure prophylaxis, (PEP) if rape victim ***Emergency contraception should not* be *used instead* of a *regular family planning method. It should only* be *used in an emergency, such* as *after rape, if* a *condom has broken or an IUCD come out* of *place.***

Chapter 9: Non-C List Medicines

ATROPINE SULPHATE INJECTION

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Injection	0.6mg/ml	1ml Amp.	25/0700	V

Indications Emergency treatment of organo-phosphate poisoning and betablocker (propranolol) overdose (see *Poisoning* in EDLIZ). Premedication before anaesthesia.

Contra-indications Close angled glaucoma, allergy to atropine, enlarged prostrate indications or urinary retention, paralytic ileus, ulcerative colitis, pyloric stenosis.

Special care Elderly and children - more susceptible to the side effects. Thyrotoxicosis, cardiac insufficiency, hypertension

Interactions Additive anti-cholinergic effects with anti-depressants, and some anti-histamine.

Dose

	Child		Adult
	neonates	over 1 month	
Pre-medication	0.01 mg/kg IM or SC	0.02mg/kg. IM	0.3 to 0.6mg IM
	30 to 60minutes before anaesthesia		
Organo-phosphate poisoning	0.02 – 0.05mg/kg iv/im every 10 – 15 minutes until signs of atropinisation appear		2 – 4mg every 10 minutes, until atropinisation*

* Atropinisation: dry mouth, widely dilated pupils, fast pulse, In organophosphate poisoning, repeat dose frequently - high doses may be required for many days.

Side Effects CNS stimulation - restlessness, confusion and excitement Cardiac effects - tachycardia/bradycardia, palpitations and arrhythmias.
Eye effects - dilatation of pupils (mydriasis), sensitivity to light (photophobia), increased intra-ocular pressure.
Dry mouth and eyes, decreased sweating, flushing.
Difficulty with micturition, constipation.
Toxicity causes rapid pulse, rapid respiration, high temperature

PRACTICAL POINTS:

- Atropine is not used very often at primary care level, so do not keep too much stock, and make sure that it has not expired

DIGOXIN

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet	0.25mg(250mcg)	B/100T	24/2840	V

Indications

Fast atrial fibrillation (irregular heart beat).
Cardiac failure, especially in children.

☞	** Do not start digoxin at health centre level*

Contra-indications

Heart block

Special care

Renal impairment or hypothyroidism.
Reduce dose in elderly.
Avoid hypokalaemia (low potassium) - monitor serum potassium if on diuretics.

Interactions

Effect enhanced by quinine, verapamil, spironolactone, erythromycin.
Effect reduced by phenytoin.
Potassium-losing diuretics (frusemide, hydrochlorothiazide) may cause hypokalaemia which increase toxicity
Loading dose to be given under supervision only. Serum potassium must be checked first

Dose

Usual maintenance dose		
Child	**Adult**	**Elderly**
10 mcg/kg daily	125 - 250 mcg daily	125 mcg daily

Side Effects

Takes effect within 2 hours, maximum effect 6 hours, effects may remain for up to 6 days.
Relatively common & usually associated with excessive dosage.
Therapeutic blood level of digoxin is close to the toxic level giving only a narrow margin of safety.
Gastrointestinal - anorexia, nausea & vomiting
common, occasionally diarrhoea.
Headache, dizziness, drowsiness, confusion, bad dreams, delirium (particularly in elderly).
Less common - visual disturbance (e.g. photophobia, altered colour vision, blurred vision).
Ectopic beats, heart block, occasionally bradycardia, - if heart rate<60 beats per minute, refer for specialist advice.

☞	** Digoxin toxicity is more likely in elderly patients, and those with renal impairment or low serum potassium levels.*

Labelling

✎ Take at the same time every day

Patient Information

•• These tablets are to make your heart beat more regularly/slow your heart down (whichever is relevant).
••Take the tablets every day and return for more when they are nearly finished (give a specific date to return).
••If you lose your appetite, feel nauseated or have a headache or tiredness, return for a check-up.

FRUSEMIDE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet	40 mg	B/1000T	24/3900	V

Indications
Severe cardiac failure - see *Cardiovascular conditions* in EDLIZ.
Oedema, nephrotic syndrome.
Frusemide is a powerful, fast-acting "loop" diuretic which causes potassium loss

Contra-indications
Dehydration

Special care
Pregnancy and breast feeding.
Gout (may be worsened).
Liver failure, prostate enlargement.

Interactions
Increases risk of hypokalaemia with thiazide diuretics (hydrochlorothiazide) and corticosteroids.
Increases risk of digoxin toxicity if hypokalaemic
Increases hypotensive effect of antihypertensive medicines and tricyclic antidepressants.
Use with caution in patients taking NSAIDs
Diuretic effect reduced by combined oral contraceptives, non-steroidal anti-inflammatory medicines and antiepileptics (especially phenytoin).
Increases risk of ear damage with aminoglycosides (e.g. gentamycin, kanamycin)

Dose

Cardiac failure	40 - 240 mg daily in the morning
Nephrotic syndrome	40 - 80 mg twice daily

Acts in 1 hour, diuresis complete in 6 hours.
Sometimes given together with potassium chloride 600mg daily

Side Effects
Mostly dose-related:
Disturbances of fluid and electrolyte balance (hypokalaemia. hyponatraemia, dehydration) - symptoms are anorexia, nausea, vomiting, dry mouth, thirst, excessive diuresis, lethargy, tachycardia, drowsiness, muscle weakness and cramps, paraesthesia.
Dizziness, postural hypotension, fainting attacks (especially if given with antihypertensive medicines).
High doses: occasionally gastrointestinal upsets, ear damage (tinnitus, deafness).
May precipitate gout.

	May precipitate acute urinary retention if prostatic enlargement
Labelling	✎ Take in the morning
Patient Information	•• These tablets will cause you to pass a lot of urine for a few hours, take in the morning to avoid getting up during the night to go to the toilet •• Eat high-potassium foods - avocados, bananas, pineapple and oranges. •• Do not stop taking the tablets unless told to by a doctor or nurse

INDOMETHACIN

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Capsule	25mg	B/1000C	24/4830	E

Indications	A non-steroidal anti-inflammatory medicine (NSAID), useful for musculoskeletal pain and inflammation, including acute gout.. Similar action to Ibuprofen, but has stronger anti-inflammatory properties and more side effects.
Contra-indications	As for Ibuprofen. Also caution in epilepsy, psychiatric disturbances, and parkinsonism. Do' not give suppository if haemorrhoids
Special care, Interactions	Reduces effect of diuretics
Dose	Maximum daily dose should not exceed 200mg

Rheumatoid arthritis	25-50mg three times a day, +/- 75mg at night.
Acute gout	First day - 50mg four times a day. Reduce dose by 20mg every day to 25mg three times a day.
Osteoarthritis	25mg three times a day.

Side Effects	As for Ibuprofen, but more common. Suppositories can cause rectal irritation and occasional bleeding.
Labelling	✎ As for ibuprofen
Patient Information	•• As for ibuprofen

QUININE DIHYDROCHLORIDE INJECTION

Formulations		Strength	Unit	NatPharm Code	VEN
At NatPharm	Injection	300 mg/ml	2ml Amp	25/8114	V

Indications Treatment of severe and complicated malaria (see *Malaria* in EDLIZ)

Contra-indications Optic neuritis
Allergy to quinine.

Special care Pregnancy (in high doses can cause abortion), but should not be withheld in severe malaria.
Heart arrhythmias.
G6PD deficiency

Interactions Increases digoxin levels (halve digoxin maintenance dose).
May increase the action of warfarin

Dose See *Malaria* in EDLIZ and the *Management of Malaria* module.
All patients with severe or complicated malaria must be referred to hospital, but the first dose (loading dose) of quinine can be given at primary care level.
Give IM or (if trained) by IV infusion - direct IV injection may cause toxicity.

	IM**	IN infusion#
Loading dose* (first dose)	10mg/kg every 4 hours for three doses	*20mg/kg* diluted in 200 - 500ml of dextrose 5% (maximum 1 ,200mg), given over 4 hours
Maintenance dose for first 48 hours after treatment commenced	*10mg/kg* every 8 hours	8 hours after first dose commenced - *10mg/kg* (max. 600mg) in dextrose 5% given over 4 hours. Repeat every 8 hours.
Maintenance dose after 48 hrs	*5mg/kg* every 8 hours	
** Do not give loading dose if the patient has taken quinine in the preceding 24-48 hours, in the preceding 7 days.* *# Start infusion 4 hours after IM loading dose.*		

☞	***IM Quinine is painful- dilute first. Draw 8ml of water for injection into 10ml syringe, then draw 2ml quinine into same syringe = 60mg quinine per ml. If the volume to be injected is greater than 3ml, give into two sites.*

Oral quinine can be started as soon as patient can swallow *(see Quinine Sulphate below)*

Side Effects

Quinine treatment schedules:

1. Quinine-only 7 days
2. Quinine 3 - 5 days plus simultaneous doxycycline 100mg daily for 7 days

Headache, confusion, nausea, tinnitus, tremors, abdominal pain, rashes, temporary visual disturbance, reversible deafness.

Hypoglycaemia common - monitor blood glucose, give dextrose 50% (1ml/kg child, 20 - 50 ml adult) followed by dextrose 10% infusion.

Hypersensitivity rare - fever and rash, anaphylaxis

Toxic in overdose - common side effects worsen. Principal sign is sudden onset of bilateral pupil dilatation

QUININE SULPHATE

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablets	300mg salt	B/500T	24/8100	V

Indications

Uncomplicated malaria not responsive to Artemether/Lumefantrine combinations

Completion of quinine course for severe and complicated malaria. (see EDLIZ and Guidelines for case *Management* of *MALARIA in Zimbabwe)*.

Contra-indications

Haemoglobinuria, optic neuritis.

Special care

Cardiac problems(e.g. atrial fibrillation, heart block).

Pregnancy (but benefit of treatment in severe malaria outweighs risk).

Interactions

Increases effects of digoxin (halve digoxin dose)

Blood level of quinine increased by cimetidine

Dose

Child	**Adult**
10mg/kg/dose every 8 hours	600 mg (2 tabs) every 8 hours

Treatment regimes:

1. Quinine alone for 7 days, or
2. Quinine for 5 days plus doxycycline for 7 days (starting on the same day as quinine), or

☞ * *Do not give doxycycline to pregnant* or *breast feeding women,* or *children under* 10 *years - give full* 7 *day course* of *quinine.*

Side Effects	Side effects related to dosage. Common - tinnitus, muffled hearing, hot and flushed skin, dizziness, confusion, headache, nausea, abdominal pain. Higher doses: vertigo, visual disturbances (rarely temporary blindness). Hypersensitivity - fever, rash, asthmatic reaction, angioneurotic oedema, blood disorders, renal failure
Labelling	✎ Finish the course.
Patient Information	•• Swallow whole, with plenty of water as tablets are very bitter. •• Take with or after food. •• Finish all the tablets even if you feel better.

SULPHADOXINE + PYRIMETHAMINE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet	Sulphadoxine 500mg Pyrimethamine 25mg	B/1000	24/8820	V

Indications	Intermittent Preventive Therapy (IPT) in pregnant women (follow malaria management flow chart in updated EDLIZ guidelines or Malaria Treatment Guidelines). For use only to high transmission malaria districts.
Contra-indications	**Breast feeding.** **Hypersensitivity** to sulphonamides or pyrimethamine. Severe **renal or hepatic impairment.** Blood disorders, porphyria and Systemic Lupus Erythmatosus (SLE).
Special care	**Hepatic or renal impairment.** Second trimester of **pregnancy** - give With folic acid because sulphadoxine +pyrimethamine reduces production of folate in the body. HIV/AIDs patients (risk of Stephens Johnson Syndrome, see *Cotrimoxazole).*
Interactions	As for *Cotrimoxazole.* Increased antifolate effect with cotrimoxazole; trimethoprim, and phenytoin

Dose

Adult		
At ANC booking	26-28 weeks	34-36 Weeks
3 tablets	3 tablets	3 Tablets
All as a single dose		

Side Effects	See *Cotrimoxazole* (NB Stevens-Johnson syndrome).
Labelling	✎ Take all tablets at one time.
Patient Information	•• Prevention using this method is not 100%,use other methods of prevention such as long lasting insecticide treated nets (LLINs)

Chapter 10: Anti-Diabetic Medicines

See *Diabetes Mellitus* in EDLIZ

☞	** All diabetic patients, especially children and the elderly, must be aware of the symptoms of hypoglycaemia. Also explain signs, symptoms and treatment to other household members. All diabetics should carry sugar or sweets with them at all times.*

Oral antidiabetic medicines

Oral antidiabetic medicines are used for the management- of non-insulin dependent diabetes. They should only be used if dietary control alone has failed. They should not be used to replace dietary control.

GLIBENCLAMIDE

Formulations	**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm Tablets	5mg	B/1000T	24/4060	V

Indications Type 2 diabetes mellitus. Sulphonylurea - works by increasing insulin secretion, so only effective in patients who are still producing some insulin themselves

Contra-indications Pregnancy & breast feeding (refer for specialist management).

Special care Elderly or obese patients.
Hepatic or renal insufficiency.
Seriously ill, or undergoing surgery - use insulin temporarily. Refer for specialist management.

Interactions Hypoglycaemic effect increased by - alcohol, chloramphenicol, cotrimoxazole, trimethoprim, nalidixic acid, norfloxacin, ciprofloxacin, betablockers (e.g. propranolol), ranitidine.
Hypoglycaemic effect reduced by - rifampicin, phenobarbitone, phenothiazines, corticosteroids, diuretics, oral contraceptives

Dose 2.5mg once daily, gradually increasing if necessary.
Maximum 10mg twice daily (elderly - maximum of 15mg daily).
Peak effect 2 - 6 hours after ingestion, duration 10 - 14 hours.

☞	** Daily doses < 10mg should be taken as a single dose with breakfast.* *Daily doses >10mg should be divided & taken twice daily with breakfast & evening meal.*

Side Effects	Hypoglycaemia four hours or more after food (usually indication of overdose). For symptoms of hypoglycaemia see *Insulin.* Gastrointestinal upsets (nausea, vomiting epigastric pain), usually mild and dose-related. Weakness, headache. Very rarely, sensitivity reactions and blood disorders.
Labelling **Patient Information**	✎ Name only.. •• Take tablets with or just after food (see note above). information" Return to the clinic for more tablets before they have finished (give date to return). •• Stick to your recommended diet and try to lose weight as well as taking these tablets. •• Do not drink alcohol. •• Always carry sugar, glucose tablets or sweets with you, and take if you feel dizzy. •• Always tell health staff that you are diabetic, and wear a Medi-Alert disc (see page 5). •• (For women) if you become pregnant, consult your doctor at the hospital immediately.

METFORMIN HYDROCHLORIDE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	500mg	B/1000T	24/5766	V

Indications
Type 2diabetes mellitus, especially in overweight patients.
Works by increasing utilisation of blood glucose, only effective in patients who are still producing some insulin themselves.
Can be combined with sulphonylurea (e.g. glibenclamide).

Contra-indications
Renal or hepatic impairment.
Heart failure or recent heart attack.
Alcohol dependence or pancreatitis.
Pregnancy and breastfeeding (refer for specialist management).

Special care
Seriously ill or undergoing surgery - use insulin temporarily (refer for specialist management).

Interactions
Hypoglycaemic effect reduced by - thiazide diuretics hydrochlorothiazide), frusemide, prednislone, oral contraceptives.
Alcohol may cause lactic acidosis.

Dose

Usual daily dose	Maximum daily dose
500mg every 8 hours	2 g. in divided doses

Effect lasts 4 - 5 hours

Side Effects
Gastrointestinal upsets (anorexia, nausea, vomiting, diarrhoea) - common but usually transient.
Occasionally metallic taste, urticaria.
Lactic acidosis if renal impairment (symptoms- nausea, vomiting, abdominal pain, diarrhoea, malaise, hyperventilation).
Hypoglycaemia less common.

Labelling
Take with or just after food.

Patient Information
- Take tablets with or just after food.
- Return to the clinic for more tablets before they have finished (give date to return).
- Stick to your recommended diet and try to lose weight as well as taking these tablets.
- Do not drink alcohol
- Always tell health staff that you are diabetic, and wear a Medi-Alert disc .
- (For women) if you become pregnant, consult your doctor at the hospital immediately.

INSULIN PREPARATIONS

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Soluble	HM(SA) 100IU/ml	RCV10ml	25/4950	V
	Isophane	HM(SA) 100IU/ml	RCV10ml	25/4960	V
	Biphasic	30/70	RCV10ml		V

All insulins should be stored between 2 – 8 °C. Do not freeze.

Indications

Insulin dependent diabetes mellitus.
Temporary management of diabetes during pregnancy, major surgery or acute illness (refer for specialist management).
Insulins are classified by onset, peak and duration of action:

Type	Onset	Peak	Duration	Use
Soluble (short-acting)	30-60 mins *SIC);* immediate IV)	2 - 4 hrs. *(SIC);* 5 mins (IV)	6 -10 hrs. *(SIC);* 30 mins(IV)	Diabetic emergencies during major surgery; acute illness.
Isophane (inter-mediate acting)	2 hrs	8-12 hrs.	20 - 24 hrs.	Maintenance
Biphasic	4 hrs.	12 - 20 hrs	24 - 36 hrs.	Maintenance

Soluble insulin can be given together with intermediate and long-acting insulins

Contra-indications

None

Special care

Reduce dose in renal impairment

Interactions

Hypoglycaemic effect may be increased by alcohol and aspirin.
Hypoglycaemic effect may be decreased by diuretics.
Propranolol may mask symptoms, of hypoglycaemia.

Dose

Dose and frequency of administration varies from patient to patient.
The dose must be adjusted according to frequent blood glucose checks.
Most patients have twice daily doses of a mixture of soluble and isophane insulin.
Soluble insulin can be given SC, and IM or IV in an emergency.
Isophane can only be given SC.

☞	* *The effect* of *insulin can vary depending on site and depth* of *injection - absorption is faster from abdominal region.* *Exercise or hard labour increases the effect* of *insulin and may cause hypoglycaemia.* *Infections and obesity decrease the effect* of *insulin.*

Side Effects

Local reactions at injection site - reddening, swelling, burning or itching. Check injection technique.
Hypoglycaemia - especially in elderly and when changing insulin preparation. May be caused by inaccurate dosage, strenuous exercise, missing meals, pregnancy or illness.
Hypoglycaemia can be anticipated:

- 4 - 5 hours after injection of soluble insulin
- late afternoon or evening after isophane insulin
- during night or early morning

Symptoms of hypoglycaemia
Symptoms vary between patients and in the same patient. Occasionally patients get no symptoms.
Common - hunger, restlessness, tachycardia, palpitations, paleness,
cold sweats. May be headache, drowsiness, fatigue, difficulty finding words, blurred vision, diplopia, numbness of lips, nose or fingers.
May mimic psychiatric disturbance (e.g. confusion or aggressive behaviour).
Neurological signs - cramps, paralysis, hemiplegia, epileptic attack.
If not treated - loss of consciousness, death.
N.B. Symptoms of hypoglycaemia may be masked by propranolol.

For treatment of hypoglycaemia, see EDLIZ.

PRACTICAL POINTS

- Insulins should be stored in the fridge between 2 and 8°C. Discard if frozen.
- Mark opening date on vial. Opened insulin can be stored at room temperature «25°C) for 1 month, then discard. Avoid exposure to light.
- Injection should be given subcutaneously about 45 minutes before meals.
- If a mixture of insulins is given, draw the soluble insulin into the syringe first.
- Rotate injection sites in same anatomical area (e.g. abdominal wall).
- Soluble insulin should be clear - discard if cloudy.
- Isophane insulin is cloudy and must never be given IM or IV.
- Make sure the patient's eyesight is good enough to see the markings on the syringe.
- Car drivers must be very careful to avoid hypoglycaemia - patients who do not get warning symptoms should not drive.

☞ *Patient education is critical to good management of diabetes. Include practical points noted above. Allow patient to experience mild hypoglycaemia, so it is recognised. Explain when hypoglycaemia can be expected.*

Patient

•• Always tell health staff that you are diabetic, and wear a Medi-

Information

Alert disc.

- •• Attend the hospital regularly for blood sugar tests (give date to return).
- •• Stick to the diet you were given at the hospital. Eat at regular intervals through the day and do not miss meals.
- •• Avoid sugary foods, but always carry sugar or sweets With you in case of a hypoglycaemic attack .
- •• Eat extra food before or during strenuous exercise.
- ••Do not drink alcohol.
- •• Consult a doctor or nurse if you are not able to eat or feel very unwell.
- •• Keep feet clean and dry
- ••**Avoid injury to feet**

Chapter 11: Cardiovascular Medicines

METHYLDOPA

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet	250mg	B/500T	24/5790	E

Indications Essential hypertension during pregnancy.

Contra-indications History of depression.
Active liver disease.

Special care Renal impairment (reduce dose).
Parkinsonism (may be made worse).

Interactions Hypotensive effect enhanced by: alcohol, antidepressants, other antihypertensives, antipsychotics, anxiolytics and sedatives, diuretics, glyceril trinitrate.
Hypotensive effect decreased by: non-steroidal anti-inflammatories (e.g. aspirin, ibuprofen), corticosteroids, combined oral contraceptives.
Antipsychotic medicines - increased risk of extra-pyramidal effects (see *chlorpromazine).*

Dose

	Usual daily dose	Maximum dose
Adult	250mg 2 - 3 times a day	3g

Side Effects

☞	*Side=effects are common but can be minimised with daily does < 1 g*

Common: postural dizziness and hypotension, impotence, drowsiness, fatigues, nausea, dry mouth, nasal stuffiness, depression, hyperprolactemia. Positive direct Coombs test.
Less common: liver damage, fever, skin rashes, diarrhoea, dark urine, fluid retention, weight gain, haemolytic anaemia.

☞	*Signs of liver damage include fever, malaise and jaundice - refer to hospital. Do not give methyl dopa again.*

Labelling ✎ May cause drowsiness

Patient Information
- •• You will have to take the tablets all the time - do not stop taking them unless told to do so by a doctor or nurse.
- •• Come back just before the tablets are finished for a blood pressure check and a further supply (give date to return).
- •• Get up slowly from a sitting or lying position to avoid dizziness.
- •• If the tablets make you drowsy, do not drive or operate machinery.
- •• Avoid alcohol as it will make you drowsy.
- •• If you get a fever, and your skin turns yellow, go to hospital immediately.

PROPRANOLOL

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet	40mg	B500T	24/7941	E

Indications
Control cardiac arrhythmias (especially associated with hyperthyroidism). Treatment of essential tremor
Prevention of migraine.

Contra-indications
History of asthma or obstructive airways disease.
Uncontrolled heart failure, bradycardia, heart block or cardiogenic shock.
Pregnancy (intrauterine growth retardation, neonatal hypoglycaemia, bradycardia.

Special care
Breast feeding.
Renal or liver disease (reduce dose).
Diabetics (reduces glucose tolerance; may mask signs of hypoglycaemia).

Interactions
Hypotensive effect increased by: alcohol, other antihypertensives, anxiolytics (e.g. diazepam), hypnotics, diuretics,
Hypotensive effect reduced by: non-steroidal anti-inflammatories (e.g. aspirin, ibuprofen), corticosteroids, combined oral contraceptives, thyroxine.
Plasma concentration reduced by rifampicin.
Digoxin increases risk of heart block and bradycardia.
Increases plasma concentration of chlorpromazine.
Severe hypotension and heart failure with verapamil.
Severe hypertension with adrenaline (and other sympathomimetics in cough and cold remedies).

Dose

Hyperthyroidism	40-240mg 3 times a day
Essential tremor	20mg 3 times a day then review

Side Effects
Bradycardia, heart failure, postural hypotension.
Bronchospasm.
Gastrointestinal disturbances, fatigue, sleep disturbances, headaches, and basal stuffiness.
Peripheral vasoconstriction (cold hands and feet).
Rarely - rashes, dry eyes.

Labelling
Name only.

Patient Information
•• You will have to take the tablets all the time - do not stop taking them unless told to do so by a doctor or nurse.
••Come back just before the tablets are finished for a blood pressure check and a further supply (give a date to return).
•• Get up slowly from a sitting or lying position to avoid dizziness.
•• Avoid alcohol.

NIFEDIPINE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet	20mg	B100T	24/6292	V

Indications Second line medicine for the treatment of hypertension
Treatment of frequent attacks of angina and unstable angina

Contra-indications Sick sinus syndrome, third or third degree AV block

Special care Acute hepatic injury, pregnancy, lactation, hepatic impairment oedema, increased angina

Interactions Barbiturates and rifampicin: may reduce nifedipine levels
Cimetidine :may increase bioavailability of nifedipine
Fentanyl and parental magnesium :hypotension can occur
Other hypertensive agents :may have additive effects

Dose

Hypertension	10-40mg 1-2 times a day for a long time
Frequent attacks of angina/Unstable angina	10-20mg 2 times a day for a long time for frequent attacks and when required for unstable angina

Side Effects Headache, peripheral oedema, hypotension, dermatitis, pruritis, wheezing, flushing, diarrhoea, Vomiting and nausea

Labelling Name only

Patient Information
•• You will have to take the tablets all the time - do not stop taking them unless told to do so by a doctor or nurse.
••Come back just before the tablets are finished for a blood pressure check and a further supply (give a date to return).
•• Get up slowly from a sitting or lying position to avoid dizziness.

ENALAPRIL

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablet		B100	24/3280	V

Indications Treatment of hypertension and symptomatic Chronic heart failure

Contra-indications Hypersentivity to enalapril or ACEIs

Special care Angioedema, renal impairment, cough, neutropenia and agranulocytosis
Concomitant potassium supplements

Interactions

Dose

Hypertension	5-40mg once daily for a long time
Cardiac Failure	5-20mg daily for a long time

Angioedema, postural hypertension

Side Effects	Chest pain, myocardial infaction, angina, tachycardia , Headache, vertigo, dizziness, fatigue, rash, photosensitivity nausea, abdominal pain, vomiting and diarrhoea
Labelling	Name only.
Patient Information	•• You will have to take the tablets all the time - do not stop taking them unless told to do so by a doctor or nurse. ••Come back just before the tablets are finished for a blood pressure check and a further supply (give a date to return). •• Get up slowly from a sitting or lying position to avoid dizziness.

ATENOLOL

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablet	50mg	B100T	24/0693	V

Indications	Treatment of hypertension, resistant cardiac failure, frequent attacks of angina, unstable angina Management of myocardial infarction and ectopic beats in arrhythmia
Contra-indications	Asthma, hypersensitivity to beta blockers, sinus bradycardia, overt cardiac failure, cardiogenic shock Metabolic acidosis
Special care	Breast feeding. Renal or liver disease (reduce dose). Diabetics (reduces glucose tolerance; may mask signs of hypoglycaemia). Chronic bronchitis, emphysema
Interactions	Ampicillin: may impair antihypertensive and antiaginal effects Clonidine: may add to or reverse antihypertensive effects NSAIDs: may impair antihypertensive effect Prazosin: may increase orthostatic hypotension

Dose

Hypertension	50mg one a day for a long time
Resistant cardiac failure	25-50mg once daily for a long time
Frequent attacks of angina	50-100mg for a long time
Unstable angina	25-100mg once daily as required
Myocardial Infarction	50-100mg once daily for a long time
Arrhythmia	50-100mg once daily as required in ectopic beats and 25-50mg once daily in atrial fibrillation and atrial flutter

Side Effects

Precipitation or exacerbation of asthma, heart failure, impaired glucose control, fatigue
Peripheral vascular disease
Bradycardia, hypotension, conduction disorders, peripheral vasoconstriction

Labelling	✎ Name only.
Patient Information	•• You will have to take the tablets all the time - do not stop taking them unless told to do so by a doctor or nurse. ••Come back just before the tablets are finished for a blood pressure check and a further supply (give a date to return). •• Get up slowly from a sitting or lying position to avoid dizziness.

Chapter 12: Anti-Retrovirals

ABACAVIR

Formulations At NatPharm		Strength	Unit	NatPharm Code	VEN
	Tablets	300mg	B/30	24/0047	V
	Solution	20mg	B/240	26/0446	V

Indications

Treatment of HIV infection in combination with other antiretroviral medicines

Contra-indications

Special care

Hypersensitivity: Fatal hypersensitivity reactions have been associated with therapy. *Lactic acidosis/Severe hepatomegaly with steatosis:* Lactic acidosis/severe hepatomegaly with steatosis have been reported.

Interactions

Ethanol: Increases exposure to abacavir by decreasing the elimination and prolonging the half-life. *Methadone:* Plasma levels of methadone may be decreased in some patients, reducing the therapeutic effect.

Dose

Adults: Treatment of HIV	See EDLIZ or Guidelines for Antiretroviral Therapy In Zimbabwe
Paediatrics	See EDLIZ for Antiretroviral Therapy in Zimbabwe

Side Effects

Fatigue, vertigo, nausea, vomiting, diarrhoea, flatulence and kidney failure
CNS: Insomnia; sleep disorders; headache (children). *GI:* Nausea; vomiting; diarrhoea; loss of appetite; anorexia; pancreatitis. *DERMATOLOGIC:* Skin rashes (children). *METABOLIC:* Elevated blood glucose; elevated triglycerides. *OTHER:* Hypersensitivity reactions (e.g., fever, rash, fatigue, GI symptoms, malaise, lethargy, myalgia, arthralgia, oedema, shortness of breath, paraesthesia, hypotension, death); fever (children).

Labelling

- Finish course

Patient Information

- You must take this medicine always at the same time each day. If you forget to take the medicine at the same time, take the medicine as soon as you remember.
- You should not stop the medicines unless you are told to do so by your doctor/nurse

LOPINAVIR/RITONAVIR

Formulations At NatPharm		Strength	Unit	NatPharm Code	VEN
	Tablets	200/50mg	B/120	24/5503	V
	Capsules	100/25mg	B/60	24/5611	V
	Solution	80/20	B/300		V

Indications
Treatment of HIV infection in combination with other antiretroviral medicines
Infants previously exposed to nevirapine

Contra-indications
Concurrent administration with drugs that are highly dependent on CYP3A or CYP2D6 for clearance and for which elevated plasma levels are associated with serious or life-threatening reactions.

Special care
Hepatic impairment, pancreatitis

Interactions
Anticonvulsants (e.g., carbamazepine, phenobarbital, phenytoin), corticosteroids (e.g., dexamethasone), efavirenz, rifampin, St. John's wort, nevirapine: Effects of lopinavir/ritonavir may be decreased. Antiarrhythmic agents (e.g., amiodarone, bepridil, flecainide, lidocaine [systemic], propafenone, quinidine), ergot derivatives (e.g., dihydroergotamine, ergonovine, ergotamine, methylergonovine), midazolam, pimozide, triazolam: Contraindicated because of potentially serious or life-threatening reactions. Clarithromycin, dihydropyridine calcium channel blockers (e.g., felodipine, nifedipine, nicardipine), HMG-CoA reductase inhibitors (e.g., atorvastatin, cerivastatin, lovastatin, simvastatin), immunosuppressants (e.g., cyclosporine, sirolimus, tacrolimus, rapamycin), itraconazole, ketoconazole, rifabutin, sildenafil: Lopinavir/ritonavir may increase the effects of these agents. Atovaquone, methadone, oral contraceptives (eg, ethinyl estradiol): Lopinavir/ritonavir may decrease the efficacy of these agents. Disulfiram, metronidazole: Disulfiram-like reaction may occur due to alcohol present in lopinavir/ritonavir oral solution

Dose

Adults and paediatrics: Treatment of HIV	See EDLIZ or Guidelines for ANTIRETROVIRALS in Zimbabwe

Side Effects
Fatigue, vertigo, nausea, vomiting, diarrhoea, flatulence and kidney failure
Appetite changes, weight changes, hypertension, myocardial infaction,palpitations,confusion,depression,amnesia,oedema,cough,agitation,anxiety,ataxia

Labelling
Finish course

Patient Information
- You must take this medicine always at the same time each day. If you forget to take the medicine at the same time, take the medicine as soon as you remember.
- You should not stop the medicines unless you are told to do so by your doctor/nurse

Chapter 13: Psychiatric Medicines

FLUPHENAZINE DECANOATE

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Injection	25mg/ml	RCV 10ml	25/3752	V

Indications

Maintenance therapy in organic psychoses. Long acting (depot) injection, especially useful when compliance is problem.

☞	*Should only be commenced under psychiatric supervision. Patients require psychiatric review every* 6 *months.*

Contra-indications

- See *Chlorpromazine*

Confusional state, coma, Parkinsons disease, severe depression.

Cardiovascular problem

Special care

see *Chlorpromazine*

Interactions

Interactions Increases effects of analgesics, antihistamines, antihypertensives & sedatives.

Effect may be decreased by antiepileptics (phenobarbitone & carbamazepine).

Dose

Give test dose: 12.5mg.

If no side effects after 2 weeks, give maintenance dose of 25 - 50mg at intervals of 4 weeks.

Administration - deep intramuscular injection in buttock.

Adjust dose according to response.

NOT recommended for children.

PRACTICAL POINT

- Use dry syringe and 21 gauge needle

Side Effects

As for *Chlorpromazine.*

Extrapyramidal symptoms - appear few hours after the dose and continue for about 2 days. May be delayed.

Treat with benzhexol.

Labelling

Patient Information

•• Come back for another injection after 4 weeks.

•• If you stop coming for injections you might become ill again.

PHENYTOIN

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm	Tablets	100mg	B1000t	24/7480	V

Indications Epilepsy not controlled by phenobarbitone.

Special care First and third trimesters of pregnancy - risk of congenital malformation (but see below). Give with daily folic acid.
Hepatic impairment - reduce dose
Phenytoin in pregnancy
Fits in pregnancy are generally more dangerous than the effects of anti-epileptic medicines. If an epileptic woman becomes pregnant do not stop her medication - refer to hospital for specialist advice

Interactions Complex interactions with other anti-convulsants - careful monitoring needed.
Action increased by chloramphenicol, cotrimoxazole, isoniazid and metronidazole.
Action decreased by chronic alcohol abuse, antacids.
Phenytoin reduces effect of oral contraceptives, doxycycline, theophylline, and tricyclic antidepressants.
The effect of warfarin may be increased or decreased.

☞	*Phenytoin reduces effectiveness* of *oral contraceptives - women should use additional barrier method* or *other method - see Chapter 4: Contraceptives.*

Dose

	Adult
Epilepsy	300mg at Bedtime and review

Side Effects Common: nausea, vomiting, mental confusion, dizziness, headache, tremor, insomnia.
Gingival hyperplasia (swollen gums) common - reduced by good oral hygiene.
Skin rashes (refer), acne, excess body hair, thickened facial skin.
Ataxia, slurred speech, nystagmus, blurred or double vision - signs of overdose.
Rare: peripheral neuropathy, strange movements, blood disorders.

☞	*Therapeutic doses of phenytoin are close to the toxic level giving only* a *narrow margin of safety. Even small dosage increases can cause toxic effects*

Labelling ✎ Name only,

Patient Information

☞	*Patient compliance is essential for seizure control,* so *give careful explanations at the time of starting the medicine.*

•• These tablets will help to stop your fits, but they may not stop all of them. Please record the dates of any fits that you have on your patient card or in a book, and show it each time you come for check-up.
•• You may need to take these tablets for months or even years to prevent the fits, so even if you feel all right and you haven't had any fits for a long time, do not stop taking these tablets.
••Collect new supplies before the others run out (give a date to return).

TRIFLUOPERAZINE

Formulations		**Strength**	**Unit**	**NatPharm Code**	**VEN**
at NatPharm	Tablet	1mg	B/1000T	24/9540	E
	Tablet	5mg	B/1000T	24/9541	E

Indications Non-organic psychosis such as schizophrenia and mania.

Contra-indications, - As for *Chlorpromazine* except

Special care, Less sedating

Interactions, Extrapyramidal symptoms more frequent.

Side Effects Hypotension hypothermia & antimuscarinic effects less frequent

Dose

Acute psychosis
5 - 10 mg 2 times a day

Labelling May cause drowsiness

Patient Information
•• Swallow the tablets whole - do not crush them.
•• Do not stop taking the tablets unless your doctor tells you to.
•• If the tablets make you sleepy, do not drive a vehicle or operate machinery.

Chapter 14: Respiratory Conditions Medicines

BECLOMETHASONE INHALER

Formulations		Strength	Unit	NatPharm Code	VEN
at NatPharm					
	Inhaler	100mcg/puff		26/0907	V

Indications Bronchodilator used to treat asthma and chronic obstructive pulmonary disease (COPD) with airway obstruction Used for the symptomatic relief of an acute attack, emergency treatment of acute severe asthma
Conditions in EDLIZ).
May also help in chronic bronchitis.
Works by relaxing smooth muscle in the lungs (selectively stimulates beta$_2$-adrenoceptors).

Contra-indications

Special care *Hypersensitivity:* Immediate and delayed hypersensitivity reactions have occurred. *Acute asthma:* Not indicated for relief of bronchospasm. *Fungal infections:* Antifungal treatment or discontinuance of corticosteroid therapy may be necessary. *Immunology:* Patients receiving immunosuppressant agents are more susceptible to infections than healthy adults. If a patient is exposed to measles or chickenpox, appropriate prophylaxis and treatment may be indicated. *Systemic effects:* Use cautiously in patients taking daily or alternate-day prednisone; may increase likelihood of HPA suppression. Exceeding recommended dose may cause systemic effects.

Interactions

Dose

	Child		Adult *
	1-4 years	5-12 years	
Chronic Obstructive Pulmonary disease			200mcg 6 hourly
Mild chronic asthma			200-400mcg 2 times a day
Moderate chronic asthma			200mcg twice daily
Severe chronic asthma	50-100mcg 3-4 times a day	50-100mcg 3-4 times a day	400mcg 2-4 times a day

Side Effects

CNS: Headache; light-headedness; agitation; depression; mental disturbances. *EENT:* Nasal bleeding; sneezing; throat and nasal irritation, burning or stinging; hoarseness or dysphonia; nasal, laryngeal, or pharyngeal fungal infection. *GI:* Dry mouth; dyspepsia; nausea; vomiting. *METABOLIC:* Suppression of hypothalamic-pituitary-adrenal (HPA) functions. *RESPIRATORY:* Coughing; wheezing; pulmonary infiltrates. *OTHER:* Hypersensitivity reaction with rash, urticaria, angioedema, and bronchospasm; facial and tongue oedema; pruritus; wheezing; dyspnoea; acneiform lesions; atrophy; bruising; localized Candida or Aspergillus infections; cushingoid features; growth velocity reduction in children; weight gain.

Labelling

Patient Information

- May be administered alone or with concomitant systemic steroids.
- Shake inhaler well before administration.
- Before oral inhalation administration, give patient a drink of water to moisten throat.
- Place inhaler mouthpiece 2 finger breaths away from patient's mouth.
- Tilt patient's head back slightly. Instruct patient to take a slow, deep breath while inhaler is being activated and to hold breath for 5 to 10 sec and then breathe slowly.
- A spacing device (e.g., Aerochanger) may be used to enhance delivery of medication.
- Have patient rinse mouth with water after inhalations are complete.
- Before nasal inhalation, instruct patient to blow nose gently to clear nasal passages.

- A topical decongestant may be used 5 to 10 min before administration to ensure adequate tissue penetration.
- Nasal lavage with saline also may help remove secretions.
- Clean outer portion of nose with a damp tissue.
- Wash hands with soap and water and dry them.
- Insert nozzle into patient's nostril.
- Use finger to keep other nostril closed.
- Instruct patient to inhale while you activate medication.
- Repeat with other nostril.
- If patient is also receiving bronchodilators by inhalation, administer bronchodilator before beclomethasone to enhance penetration of latter medicine into bronchial tree.
- Store at room temperature; do not refrigerate.
- Do not store or use near open flame or discard in incinerator.

ANNEXES

Annex 1: SUMMARY CHART OF PATIENT INFORMATION

Medicine Name	Essential labelling	Patient information
ALBENDAZOLE	To be chewed	All members of the family should also be treated
ARTEMETHER /LUMEFANTRINE		Take with or after food. (A small amount of food is sufficient)
ASPIRIN	To be taken with or after food	Do not take if you have had stomach ulcers. Avoid alcohol. Keep in plastic envelope.
BENZATHINE PENICILLIN		This may hurt. (for STI) Sex partner(s) should come for treatment. Rest here for 30 minutes before going home
BENZOIC ACID CO. OINTMENT		Continue to apply for about one week after the rash has gone. Avoid sensitive skin. May take several weeks but don't give up.
BISACODYL	To be swallowed whole	They start to work in 6-12 hours so take at night. Do not take with antacids. Increase fluid and roughage intake.
CALAMINE LOTION		Shake the bottle. Apply when needed for itching, up to 10 times a day. Don't apply to open sores
CHLOPHENIRAMINE		Avoid alcohol. May cause dry mouth. May impair ability to drive. If causing drowsiness, take them after work/school only

Medicine Name	Essential labelling	Patient information
CHLORPROMAZINE	May cause drowsiness	Do not stop taking these without talking to your doctor. May cause drowsiness. May cause constipation. Avoid alcohol
COTRIMOXAZOLE	Finish the course	Drink at least 8 glasses of water each day. (if STI) Sex partner(s) should come for treatment. Report to clinic if you get rash.
DOXYCYCLINE	Finish the course	Take with food. (for STI) Sex partner(s) should come for treatment. Do not take if pregnant(ask about LMP) Not at same time as antacids.
EMULSIFYING OINTMENT		Apply to dry skin several times a day. Use instead of soap.
ETHAMBUTOL	Finish the course	Do not stop taking without talking to your doctor. Report any change in vision.
FERROUS SULPHATE	Take with food	May need to take for several months. May cause constipation or diarrhoea. May make your stools darker/black Swallow whole.
FOLIC ACID		May need to take for several months.
GAMMA- BENZENE HEXACHLORIDE		Apply to whole body below neck, not just itching areas. Treat all close contacts. Wash clothing and bedding. May continue to itch for some days after treatment.
HYDROCHLOROTHIAZIDE	Take in the morning	May take several weeks to start working. May cause dizziness when getting up. Do not stop taking them without talking with doctor. Report if you feel numbness or tingling in feet or hands.
ISONIAZID	Finish the course	Report any rash. Do not stop taking without talking with doctor

Medicine Name	Essential labelling	Patient information
KANAMYCIN		This will be 2 injections and it may hurt. Sex partner(s) should come for treatment.
MAGNESIUM TRISILICATE CO. **PRAZIQUANTEL**		Do not take at same time as other medicines. Take with food.
METRONIDAZOLE	Finish the course. Avoid alcohol.	May leave a metal taste in the mouth. Take with food.
NALADIXIC ACID	Finish the course	Avoid strong sunlight. Report painful joints. Drink plenty of fluids.
PARACETAMOL	Take if needed	No more than 8 tablets in a day. No more than 4 doses in a day for children
PENICILLIN V	Finish the course. Take on an empty stomach.	Report to clinic if you get rash.
PHENOBARBITONE	May cause drowsiness	Avoid alcohol. Do not stop taking without talking to doctor. Report to clinic if you get rash.
PROCAINE PENICILLIN		Are you allergic to penicillin? Must come back each day for full course of injections.
PYRAZINAMIDE	Finish the course	Do not stop taking without talking to doctor.
PYRIMETHAMINE/ DAPSONE	Take - tablet once a week	Start one week before going to malarial area and continue 4 wks after returning. Avoid being bitten. Do not use for treatment of malaria.
RESERPINE		May impair ability to drive. May cause depression. May cause blocked nose.
RIFAMPICIN	Finish the course	Do not stop taking without talking to doctor. May colour saliva, sputum, tears and urine orange. Report signs of hepatitis.

Medicine Name	Essential labelling	Patient information
SALBUTAMOL		May cause difficulty in sleeping. May cause palpitations.
TETRACYCLINE EYE OINTMENT	Discard 30 days after opening	Continue to apply for several days after eye has improved.
THEOPHYLLINE		Do not change smoking or drinking habit suddenly. Do not take other medicines without talking with doctor
VITAMIN A		If problems with swallowing capsule, pierce and drink contents

Annex 2: GLOSSARY

agranulocytosis- severely reduced white blood cell production
amnesia - loss of memory
analgesic - treatment which reduces sensitivity to painful stimuli
anaphylaxis- hypersensitivity to certain foreign proteins
anti-helmintic - treatment against worms
anti-muscarinic - against the action of parasympathetic system
anti-pruritic - against itching
arrhythmias- irregularity of rhythm of the heart beat
asphyxia - inability to breathe due to obstruction to airflow in mouth or nose
astringent - stopping secretion or discharge, causing contraction of tissue
ataxia - loss of control over voluntary movements
back-up method of contraception - a method which can be used temporarily in addition to the usual method for extra protection
bacteraemia - bacteria in the blood
bradycardia - slowing of the heart rate
delusions - a false belief which is irrational
dysentery - inflammation of the colonic mucosa resulting in the passage of blood and mucous, accompanied with acute pain.
dyskinesia - impairment of voluntary motion resulting in movements that may be incomplete

megaloblastic anaemia - production of large, immature red blood cells
myocardial infarction - an area of

extrapyramidal side effects - medicine
induced symptoms such as strange facial expressions, twisted posturing and stiffness, parkinsonism with tremor and rigidity, salivation and restlessness of feet and legs
galactorrhoea- spontaneous secretion and discharge of milk after the period of nursing is over
gingivitis - inflammation of the gums around the teeth manifested by swelling and bleeding
gynaecomastica - a condition of the male in which the mammary glands are excessively developed
haemolytic anaemia - lysis or bursting of red blood cells
hallucinations - seeing or feeling something that isn't there
hepatomegaly- enlargement of the liver
hyperbilirubinaemia - high levels of bilirubin in the blood
hypokalemia - low blood potassium
hyponatremia - low blood sodium
hypotension- low blood pressure
hypoxia - the supply of oxygen to the tissues is not enough to maintain normal tissue function
intoxication- general condition resulting from the absorption and diffusion in the body of a soluble poison.
lethargy - drowsiness
1ymphadenitis - Inflammation of lymph glands
Lypodystrophy- Loss of fat in one area usually face
malaise - general feeling of being unwell
photophobia- abnormal intolerance to light
photosensitivity - sensitivity to light, especially of the skin

dead muscle tissue in the heart cause by poor blood supply
nulliparous - a woman who has never given birth to a full-term baby
oedema - presence of excess intercellular fluid due to leakage of fluid from the capillaries
oesophageal reflux- movement of stomach contents back up the oesophagus
optic neuritis - inflammation of the optic nerve
organophosphate - a series of anti-cholinesterases compounds which cause double vision, perspiration, salivation, abdominal cramps, muscular twitching and weakness
paralytic ileus - obstruction of the bowel due to loss of contractility of the smooth muscle in the intestine
parasympathetic - produces effects similar to acetylcholine e.g. slows heart, stimulation of smooth muscle, increases lachrymal, salivary and other secretions,
paraesthesia- abnormal sensation of feeling
peripheral neuropathy- damage to the nerves on the extremities (fingers, toes, ears etc.)
Porphyria- any of several usually hereditary abnormalities of porphyrin metabolism characterized by excretion of excess porphyrins in the urine and by extreme sensitivity to light
prophylaxis - prevention
pyloric stenosis- when the sphincter muscle which connect the stomach with the pylorus, narrow, reducing flow of stomach contents
rhinitis - inflammation of the nasal mucous membrane
sympathomimetic - produces effects similar to adrenaline e.g. vasodilatation in muscles, increased heart rate, vasoconstrlcton of blood vessels supplying skin and mucous membranes, dilation of the bronchi and speeding up metabolism
tachycardia - increasing the heart rate
thrombophlebitis - inflammation of a vein following the formation of a intravascular clot, caused by alteration of the blood
tinnitus - ringing noise in the ear
urticaria- skin problem characterised by formation of whitish, red or pink elevations or wheals, attended by itching, stinging or burning.
vertigo - giddiness, swimming in the head, a sense of instability

Report of a Suspected Adverse Drug Reaction

Report of a Suspected Adverse Drug Reaction	
Identities of Reporter, Patient and Institute will remain confidential	
Patient Details (to allow linkage with other reports)	
Family Name:	
Forenames:	
Date of Birth:	I Weight: I Sex:
Age:	I kgs I M/F
Adverse Reaction	
Date of Onset:	
Duration:	I Hours I Weeks less than one hour I Days I Months
Description:	
Outcome:	Recovered I Fatal I Unknown Not vet recovered
Suspected Medicine(s)	
Medicine:	Generic Name Brand Name
Condition/indicatio medicine given for:	
Daily dose/route:	
Date begun:	I Date I
All other medicines used by patient:	
Reported by	
Family Name	
Forename(s)	
Status:	Doctor I Pharmacist I Nurse
Address:	
Signature:	I Date:
Send to:	The Director General Medicines Control Authority of Zimbabwe 106 Baines Avenue , P.O. Box 10559, Harare Fax: +263-4-736980 Email: mcaz@mcaz.co.zw Website: www.mcaz.co.zw

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Patient Details (to allow linkage with other reports)				
Family Name:	OR Patient Clinic/Hospital Number:			
Forename(s):				
Date of Birth:		Weight		Sex:
Age:		kg		M/F
Adverse Reaction				
Date of onset:				
Duration:	Less than one hour	Hours		Weeks
		Days		Months
Description:				
Outcome:	Recovered	Fatal		Unknown
	Not yet recovered			
Suspected Medicine(s)				
Medicine:	Generic Name:			
	Brand Name:			
Indication medicine was given for:				
Daily dose/route:				
Date begun:		Date stopped:		
Concomitant (Other) medicines taken & Dates/period taken:	Name of medicine:	Date started:		Date stopped:
Laboratory test results				
Reported by				
Family Name:				
Forename(s):				
Status:	Doctor	Pharmacist/Pharmacy Technician		Nurse
Address:				
Signature:		Date:		
Send to:	The Director-General Medicines Control Authority in Zimbabwe 106 Baines Avenue, P O Box 10559, Harare Fax:+263-4-736980, email:mcaz@mcaz.co.zw, website:www.mcaz.co.zw			

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Index

E

F

G

H

I

K

L

M

N

O

P

Q

R

S

T

V

W

Z

Notes

Notes