Republic of Vanuatu
Ministry of Health

HEALTH WORKER'S MANUAL

Standard Treatment Guidelines

April 2004
FOREWARD

2ND EDITION

VANUATU HEALTH WORKER MANUAL
Standard Treatment Guidelines

The Vanuatu Health Worker's Manual was originally published in 1991. This first edition has been used widely in Vanuatu since this time. The manual therefore has formed an important part of the day to day clinical care of our people and has been used as a basis for training curriculum and a guide for rural health workers in the referral system.

The revision of this manual commenced in 2001 by senior medical officers who have since departed. The manual has been completed in a participatory manner between a number of people. The updates in this manual endeavour to adopt current best practices to our situation. This follows the principles of Primary Health Care; Appropriateness, Affordability and Accessibility.

The time and effort put into this extensive review by the staff of the Ministry of Health with assistance from the Health Management & Planning Development Project and specialist clinical staff within the Ministry supported by AusAID is gratefully acknowledged. Thanks is also given to AusAID for funding assistance to purchase an offset printer and other items so that all medical and nursing staff now and within the next few years all receive copies of the manual.

I take this opportunity to encourage all registered nurses and medical practitioners to use this manual wisely and for the benefit of improving clinical service delivery to the people of Vanuatu.

Minister for Health.
HOW TO USE INHALERS WITH SPACERS

Inhaler - shake before each press

Hole cut in bottom of 1 litre plastic drink bottle

1 litre clear plastic drink bottle

Patient breathes slowly 5 times, after pressing inhaler
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CHANGES IN THIS EDITION

New areas have been added and many of the topics have been re-written and updated.

All drug dosages should be according to the patient’s weight. If you cannot obtain a weight then use age.

Unless ordered by a medical officer all drug doses for people classed as “large adult” or 50+ kgs should receive the dose listed in the last column and would not normally be worked out per kilo to avoid overdosing in people who are fat.

<table>
<thead>
<tr>
<th>Estimate Weight in Kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Or By Age</td>
<td>0-3 months</td>
<td>4-11 months</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
</tr>
</tbody>
</table>

1. Some Drug Treatment Guidelines have been changed.
   - Amoxycillin replaces Cotrimoxazole as the first line of treatment for most infections in children: Pneumonia, Otitis Media
   - Oral Amoxycillin (tablets) replace IM Procaine Penicillin unless indicated
   - Salbutamol Inhalers (puffers) are first line therapy for mild-moderate asthma and replace the use of tablets whenever possible
   - Inhalers should be used with a spacer made from a 1 or 1.5 litre drink bottle – see picture at end of drug tables at back of this manual
   - All known asthmatics should be using Inhalers: Salbutamol and Bectotide.
   - Meningitis should be treated in a hospital. Ceftriaxone is available, but only for in-hospital use.

2. Some Drug Treatments are no longer used:
   - Aminophylline should no longer be used, unless under direct orders of a medical officer.
   - Use of Salbutamol or Theophylline tablets should be avoided. If you feel you must use these, you must get approval from a senior medical officer.
   - Adults treated for infectious diarrhoea should receive Chloramphenicol, NOT Cotrimoxazole. If Ciprofloxacin is available you may give this.
   - Antibiotic syrups will no longer be supplied when current supply runs out – tablets for children can be crushed and mixed with water to make 10mL and then divided to give the correct dose – you will need to show mothers how to do this – the correct dose amount can be mixed with something sweet e.g. fruit like banana, paw paw, mangoe, butter fruit but not citrus fruit.

3. Pre-Treatment Referral Guidelines are added
   - Always give Paracetamol (Panadol) for fevers (38°C or higher) prior to referral
   - All infants and children under 5 should be pre-treated according to specific illness guidelines before referral
   - Anyone suspected of cerebral malaria should be commenced on Quinine and before referral
   - Every effort has been made to ensure that rural health staff have some instructions about treatment to commence as it is acknowledged that referral can be difficult and take time.

REMEMBER, IF YOU ARE NOT SURE WHAT TO DO AND ARE NOT COMFORTABLE WITH A GUIDELINE, ASK FOR HELP. GET IMMEDIATE ASSISTANCE FROM SOMEONE MORE EXPERIENCED THAN YOU.

YOU CAN ONLY DO YOUR BEST WITH WHAT YOU HAVE, BEING KIND AND ATTENTIVE TO PATIENTS AND THEIR FAMILIES CAN HELP A LOT WHEN YOU HAVE FEW RESOURCES.

HEALTH FACILITIES, TREATMENT ESSENTIALS AND THE REFERRAL SYSTEM

In Vanuatu, Aid Posts managed by the community with assistance from the Ministry of Health are the first level of the Primary Health Care System in Vanuatu.

Health Dispensaries offer more specialised care followed by Health Centres. Hospitals are for patients needing the most advanced care. It is important in Vanuatu to understand and use a referral system so that patients receive the level of health care they require. The following guidelines are to be used to make consistency possible.
Referral Procedures

1. Any patient who is not improving, getting worse, extremely ill and/or beyond your level of medical skill needs referral to a higher level of care facility.
2. Before referring patients, if you have a radio or phone, call and discuss the case with a more experienced or senior level medical officer.
3. Agree upon plan of action with this person and give the patient pre-referral treatment.
4. Document in writing patient’s name, age, presenting condition, relevant medical history, treatment to date, reason for referral and pre-referral treatment given and have patient take this with him/her to referral site. Remember to sign your name, title and contact information.
5. Assist in whatever means necessary to assure patient has necessary transportation to go.
6. The hospital or medical officer who accepts and sees the referred patient should send back a report to the referring health facility.
7. It is important to record number of referrals you have made on your monthly HIS report – this should include urgent and non-urgent referrals and shortly the HIS sheet will have this included.
8. Referral facilities should also maintain records of people received. Shortly, the monthly HIS for all facilities will have space for you to report these numbers.
9. Dispensaries and Health Centres should work with their committees to develop community support to assist with urgent referral, especially transport logistics and costs.
10. The administrative procedure associated with referral is being re-drafted and should be available shortly.

ESSENTIAL DRUGS

Vanuatu has an Essential Drug list that was updated as this manual was being printed. The drug list is based on a list of drugs that are appropriate, affordable and accessible for the basic health needs of the majority of the population.

Due to the complexity of some drugs regarding administration and or side effects and or cost not all drugs are available to all health staff. Some drugs are reserved for administration under direct supervision of medical officers and some others are for specialist medical officer use only.

Following publication of this manual a new drug order list will become available for use in all health facilities to allow the best use of this manual, may take some time for all drugs to be available, as they need to be ordered from overseas.

BASIC EQUIPMENT

Using 2002 a basic equipment kit was delivered to most facilities in the community health sector. This kit allows management of most common illnesses seen in these facilities. The kit also contained enough instruments to conduct a basic delivery.

Following release of this manual the basic list will be reviewed to form “Standard Equipment Lists” for all facilities and the Ministry of Health will work to ensure that all facilities have the standard equipment. This may be by recurrent budget or after assistance so it may take time.

MANUALS

This manual is focused on the general treatment guidelines that should be carried out by all health staff in Vanuatu. Drugs are based on what is the best available to Vanuatu. The guidelines are also based on various international standards. Some treatments have changed a lot since the last manual especially non-communicable diseases. Many sources have been cross-referenced to make sure that what is recommended is what could be expected internationally.

Addition to this manual the Ministry of Health has a number of other key manuals that you should refer to when seeing clients. Each complaint in this manual where another guide exists for Vanuatu is noted. The main manuals are:

- Malaria
- TB DOTS
- EPI
- Family Planning for Vanuatu

The next year or so it is expected that the following manuals also are available:

- Infection Control
- Obstetrics and Gynaecology
This manual has been produced in section using Microsoft Word and Excel for the drug tables then transferred to Adobe Acrobat and sections combined. To shuffle pages for printing PDF Snake software was used. This software was used to ensure that future updates could be done easily by someone with good formatting skills. Software such as Page Maker was not chosen, as there is currently no one in the MOH with the competency to produce a large manual using this software.

All the software is available at Ministry of Health. A copy in Acrobat format is available on the MOH Efile Server. Copies of the Word document and the Acrobat document with a copy of the PDF Snake software has been made on a CD Rom for future use to upgrade the manual. The current contact person is Len Tari at Directorate of Public Health. Care has been taken to make sure that the information in the manual is likely to remain current for at least 5 years. Where there is likely to be changes this has been noted e.g. the use of Misoprostol for 3rd Stage of labour and possible introduction of contraceptive implants.

If you would like to plan an update of the manual in the future you must discuss this with the contact person and give your reasons for the need to update. You also must have a plan about how this will be funded and this may mean that you will need to seek the funding for the MOH if there is no recurrent budget available. The new (end 2003) MOH offset printer was donated but the life span of these printers is about 5-7 years only. The plan to upgrade the manual needs to be included in the MOH Business Plan in the future.

If you think an overseas person is required to help then they must have an understanding of clinical practice in Vanuatu and be competent in formatting and completing to print stage. It is recommended that if a person was recruited to do this only they would require 3 months in order to cross check with as many key clinical staff as possible and this would require travel to provinces. A donor would be required to fund such a person.
### Abbreviations

<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>HB</td>
<td>Haemoglobin – measured as grams per 100mL</td>
</tr>
<tr>
<td>MPS</td>
<td>Malaria Parasite Slide</td>
</tr>
<tr>
<td>CXR</td>
<td>Chest X-Ray</td>
</tr>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>Daily</td>
<td>Usually means to be taken in the morning</td>
</tr>
<tr>
<td>BID</td>
<td>Twice per day – usually 12 hours apart e.g. 8am and 8pm</td>
</tr>
<tr>
<td>TDS</td>
<td>Three times per day – can mean morning, afternoon and bedtime or may mean every eight hours depending on drug</td>
</tr>
<tr>
<td>QID</td>
<td>Four times per day – can mean morning, lunch, dinner and bedtime or every 6 hours depending on drug</td>
</tr>
<tr>
<td>SQH or Q4H</td>
<td>Means to be given every 4 hours</td>
</tr>
<tr>
<td>PRN</td>
<td>Means to be given whenever necessary but may have a number of hours linked with it e.g. PRN 4 hly means can be given whenever necessary but at least 4 hours apart e.g. analgesia</td>
</tr>
<tr>
<td>STAT</td>
<td>Means to be given straight away</td>
</tr>
<tr>
<td>IM</td>
<td>Intra muscular</td>
</tr>
<tr>
<td>IV</td>
<td>Intra venous</td>
</tr>
<tr>
<td>SC</td>
<td>Sub cutaneous</td>
</tr>
<tr>
<td>ID</td>
<td>Intra dermal</td>
</tr>
<tr>
<td>PO</td>
<td>Per oral e.g. nystatin can be given orally or vaginally</td>
</tr>
<tr>
<td>PR</td>
<td>Per rectum</td>
</tr>
<tr>
<td>PV</td>
<td>Per vagina e.g. nystatin can be given vaginally or orally</td>
</tr>
<tr>
<td>Before food</td>
<td>Means to be given 30 minutes before food on an empty stomach</td>
</tr>
<tr>
<td>mL</td>
<td>Millilitre</td>
</tr>
<tr>
<td>1mL</td>
<td>1 millilitre</td>
</tr>
<tr>
<td>1000mL</td>
<td>1,000 millilitres or 1 litre</td>
</tr>
<tr>
<td>mcg</td>
<td>Microgram</td>
</tr>
<tr>
<td>mg</td>
<td>Milligram or 1,000 micrograms</td>
</tr>
<tr>
<td>gm</td>
<td>Gram or 1,000 milligrams</td>
</tr>
<tr>
<td>kg</td>
<td>1,000 grams</td>
</tr>
<tr>
<td>1 mega unit</td>
<td>1,000,000 units e.g. with penicillin = 600grams</td>
</tr>
<tr>
<td>1/8</td>
<td>0.1 or 10%</td>
</tr>
<tr>
<td>1/4</td>
<td>0.25 or 25%</td>
</tr>
<tr>
<td>1/2</td>
<td>0.50 or 50%</td>
</tr>
<tr>
<td>1/4</td>
<td>0.75 or 75%</td>
</tr>
</tbody>
</table>
INFECTION CONTROL

Universal Precautions aim to reduce the risk of disease transmission in the health care setting.
Universal Precautions are designed for use with all patients who present in the health care setting and apply to:

- Blood and most body fluids whether or not they contain blood
- Broken skin
- Mucous membranes.

Reducing the Risk:
To reduce the risk of disease transmission in the health care setting, use the following Universal Precautions:

1. Wash hands immediately with soap and water before and after examining patients and after any contact with blood, body fluids and contaminated item—whether or not gloves were worn. Soaps containing an antimicrobial agent are recommended.
2. Wear clean, ordinary thin gloves anytime there is contact with blood, body fluids, mucous membrane, and broken skin. Change gloves between tasks or procedures on the same patient. Before going to another patient, remove gloves promptly and wash hands immediately, and then put on new gloves.
3. Wear a mask, protective eyewear and gown during any patient-care activity when splashes or sprays of body fluids are likely. Remove the soiled gown as soon as possible and wash hands.
4. Handle needles and other sharp instruments safely. Do not recap needles. Make sure contaminated equipment is not reused with another patient until it has been cleaned, disinfected, and sterilized properly. Dispose of non-reusable needles, syringes, and other sharp patient-care instruments in puncture-resistant containers.
5. Routinely clean and disinfect frequently touched surfaces including beds, bed rails, patient examination tables and bedside tables.
6. Clean and disinfect soiled linens and launder them safely. Avoid direct contact with items soiled with blood and body fluids.
7. Place a patient whose blood or body fluids are likely to contaminate surfaces or other patients in an isolation room or area.
8. Minimize the use of invasive procedures to avoid the potential for injury and accidental exposure. Use oral rather than injectable medications whenever possible.

When a specific diagnosis is made, find out how the disease is transmitted. Use precautions according to the transmission risk.

Cleaning, Cleaning and More Cleaning!

1. In Vanuatu, nurses are responsible for making sure health facilities and equipment are kept clean and that all equipment used by patients is decontaminated, cleaned and sterilized as soon as possible after use. The equipment is then stored in a clean and dry place ready for the next patient. Nurses are responsible to make sure that the job is delegated to lesser trained staff that they carry out the tasks correctly and safely.
2. Most infection is spread by contaminated hands, surfaces and equipment. You need hospital grade neutral detergent to clean as it helps break down the proteins in body fluids that stick to surfaces. You are not only cleaning to remove body fluids but also to remove plain dirt and dust that has tetanus and other spores in it.
3. A clean health facility leads to community confidence which leads to community support.

Disinfection or Decontamination Means:
To remove or destroy potentially infectious particles so they become safer to handle. The process does not destroy all micro organisms such as tetanus or the organism that causes gangrene. It is debatable if this method destroys Hepatitis B. Depending on solution strength of chlorine and contact time HIV is likely to be destroyed — it is less likely to survive than Hepatitis B.

Common disinfectives include chlorine / bleach, medol, glutaraldehyde, iodine and 70% alcohol. Boiling is also technically a disinfectant even if for 10 minutes but is probably less effective than chemicals.

- Used instruments are to be placed in a solution of medol 1:50 or chlorine 1:100 for 20 minutes to decontaminate / disinfect them so they are safer for you to handle
- Using thick domestic gloves scrub instruments clean with detergent and scrubbing brush – a toothbrush can be used for small instruments
- Lay instruments on a clean surface to dry – they are then ready for sterilising
I. Linen soiled with body fluids can be placed in a solution of chlorine 1:10 for 20 minutes to decontaminate / disinfect them before they are washing in the usual way.

Sterilisation Means:
- Remove all microorganisms including spores. Methods include steam sterilisation (pressure cooker), dry sterilisation (hot air oven) and gas (ethylene oxide). All methods must be used correctly to be effective. The most common in Vanuatu available to all facilities is the pressure cooker. Surgical instruments, syringes, gloves and urine catheters can all be sterilised using the pressure cooker.

**IF IT ISN'T CLEAN IT ISN'T STERILISED!**
- A method is effective if what you want to sterilise clean with a scrubbing brush and detergent to remove all body fluids and dirt including dried secretions / blood.
- Open instruments e.g. forceps and scissors
- Use gauge to separate surfaces of gloves e.g. inside and under cuff foldback
- Wrap tubing such as urine catheters around a small towel made into a tube shape
- Wrap items inside a double layer of clean cotton cloth
- Tape pack with special sterilising tape and mark date on tape
- Place packs in basket making sure items like bowls and jugs are up side down so water can drain – make sure packs are not tightly together and there is space between them to allow steam to move around.

**HOW TO USE THE PRESSURE COOKER STERILISER:**
- The facility should have only one of these – either 24 litre or 39 litre. They work on gas, kerosene or open fire. If you organise your work well you can have the steriliser ready to put on the cooking fire in the evening after you have cooked your dinner and it will have cooled by morning.
- Put clean water in steriliser – it should only come to your first knuckle – like cooking rice
- Stack packs in basket and place inside steriliser with the tubing from the lid going down the side of the groove in the basket.
- Screw down lid.
- Put the steriliser on the fire with the control valve open.
- Once the water starts to boil and steam comes out the valve you must close it down.
- Next step is to watch the valve – the pressure gauge should remain in the green area – if it goes to the red area you must open the control valve again to release pressure.
- With the needle in the green area of the pressure gauge keep “cooking” for 30 minutes.
- When 30 minutes has passed remove from fire and release control valve and leave until needle on gauge returns to zero (0) – it is now safe to open lid.
- Remove lid and wait to cool to remove articles – the cloth should be dry and the tape should have changed colour.
- Store your packs in a cool dry place – if they get wet they are no longer sterile – if one month has passed you must sterilise the pack for articles wrapped in two layers of cotton cloth or only one week if one layer used.

**HOW TO USE CHLORINE SOLUTION:**
- Chlorine tablets are available from CMS – only order what you need and keep them in a secure cool dry place as chlorine loses its strength.
- Make up the amount of solution that you will need during your clinic and discard it before you go home if you have not used it – if you haven’t used it it can be kept for 24 hours – after this time it is not effective.
- Aspirates bleach solution better than metal over time.
- One tablet from CMS of chlorine to one litre of clean water = 1:100 – this should be sufficient to soak instruments and emometers but you must leave in solution for 20-30 minutes.
- An alternative is to use 10 mL of household bleach (White King, Javel etc) to one litre of clean water = 1:100 chlorine solution.
3. If you would like to make a solution for soaking linen then you would mix 100mL with ten litres of clean water = 1:100 chlorine solution or you can use 10 chlorine tablets.

4. The 1:100 solution is also suitable for wiping over stethoscopes, scales and other equipment including beds and tables but it will not fully decontaminate them – you can leave the solution to dry and then you must follow by washing well with detergent – chlorine makes rubber go sticky if it is left in contact for too long e.g. soaking gloves.

5. Gloves are better dipped in chlorine and then washed in hot soapy water, rinsed and hung out to dry before sterilising – it is not recommended that gloves are reused for sterile procedures but using this method they should be satisfactory to use to protect you from the patient’s body fluids – it is best to use two pairs of reused gloves

6. If you have a large spill of blood that needs soaking then it is best to use a 1:10 chlorine solution so you will need to add 100mL of household bleach to 900mL of water or 10 chlorine tablets to 1 litre of water also equals 1:10 solution.

7. The picture below tells you how to make up larger volumes of chlorine solutions, you can make an initial solution of 1:10 by adding 1 litre of bleach to 9 litres of water = 1:10 from this you take 1 litre and add to 9 litres of water to make 1:100

---

**Sharps Disposal:**

1. All sharp items such as disposable needles, IV cannulas, suture needles should be placed in a sharps container at the bedside. If you do not have sharps containers or enough to take to bedside then you should place sharp item in a dish, take it to the sharps container where it can later be burnt in the incinerator.

2. If you do not have an incinerator then the sharps can be placed in a pit or VIP latrine. Do not flush sharps down a water seal toilet as it will eventually block the toilet.

**Medical Waste:**

1. Medical waste includes many things – drugs, cytotoxic drugs and antibiotics can all be toxic to the environment or dangerous if not disposed of properly. Putting antibiotics down toilets interferes with the germs that are required to decompose the waste. Contact a pharmacist for best ways of disposing of drugs.

2. Dressings and other articles soiled with body fluids if they are disposable should be burnt. Contact an enviromental health officer to help you with a proper procedure e.g. building a simple incinerator.

*Some information in this section adapted from Infection Control Guidelines for Viral Haemorrhagic Fever from WHO which is suitable for infection control in less developed countries and is available in English and French.*
ABDOMINAL PAIN

1. Think of serious causes that need urgent referral.
   1. Have the patient lie down on their back.
   2. Softly palpate the abdomen starting in the least tender area.
   3. If any of the following signs are present refer immediately:
      - Abnormal pain or tenderness
      - Palpable tumour or mass
      - Temperature over 38.5°C that has not resolved in 2-3 days
      - Vomiting blood
      - Missed period
      - Anuria
      - Bloody stools
      - Associated difficulty breathing

Re-Referral Treatment:
- Start an IV and give Normal Saline before and during transfer.

Serious Causes of Abdominal Pain

**BOWEL OBSTRUCTION:**
1. Pain with constipation
2. Not passing wind
3. No bowel sounds
4. Vomiting
5. Abdominal swelling

**PERITONITIS or APPENDICITIS:**
1. Severe tenderness
2. Guarding
3. R igidity
4. Fever
5. Fast pulse

**ECTOPIC PREGNANCY**
1. Severe pain with vaginal bleeding
2. Pale
3. Fast pulse
4. Low BP
5. Missed period or no period

**SEPTIC ABORTION**
1. Severe pain / recent abortion
2. Vaginal bleeding

If you suspect any of these causes refer immediately to the nearest hospital.

Other Causes of Abdominal Pain
- Diarrhoeal Diseases
- Peptic Ulcer
- Urinary Tract Infection
- Pelvic Inflammatory Disease
- Hepatic Disease or Worms or Parasitic Disease

Management:
- Take a complete history
- Perform a thorough examination
- Perform any lab test necessary and then identify the most likely cause
- Look for and treat any cause found
- Treat according to guidelines

Peptic Ulcer
- Peptic Ulcers often present with upper abdominal pain
2. The pain is often worse after food or if hungry, is especially bad at night and may be episodic
3. Ulcers may bleed
4. Helicobacter Pylori is a germ that may cause peptic ulcer – in Vanuatu we cannot easily test for this but prevalence car assumed to be fairly high as it is worldwide
5. Advise the patient to:
   ➢ Stop smoking and drinking alcohol
   ➢ Eat regular meals
   ➢ Avoid acid or irritating foods
   ➢ Give the patient:
   ➢ Treatment for Helicobacter in non pregnant people:
     ➢ Omeprazole (Losec) 20mg BD for 1 week plus
     ➢ Amoxicillin 1G BD for 1 week plus
     ➢ Azithromycin 500mg BD for 3 days
     ➢ Anacid 2 tabs up to 4 times per day if required for discomfort but do not take within 1 hour of above treatment
     ➢ Losec 20mg daily for another 2-3 weeks OR Ranitidine 150mg BD for 4-6 weeks can be commenced following
       Helicobacter treatment of symptoms persist
   ➢ If no definite cause is found you may give:
     ➢ Albendazole 400mg before food
   ➢ Do not give to pregnant women
   ➢ Counsel the patient:
     ➢ To eat non-greasy foods and non-acidic foods
     ➢ About any other problems he or she may be having
   ➢ Refer to a higher level health care facility if:
     ➢ Pain continues or becomes worse
     ➢ Patient loses weight.
     ➢ Abdominal mass.
     ➢ Passing black stools.
     ➢ Associated with fever
ACCIDENTS

ABCs of Resuscitation and Emergency Care:
Airway
Breathing
Circulation
After stabilizing the patient refer immediately to the nearest hospital all accident patients if they are:
- unconscious
- complaining of severe chest or abdominal pain
- having severe difficulty breathing
- injury to their spine
- severe burns
- uncontrollable and/or prolonged bleeding

Pre-referral Treatment:
- Check and assure ABCs – Airway, Breathing, Circulation
- Protect the airway
- Protect, support and immobilize the neck
- If back injury, assure patient is lying flat at all times with little to no movement
- Start an IV and infuse Normal Saline
- If necessary give Morphine 5-10mg IM
- Stop all bleeding
- Stabilize any suspected fractures

Accidents with Bleeding
Treatment:
- Raise the bleeding part up high.
- Press firmly and directly on the wound with a gauze pad for 10 minutes or longer
- Do not apply a tourniquet to an arm or leg.

Accidents with Fractures
Deformities, pain, swelling, immobility and/or bruising may help you diagnose bones that are fractured.
Take a thorough history and perform a complete examination.
Pre-Referral Treatment:
- Pain Relief:
  - Offer the patient pain relief with Morphine or Paracetamol.
- Skin and Wound Care
  - If the skin is broken on the painful, suspected area this is called a compound fracture. You must:
    - Clean the wound
    - Cover with gauze.
    - Give IM Procaine Penicillin
    - Give Tetanus Toxoid 0.5mL. If the patient has not been previously immunized complete a course of 3 doses: one
dose every 4 weeks until completed.
If the skin is not broken this is called a simple fracture.
  - Follow the same treatment outlined above but do not give the Procaine Penicillin or other antibiotic.
- Splinting the fracture:
  - Splint the fracture with any suitable material: wood or cardboard.
  - Loosely secure the splint with a bandage.
  - The splint should not be tight.
  - Immobilize the fracture
  - Arm fractures - put arm in a sling.
  - Shoulder injuries - put arm in a sling.
  - Clavicle (collar bone)- put arm in sling for 4 weeks
Too - strap one toe to the next with plaster for 2 weeks.

Leg fractures - elevate leg.

Refer

- Except for patients with simple fractures of clavicle and/or toes all other fractures must be referred for further evaluation and care.

Burns and Scalds

All burns are serious.

There are four important principles to remember to prevent further complications:

- Fluid loss;
- Fluid loss kills a patient early. Make sure you replace fluids

Infection:

Infection kills the patient a little later, but you must remember to treat for it.

Contractures:

These are a decrease in joint movement due to scar tissue. Contractures will not kill patients but if they occur they can cause severe disability later in life.

Smoke Inhalation:

If the patient has been in a fire and breathed a large amount of smoke you must get the patient into fresh air, assure a clear airway and give oxygen if possible.

Treatment:

- Clear the airway and make sure the patient has plenty of fresh air.
- Calm the patient and give immediate pain relief.
- If you see the patient immediately after the burn, put cold water on the skin or put burnt limb in water.

Severe burns and pain:

- Morphine IM

Moderate or mild:

- Panadol or Paracetamol

Decide degree of the burn and how much of the area is burned.

- Superficial: Epidermis only. The area is red, dry, and painful.
- Epidermis and Dermis. The area is blistered and red. If broken skin the area is weeping, swollen. It is very painful.
- Deep Burns: This is a full thickness burn through epidermis, dermis and fat. It may even go to the muscle or bone. It is painless with no feeling. The burn might be pale white, or charred brown or black. You can see all exposed tissue an there is swelling. Deep Burns are associated with Fluid Loss.

To determine how much of the area is burned you count up the percentages for each part of the body burnt – children are different to adults:

![Diagram of body showing percentage burns]

- 9%
- 18%
- 18%
- 9%
- 18%
- 18%
- 12%
- 14%
- 7%
- 4%
- 14%
fluid replacement if more than 20% burns (or more than 15% if >65 years):
- You must weigh all burns patients as a priority
- Insert large bore IV and give Normal Saline or Hartmanns as a stat fluid as per "STAT Resus Fluid IV" under emergency drugs on inside cover of this manual according to weight
- While this fluid is running in as fast as possible you must now work out how much fluid to give in the first 24 hours starting from the time the patient was burnt and NOT when you first saw them, the equation is:
  ⇒ 4 x body weight in kilogram x percentage of burns = volume in mL
  ⇒ e.g. 4 x 50kg x 25 (% of burns) = 5000mL in first 24 hours from time patient burnt
- Give HALF this amount in the FIRST 8 HOURS
- Give ONE QUARTER in the NEXT 8 HOURS
- Give ONE QUARTER in the THIRD 8 HOURS

If less than 20% of the body is burned (or 15% in someone >65 years):
- Give extra fluid by mouth.
- Use Oral Rehydration Solution.
- Give 400mL every 3 hours for 24 hours.

If more than 20% is burned the patient and you cannot start an IV:
- Then give ORS by mouth or NG tube before and during transport
- The more severe and or shocked someone is the more likely you will have trouble getting them to absorb fluid via a NG tube as they develop intestinal status due to lack of blood supply
- During fluid replacement make sure you monitor the urine output - too little means not enough fluid – too little is less than 50mL per hour – insert a catheter in all burns >20%.

Treat the burn

Daily dressing changes should be done on all open burns
- Clean the burned area with clean water, chlorhexidine or eusol (1 chlorine tablet in 1 litre of clean water).
- Cut off dead skin. Do not cut open intact blisters.
- Apply silver sulphadiazine cream. If unavailable use cetrimide cream or chlorhexidine cream
- Cover tightly with clean gauze dressing and bandage
- Splint if joint affected

Prevent infection
- Give tetanus toxoid 0.5mL IM stat. Give 3 doses (one injection every 4 weeks) to complete if patient did not previously have.
- Keep the wound clean and treat daily with sulfadiazone cream.
- Check with the medical officer.
  ⇒ They should then be reassessed for further treatment
- Burns that become infected will require procaine penicillin IM daily for 7 days (or oral amoxil if not severe).
- If, despite penicillin therapy infection remains, consider Chloramphenicol

Prevent contractures
- Splint all involved joints straight
- Encourage patients to move all joints as much as possible and be sure to move joints during dressing changes
- Give analgesia before the dressing change
- If fingers or toes are burnt make sure and bandage each one separately

Refer
- Any patient having difficulty breathing or suspected of excessive heat and / or smoke Inhalation.
- All burns over 5% in children <18 months.
- All burns over 10% in everyone else and those requiring IVF therapy or any patient in which you cannot keep a good urinary output.
- Full thickness burns to hands, fingers, face and/or genitals or burns that go all the way around the neck or a limb.
- Infected burns not responding to antibiotic therapy.
- All electrical burns as they can be worse than they look e.g. can burn internal organs.
ANAEMIA

Definition: Haemoglobin (Hb) less than 10 g/dL.
People with sudden drops in Hb (e.g. from acute blood loss) will present differently (usually more acute symptoms) than people with chronic anaemia

Common causes:
1. Malaria.
2. Poor nutrition or Malnutrition (not enough iron = Iron Deficiency)
3. Abnormal and/or excessive bleeding - hookworms, periods, peptic ulcer.
4. Kidney failure

If you suspect anaemia:
1. Carefully examine the patient:
2. Are the tongue and/or fingernails pale?
3. Is there a difference in the blood pressure lying and standing?
4. Does the patient have a fever?
5. Is the abdomen tender or is there an abdominal mass?
6. Check the haemoglobin
7. Check a blood slide for malaria
8. Check urea and electrolytes

Refer the patient if:
- The haemoglobin is less than 5 g/dL.
- The patient has active bleeding
- The patient is short of breath, very pale, or looks very sick
- The patient has oedema

Treatment:
If the patient does not require referral treat the cause of anaemia:

- Malaria:
  ⇒ Fansidar stat and chloroquine for 3 days and then chloroquine weekly for 3 months or until the Haemoglobin is 10g/dL
- Hookworm Treatment:
  ⇒ Albendazole according to weight or age
- Iron and Folic Acid
  ⇒ Ferrous fumarate tablets
  ⇒ Give daily with food (fruit if possible). Continue for 3 months after Hb 10g/dL

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tablet 200mg (with folic acid 0.25mg) Once Daily</td>
<td>¼</td>
<td>½</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Ferrous fumarate susp 0.4mL / kg 100mg / 5mL</td>
<td>1.5mL</td>
<td>3mL</td>
<td>5mL</td>
<td>7mL</td>
<td>10mL</td>
<td>14mL</td>
<td>18mL</td>
<td>20mL</td>
</tr>
</tbody>
</table>

Diet and Patient Education:
- Eat more protein foods - meat, fish, peanuts, and eggs.
- Eat plenty of leafy green vegetables.
- Advice on Family Planning and Antenatal Care
- If periods are excessively heavy may suggest oral contraceptive.
- If post menopausal bleeding or fibroids are suspected refer for gynaecological evaluation.

Follow-up on patients being treated outside of the hospital:
- Examine and check the patient's haemoglobin every month until the haemoglobin is 10g/dL.
- If the Haemoglobin does not go up by 2 g/dL every month the patient must be referred.
Transfuse the patient if:
- The haemoglobin is less than 5 g/dL and the patient also is:
  - very sick
  - breathless or dizzy
  - heart failure
  - pregnancy at any stage
- The Haemoglobin is less than 7.5 g/dL and also has:
  - bleeding, which may occur again
  - vomiting blood
  - blood in the stool or coughing blood
  - the patient is in late pregnancy.

Principles of Transfusion:
- Only give packed red cells.
- Only use properly grouped and cross-matched blood.
- Make sure the correct bag of blood is given.
- Give whole blood only if the patient is still BLEEDING after packed cells.
- Only remove blood from the refrigerator when ready to use.
- Never use blood left out of refrigerator more than 6 hours.
- Check with medical officer if Frusenide or anti-malarial treatment is required.

Transfusion table:

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>Red Blood Cells Approximate Volume</th>
<th>Rate of Transfusion mL/hour</th>
<th>Frusenide Dosage (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-4</td>
<td>50</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>5-6</td>
<td>100</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>7-9</td>
<td>150</td>
<td>30</td>
<td>5</td>
</tr>
<tr>
<td>10-14</td>
<td>200</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>15-19</td>
<td>300</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>20-29</td>
<td>400</td>
<td>80</td>
<td>15</td>
</tr>
<tr>
<td>Over 30</td>
<td>500</td>
<td>100</td>
<td>15</td>
</tr>
<tr>
<td>Adults</td>
<td>500</td>
<td>150</td>
<td>20</td>
</tr>
</tbody>
</table>

Reactions to transfusion:
If the patient develops fever, rash, or becomes ill:
- Stop the transfusion and follow instructions for severe allergic reactions or anaphylaxis and notify medical officer on call.
- Connect line primed with Normal Saline to continue emergency treatment – do not infuse any blood left in tubing.
- Mild to Moderate Reactions give Promethazine

Promethazine IM injection (50mg/2mL). Give once only.

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give one IM dose 0.5-1mg/kg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dose in mg</td>
<td>-</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>25</td>
<td>25</td>
<td>35</td>
<td>50</td>
</tr>
<tr>
<td>Dose in mLs</td>
<td>-</td>
<td>0.2mL</td>
<td>0.4mL</td>
<td>0.6mL</td>
<td>1mL</td>
<td>1mL</td>
<td>1.4mL</td>
<td>2mL</td>
</tr>
</tbody>
</table>
ANAPHYLAXIS

Definition: This is a severe allergic reaction, which can be fatal.

Common Causes:
It happens very soon after a person receives something they are allergic to. This can be IM or IV penicillin, oral medicine, blood, insect or fish stings, or eating the wrong food.

Signs and Symptoms:
1. Mental: Worried, fright, confused
2. Respiratory: Shortness of breath, wheezing, and stridor
3. Cardiac: Faint, dizzy, low blood pressure, rapid pulse
4. Skin: Pale, cold, clammy, itching, rash, facial and throat swelling

You must act quickly as the reaction happens very fast.
YELL FOR HELP and quickly start treatment.

Treatment:
➢ Lie the patient down and lift up the legs.
➢ ABC Resuscitation
Give:
➢ Oxygen: Adults 8L/min - Children 4L/min - Newborns to 4 year olds 2L/min
➢ Adrenaline: Give this Intramuscularly (IM).
 ➸ Use 1:1000 (1mg/1mL) solution ampoules.
 ➸ You may repeat this every 5 minutes until the patient responds.

<table>
<thead>
<tr>
<th>ADULTS (use a 2 mL syringe)</th>
<th>Children (use insulin syringe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5mL-1.0mL STAT</td>
<td>less than 1 year: 0.1mL</td>
</tr>
<tr>
<td></td>
<td>1-2 years (about 10kg): 0.1mL</td>
</tr>
<tr>
<td></td>
<td>2-3 years (about 15kg): 0.15mL</td>
</tr>
<tr>
<td></td>
<td>4-6 years (about 20kg): 0.2mL</td>
</tr>
<tr>
<td></td>
<td>7-10 years (about 30kg): 0.3mL</td>
</tr>
<tr>
<td></td>
<td>11-12 years (about 40kg): 0.4mL</td>
</tr>
<tr>
<td></td>
<td>12 years and older: see adult dose</td>
</tr>
</tbody>
</table>

➢ Hydrocortisone 2-4 mg/kg.
 ➸ If you can give this as IV dose, that is best.
 ➸ If unable, then give Intramuscularly (IM).
 ➸ Adults: Give a stat dose of 200 mg.
 ➸ This can then be repeated every 6 hours until stable.
➢ Promethazine Adult 25-50mg (0.5-1mg/kg).
 ➸ Child: 1mg/kg (up to 25mg)
 ➸ Give the injection Intramuscularly (IM).
 ➸ This can be repeated every 4-6 hours until stable.
 ➸ Use 50-mg/2mL ampoules.
➢ While giving the drugs have someone start an IV.
 ➸ Give Normal Saline fast as for shock.
➢ Treat wheezing as for severe asthma.
➢ Keep the patient resting and monitor every 15 minutes for at least 4 hours.

Remember:
➢ Patients who have anaphylaxis from penicillin must never have any kind of penicillin again — this includes oral types of Penicillin, Amoxyl, Augmentin, Cloxacillin, Keflin etc.
➢ All patients and their families must be counseled about what they are allergic to and it should also be marked in texta pen on the front of all medical record folders.
For infections they may have Bactrim, Erythromycin or Doxycycline. For more severe infections they can have Chloramphenicol and Gentamicin. Metronidazole and Azithromycin are also OK to give if required. Contact a
medical officer if unsure.

If they reacted to an insect sting or food the patient must be advised on avoidance and given an EPI PEN for emergencies.

We do not carry these in CMS but they can be bought at local drug stores.
ASTHMA

Definition:
1. Reactive airway disease resulting in shortness of breath and/or wheezing.
2. It is commonly referred to as "sotwin".
3. Wheezing in children over 18 months of age is usually due to asthma.
4. If younger, it is likely to be secondary to an infection.

Causes of Asthma:
1. Not all sotwin or wheezing is asthma.
2. Asthma is caused by allergies, sensitivities, and immune disorders.
3. Causes of "sotwin" vary:
   a. Asthma
   b. Heart failure – most important and most commonly overlooked.
   c. Pneumonia.
   d. Chronic bronchitis (Chronic Obstructive Airways Disease-COAD)
   e. Severe anaemia.

Mild Asthma
Wheezeing but not short of breath.

Talking easily.

Treatment:
- Salbutamol (Ventolin) inhaler – usually relieved by 2 - 4 puffs
  - People with mild asthma do not need regular puffs and should be instructed to only use inhaler when feeling tight in the chest
  - Show the patient how to use the spray using a spacer.

Make a "spacer" by cutting a small hole in the bottom of an empty 1.5 litre plastic bottle to fit the spray nozzle.
(See picture back of this book) Bottles take time to make so have one ready in clinic.
This helps the spray go into the lungs.
One puff into the bottle, followed by 4 breathes.
Repeat

- Salbutamol tablets do not work well. They are now discouraged.
- Aminophylline is definitely not used for mild asthma.
- If patient needs to use inhaler on a daily basis they should be assessed by a medical officer
- Each inhaler contains about 200 puffs – someone with mild asthma should only need a new inhaler every 6 mon
- Antibiotics - Give only if the sputum is yellow/green and/or there is fever – rarely needed for mild asthma
  - Children – see Cough and Difficult Breathing in Children Under 5
  - Adults - Amoxicillin 250mg or 500mg TDS for 7 days
    OR
  - Doxycycline 100 mg BD for 7 days with food
- Fluids - encourage to drink

Moderate Asthma
1. Shortness of breathe, much wheezing.
2. No cyanosis and pulse under 120/min.
3. What to do:
   - Salbutamol spray (via spacer) 12 puffs every half-hour until settled (repeat up to 3 times).
   - Prednisolone tablets 40mg (1mg/kg for children for 3/7) Immediately, then daily for 5 days.
   - Antibiotics - Give only if the sputum is yellow/green and/or fever. Same as for mild asthma. And rarely needed in moderate asthma but given for bronchiectasis, chronic obstructive pulmonary disease (COPD).
- Fluids - encourage to drink
- Refer the child if no improvement in 12 hours or any worsening
Severe Asthma
1. Patient is too breathless to talk.
2. Pulse more than 120/min.
3. Patient is sweaty and pale, or becoming tired.
4. Asthma does not settle after 24 hours.
5. All severe asthmatic patients need to be referred to a hospital when they are stable enough to be transported
6. What to do:
   ➢ Sit the patient up, on the side of the bed or in a chair and always have someone stay and support patient
   ➢ Give oxygen: 4 litres per minute at first and increase if oxygen saturation is less than 90%.
   ➢ Salbutamol (Ventolin) by nebulizer, 5mg in 1mL mix with 1mL Normal Saline (take from IV fluid bag if you do not have ampoules

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-9</th>
<th>10-50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose in mixed solution</td>
<td>1mL (2.5mg)</td>
<td>2mL (5mg)</td>
</tr>
</tbody>
</table>

OR
➢ Salbutamol puffer with spacer can be almost as effective as a nebuliser
   ➢ Adults and children: use 5 puffs with a spacer.
   ➢ Infants: use 2 puffs with a spacer.
   ➢ For both Salbutamol nebuliser and inhaler, if there is no response you can repeat this treatment every 5 minutes up to 10 times.
   ➢ Then repeat every 4 hours.
➢ Prednisolone tablets
   ➢ Give as for moderate asthma above
   ➢ Only use IV or IM hydrocortisone if the patient is unable to take tablets and then change back to daily prednisolone tablets when they can take
➢ Hydrocortisone Dosages IV or IM every 6 hours (children: 2-4 mg/kg)

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40+</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM/IV Dose in mg</td>
<td>25</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

➢ IM or IV Ampicillin as appropriate for age

What to do next:
➢ Admit the patient to the ward if there is no improvement after 2 hours or if you are concerned in any way.
   ➢ If the patient improves quickly continue outpatient treatment as for mild asthma.
   ➢ When the patient improves stop the IVF and change to salbutamol spray, oral antibiotics (if necessary)

Note on Aminophylline:
➢ Aminophylline is NOT a first line drug for acute asthma and may have severe side effects; it should only be given in hospital under direct supervision of a doctor.
   ➢ Loading dose: 5 - 10 mg / kg IV over 20 minutes.
   ➢ An aminophylline infusion may later be ordered.
   ➢ If needed, this infusion is started immediately after the loading dose.
➢ Do not give loading dose if the patient is already taking THEOPHYLLINE tablets.

Maintenance Therapy
➢ General Advice:
   ➢ Avoid precipitating causes (eg. dust, animals).
   ➢ Stop smoking.
➢ Mild Asthma:
   ➢ Salbutamol (Ventolin) inhaler via spacer.
   ➢ Only used when feeling “tight” and NOT regularly
   ➢ Children and older patients may have difficulty using inhalers.
   ➢ Always check the patient’s inhaler technique.
➢ Moderate Asthma
   ➢ Salbutamol spray via spacer (as above).
Becolide inhaler up to 200mcg BD for children and 1500mcg for adults via spacer, will help prevent attacks – puffers come in 50mcg and 250mcg doses

Severe Asthma
- Theophylline is occasionally needed in adults; 200-400mg orally BD (5mg/kg BD)
- Some patients remain poorly controlled despite all the above treatment and require regular oral Prednisone.
- This must be supervised by a physician with measures to minimise osteoporosis and immunosuppression related infection required.

Patient Education
It is important to educate patients about 'preventers' (e.g. Becolide) and 'relievers' (e.g. Ventolin) and assess inhaler-spacer technique every time you see them.
CHEST PAIN

The important question to answer in someone with chest pain is whether the pain is from ischaemic heart disease, or not.

Ischaemic heart pain is usually described as feeling like a weight is sitting on the chest. It may be localized to the left side of the chest but sometimes it extends into the neck or the left arm. Ischaemic pain does not change when the patient takes a deep breathe, or if you push on the ribs and sternum.

Non ischaemic causes of chest pain include:
1. Pericarditis or pleurisy (worse on taking a big breathe, eased by leaning forward — treat with paracetamol)
2. Indigestion / oesophagitis / gastric ulcer (hurts when you press in the epigastrium — treat with antacids)
3. Rib pain or muscular pain around thorax (hurts when the patient moves their arms or chest or when you press on the chest wall — treat with paracetamol).
4. Pneumothorax (collapsed lung — if patient SOB and you can’t hear any air entry on one side of chest you will need to refer patient to hospital BUT discuss this first with a doctor as flying in an aeroplane may make the patient’s condition worse).

If the pain is consistent with ischaemic chest pain, give:
> Aspirin 300mg chewed or dissolved before swallowing.
> Glyceryl trinitrate (or anginine or isosorbide dinitrate) 1 tablet under the tongue.
  => This will drop the blood pressure so make sure the patient is not standing up! If headache develops, the patient can spit out the tablet. If no headache and pain persists, give another tablet under the tongue.
> Administer oxygen at 6L/min if you have it
> If pain still unrelieved then give Morphine 2.5 - 5mg IV or 10mg IM
> If in hospital make an ECG and connect to a cardiac monitor.
> Further treatment dependant on medical officer.
CHILD HEALTH
Refer to IMCI Guidelines for further information

1. Aims:
To properly assess growth and development.
Early identification and follow-up of "AT RISK" children.

2. Visit schedule:
   2 weeks old: First visit.
   0-2 years old: At least every month.
   2-5 years old: At least every 3 months.

If a child does not regularly attend, find out why.
Keep a separate record of any child who is not growing or developing well, and chase up any who do not attend.

3. Some children need special care:
   ▶ Not breast-fed.
   ▶ Birth weight less than 2.5kg.
   ▶ Pregnancy complications.
   ▶ Multiple pregnancy.
   ▶ Congenital anomalies.
   ▶ Neonatal problems.
   ▶ 4th child or more.
   ▶ Birth less than 2 years from last birth.
   ▶ One or more children died.
   ▶ Single parent.

4. At first visit:
   ▶ Explain about child health and growth monitoring.
   ▶ Establish a relationship with the mother.
   ▶ Do a full examination. Include umbilical stump and hips.

5. At each visit:
   ▶ ASK about: Feeding, sleeping, bowels, worms, and urine.
   General health and any illnesses.
   Mother's diet and rest.
   Answer any questions or concerns of the mother.
   ▶ WEIGH child: Record the weight on the Road-To-Health Card.
   Look out for children who are not growing well.
   ▶ EXAMINE fully: At first visit.
   Every 3 months in the first year of life.
   Then every 6 months.
   Do a general examination -
   Eyes, ears, mouth, chest, abdomen, skin, and genitals.
   Do a developmental assessment.
   Check against milestones.
   ▶ ADVISE about: Good nutrition and feeding practises.
   Extra feeding after any illness.
   Family spacing.
   Any illness you find and its treatment.
   ▶ IMMUNISE: Always check immunization status.
   "The only reason not to give an immunisation is if the child has a known allergic reaction to it.
Developmental milestones:

Weeks
- Begins to smile.
- Can turn his head.

Months
- Tums head to sound.

Months
- Pushes up head and shoulders when lying on stomach.
- Can roll over.
- Holds toy in hand.
- Needs support when sitting.

Months
- Sits unsupported.
- Stands with support.
- Makes sounds like 'da-da', 'ma-ma'.

2 months
- Crawls.
- Can stand holding a support.
- Says 'da-da', 'ma-ma', laughs & squeals.

18 months
- Walks.
- Talks - in single words.
- Can hold cup and use a spoon.

Refer for further assessment:
- Children with: Failure to grow or develop normally.
- Poor weight gain for 3 months (see Malnutrition).
- Any problem you feel unhappy with.

Weight Chart:
- Fill in the weight chart at EVERY visit to dispensary or hospital.
- Always look at the weight chart when you see a child.
- The child's weight should ALWAYS be increasing.
- The black line is the expected weight.
- The red line is approximately 80% of the expected weight.
CONVULSIONS AND COMA

1. Causes:
   a) Common Causes:
      - Fever (in children under 5)
      - Cerebral malaria
      - Meningitis
      - Epilepsy
   b) Uncommon Causes:
      - Stroke
      - Brain tumours
      - Head injury
      - Low blood sugar
      - Diabetic coma

   ☑️ High fever of any cause may cause febrile convulsions in children.
   ☑️ Febrile convulsions are rare in children under 6 months of age, so think of other causes.
   ☑️ After a febrile convolution the child should be fully conscious.
   ☑️ Always look for the cause.
   ☑️ Always think of cerebral malaria and meningitis.

2. What to do if the patient is convulsing:
   a) Yell out for help.
   b) As you care for the patient have your helper
      i. Get a very good history.
      ii. Observe fit, is it focal or generalised?
      iii. Find out exactly what happened and write it down
      iv. Find out if the patient takes medicine for fits
   c) Calmly:
      i. Make sure the airway is clear.
      ii. ABCs of Resuscitation
      iii. Place the patient on their side
      iv. Suck out secretions
      v. Give Oxygen: Adults: 8L/min
         Children: 4L/min
      vi. Make sure the patient cannot fall on the floor
      vii. Never leave the patient alone
   d) Stop the convulsions:
      i. Use IV or Rectal Diazepam IF THE PATIENT HAS BEEN FITTING CONTINUOUSLY FOR MORE THAN 2 MINUTES
      ii. Never use IM diazepam.

IV Diazepam

Give Slowly (Adults: 10 mg IV; Children 0.2mg-0.3mg/kg IV) repeat in 3 minutes with a second dose if needed.

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose in mg</td>
<td>1.0</td>
<td>2.5</td>
<td>2.5</td>
<td>3.5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>If using 10mg/2mL</td>
<td>0.2</td>
<td>0.5</td>
<td>0.5</td>
<td>0.7</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Rectal Diazepam

(putern meresin to arse, NO stikim)
Mix 10mg (2mL) with 2mL water (Total of 4 mL, solution should be clear).
Use a 5 mL or 10mL syringe for injection.

For children older than 9 or adults mix 20mg (4mL) with 4mL of water (Total of 8mL, solution should be clear).

<table>
<thead>
<tr>
<th>Age</th>
<th>&lt;6 months</th>
<th>6-12 months</th>
<th>1-3 years</th>
<th>3-6 years</th>
<th>6-9 years</th>
<th>9 to 12 years</th>
<th>&gt;12 years</th>
<th>Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose in mg</td>
<td>0.4mg</td>
<td>3.5</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>12.5</td>
<td>15</td>
<td>15-20</td>
</tr>
<tr>
<td>Dose in mL</td>
<td>0.15mL</td>
<td>1.4</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>6-8</td>
</tr>
</tbody>
</table>

e) If still convulsing after another 10 minutes
Begin a loading dose of Phenobarbitone and give as an IM dose. Loading dose is 20mg-30mg/kg. After 24 hours, follow this with a maintenance dose of 5mg/kg (oral or IM) once a day.

**Phenobarbitone**

**Loading (Stat) dose**: 15mg/kg (max 1g). Use only in an emergency as it makes the patient very drowsy. Give IM if possible.

**IM Injection (200mg/2ml) or 30mg tablets via NG tube**

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM dose mL</td>
<td>0.6</td>
<td>1.5</td>
<td>2</td>
<td>2.5</td>
<td>3.75</td>
<td>5.25</td>
<td>6.75</td>
<td>7.5</td>
</tr>
<tr>
<td>Oral dose tabs</td>
<td>2tabs</td>
<td>3½</td>
<td>6</td>
<td>8½</td>
<td>12½</td>
<td>17½</td>
<td>22½</td>
<td>25</td>
</tr>
</tbody>
</table>

**Maintenance dosage**: 3 mg/kg once a day, at night – up to 5 mg/kg in young children. Start 24 hours after the loading dose. IM or oral.

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>IM dose mL</td>
<td>0.2</td>
<td>0.3</td>
<td>0.5</td>
<td>0.5</td>
<td>0.75</td>
<td>1</td>
<td>1.35</td>
<td>1.5</td>
</tr>
<tr>
<td>Oral dose tabs</td>
<td>¼tabs</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2½</td>
<td>3½</td>
<td>4½</td>
<td>5</td>
</tr>
</tbody>
</table>

**Phenytoin**

**Injection 50mg/1mL or Oral 100mg tablets**

**Loading (stat) dose**: 15-20mg/kg. Give IV (not IM) only in Normal Saline and infuse over 30 minutes to minimise cardiac arrhythmias. Loading dose can be repeated after 6 hours if fits continue.

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV dose mgs</td>
<td>50</td>
<td>100</td>
<td>175</td>
<td>250</td>
<td>375</td>
<td>500</td>
<td>650</td>
<td>750</td>
</tr>
</tbody>
</table>

**Maintenance dosage**: 4-8 mg/kg once a day. Start 24 hours after the loading dose. Oral or IV (not IM).

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV dose mLs</td>
<td>0.5</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Oral dose tabs</td>
<td>¼</td>
<td>½</td>
<td>½</td>
<td>1</td>
<td>1½</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

3. What else should you do?
   a) Reduce the temperature if febrile.
   b) Make sure you take a BP, Pulse, Respiratory rate and temperature and write it in your notes.
   c) If fever, give:
      ▶ Paracetamol
      ▶ Sponge the patient with cool water
   d) Refer:
      ▶ All children under the age of 5.
      ▶ Any patient in whom this is the first convolution
      ▶ Any patient who does not have a history of epilepsy
      ▶ Any patient suspected of serious illness or who has had a recent head injury
      ▶ Required more than one drug to stop the convolution

4. Pre-Referral Treatment:
   a) To prevent further convulsions while transferring:
      ▶ Phenobarbitone or Phenytoin (see instructions & tables above)
      ▶ Give stat doses of Chloramphenical and Quinine IV/IM (Refer to dosage chart)
   b) Remember to check the blood sugar.
   c) Obtain a MFS to check for malaria before you commence quinine and send with patient.

5. Determine the cause:
   a) It is recommended that patients who are very sick, semi-conscious or in coma, have neck stiffness, or who have multiple fits or did not recover have a lumbar puncture.
   ▶ Lumbar punctures should be done only in hospital.
b) If the CSF is clear:
   ▶ Treat for cerebral malaria

c) If CSF is cloudy, blood stained or you cannot obtain:
   ▶ Treat for meningitis and cerebral malaria.

Epilepsy or Frequent Convulsions
1. All these patients require evaluation by medical officer
2. Prevented by regular anticonvulsants at night. These must be used for at least 18 months.
3. Drugs may include Phenytoin, Carbamazepine or oral Sodium Valproate (if available). Seek advice for dosage.
4. When stopping these drugs do it slowly, over a period of at least 2 months.
5. See maintenance dose schedule for Phenobarb and Phenytoin in previous section.
COUGH AND DIFFICULT BREATHING IN CHILDREN UNDER 5

Acute Respiratory Infection (ARI)

Refer to IMCI Guidelines for further information.

Categories have changed e.g. "Mild ARI" to reflect changes in international classification now used for IMCI.

Definition of ARI:

1. Acute Respiratory Infections (ARI) are infections of the respiratory tract and include simple coughs and colds, sore throats, tonsillitis, and more serious infections like pneumonia.

2. Viruses or bacteria can cause them.

3. ARI are important causes of child illness and death in Vanuatu.

4. It is important to diagnose and treat them correctly.

5. In children under 5 years, ARIs are classified using simple signs and symptoms.

6. They are now classified as No Pneumonia (URTI), Mild Pneumonia, Severe Pneumonia and Very Severe Disease.

7. Determining the rate of breathing is very important in diagnosis.

8. Count the breathing for a full minute.

Definition of fast breathing:

- Infant less than 2 months old = 60 or more a minute.
- Child 2 months to 1 year old = 50 or more a minute.
- Child 1 year to 5 years old = 40 or more a minute.

What to Do:

1. Take a complete history.
   a) What is the child?
   b) How old is the child?
   c) Coughing?
   d) Or how long?
   e) Can the child drink or breastfeed?
   f) Eating well?
   g) Fever? For how long?
   h) Has the child had convulsions?

2. Examine the child carefully.
   b) Count the breaths in 1 full minute.
   c) Look for chest in drawing.
   d) Listen for stridor, wheeze.
   e) Examine the ears and throat.
   f) Check for dehydration.
   g) Check the temperature.
   h) Can you awaken the child?
   i) Check the weight.
   j) Malnourished?

Danger signs:

- Child is unable to drink or breastfeed
- Child is vomiting everything
- Child is abnormally sleepy and is difficult to awaken
- Chest in drawing or stridor
- Grunting breathing.
- Severe under nutrition.
- Severe dehydration (sunken eyes, skin takes longer than 2 seconds to return after skin pinch)

Pneumonia - (URTI)

1. Fast breathing.
2. Chest in drawing.
   1. No antibiotics unless
      a) Otitis media
      b) Tonsillitis with pus
   2. Assess and treat other problems
   3. Treat fever
   4. Treat wheeze, if present (see mild asthma)
   5. Advise mother on home care and when to return

22
## Mild Pneumonia

- Fast breathing for age.
- No chest in drawing.

  > Give 5 days oral Amoxycillin.

  - if you don’t have Amoxycillin give Cotrimoxazole.
  1. Treat fever, if present.
  2. Treat wheeze, if present (see mild asthma)
  3. Advise mother on home care.
  4. Re-examine the child in 2 days
  5. If improving - Continue treatment.
  6. If worse - Refer urgently to hospital and give pre-referral treatment.

## Severe Pneumonia

- Fast breathing for age.
- Had chest Indrawing.
- No other danger signs.

  > Give pre-referral treatment and refer immediately.

    - STAT dose of IM Ampicillin
    - Or Procaine or Benzyl Penicillin

  1. Assure hydration
  2. Treatment continued for 5 days

## Very Severe Disease

- Fast breathing for age.
- Has danger signs

  > Give pre-referral treatment and refer immediately.

    - STAT dose of IM Ampicillin
    - Or Procaine or Benzyl Penicillin

    - Children over 2 months of age:
      - Give Pre-referral treatment of Stat IM Chloramphenicol
      - For babies less than 2 months old with fever:
        - Treat the fever

## Acute Bronchiolitis

1. Causes wheezing and fast breathing in infants and children under 2 years of age, less common over this age.
2. Caused by a virus (e.g. Respiratory Syncytial Virus – RSV) so antibiotics are not useful.
3. Treatment is:
   - Oxygen
   - If respiratory rate is >80 there is danger of aspiration so stop breastfeeds and give IV fluids. **DO NOT GIVE NASOGASTRIC FEEDS.**
   - If under 6 – 9 months salbutamol nebulisers **DO NOT WORK** but Prednisolone 2mg / kg per day may help for severe cases.

### Home care advice:
1. Feed the child during the illness.
2. Clear the nose if it interferes with feeding and increase feeding after illness.
3. Increase fluids, offer the child more to drink and increase breast-feeding.
4. Return quickly if:
   - The breathing becomes faster or difficult, or if the child is not able to drink or breastfeed, or if the child gets sicker or develops a fever if they didn’t previously have.
<table>
<thead>
<tr>
<th>Antibiotics for ARI in Children</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;br&gt;</td>
<td>moxycycline = TDS for 5 days &lt;br&gt; tablets 250 mg - Dose in tablets</td>
<td>¼ tab</td>
<td>¼</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ctrimoxazole = BD for 5 days &lt;br&gt; tablets 480mg - Dose in tablets</td>
<td>¼ tab</td>
<td>¼</td>
<td>¼</td>
<td>¼</td>
<td>1</td>
</tr>
<tr>
<td>erythromycin = 50 mg/kg/dose &lt;br&gt; Ial = 500mg – IM / IV 6 hourly &lt;br&gt; DD 2mLs water for dose in mLs</td>
<td>1mL</td>
<td>1.5</td>
<td>2.5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>chloramphenicol = 25mg/kg/dose &lt;br&gt; Ial = 1 gram – IM / IV 6 hourly &lt;br&gt; DD 6mLs water - dose in mLs</td>
<td>0.5mL</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>roxithromicin = 50mg/kg/dose &lt;br&gt; Ial = 3 megaunits (3g) - IM daily dose &lt;br&gt; DD 8 mLs water - dose in mLs</td>
<td>0.5mL</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>amoxicillin G = 30mg/kg/dose &lt;br&gt; double in severe infections</td>
<td>0.5mL</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>1.5mL</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

**Note:**
- Do not give Promethazine for ARIs.
- NO Penicillin V in children under 5 years
- Penicillin G: doses are 12 hourly in babies in week 1 of life
- Syrups are expensive and are being deleted from Vanuatu CMS
- Crush tablets and give with something sweet.
COUGH IN OLDER CHILDREN AND ADULTS

1. Causes and Classification:
   a) The most common cause is an acute respiratory infection or ARI.
   b) In children age 5 and over or adults, ARTs are separated into upper and lower respiratory tract infections (URTI and LRTI).
   c) URTI
      Cough usually dry.
      Runny nose.
      Sore, red throat.
   d) LRTI
      Cough usually productive.
      Purulent sputum.
      May cough blood.
   Not short of breath.
   Chest clear.
   Wheezes or crackles.
   Not usually very sick.
   May be very sick.
   REMEMBER: TB can start as an acute cough or pneumonia.

2. Diagnosis:
   a) A diagnosis can usually be made after clinical assessment:
   b) Take a Complete History
      Cough? How long?
      Sputum? What colour, amount, blood?
      Is it hard for them to breathe?
      Difficulty breathing? "Solwin?"
      Chest pain? How long, where?
      Fever? How long?
   c) Examine the Child / Adult
      Temperature, respiratory rate and pattern.
      What is their Colour - blue? Pale?
      Look at the ears and throat.
      Watch the chest move.
      Listen to the breath sounds, wet? wheeze?
   Past history of TB or chest problems?
   Is there a family history of TB?
   Does the patient smoke?
   Signs of heart failure

Upper Respiratory Infections

1. Common cold, tonsillitis, laryngitis.
   a) Most URTIs are caused by viruses and DO NOT NEED ANTIBIOTICS
   b) Symptoms may include cough and clear or white sputum. They may have a fever.
   c) Treat the symptoms:
      ➢ Fluids and Paracetamol

2. Tonsillitis with pus requires an antibiotic.
   ➢ IM Benzathine Penicillin stat, or Penicillin V (take on an empty stomach) for 10 days.

3. Lower Respiratory Infections
   Try to divide into bronchitis, bronchopneumonia and lobar pneumonia.
   If you cannot decide the type of LRTI, treat as bronchopneumonia.
   a) Bronchitis:
      i. Cough and coloured sputum
      ii. May or may not have a fever
      iii. Wheezes and may be crackles too.
      iv. If there are recurrent attacks this may be a sign of ASTHMA.
      v. If there is a long history and the patient smokes, this may be chronic bronchitis, which is also called chronic obstructive airways disease (COAD).
   vi. Consider TB
   vii. Treatment:
      ➢ MILD (no SOB):
        ➢ Adults: Doxycycline (with food) for 7 days.
Children: Amoxycillin for 5 days.
Salbutamol Inhaler if there is wheezing.
SEVERE (SOB, fever, wheezing):
Refer to hospital after commencing:
Ampicillin IV
Salbutamol nebulizer treatments
IV fluids

Bronchopneumonia:
1. May have a sudden onset or develop slowly.
2. The patient usually looks and feels sick.
3. Upon examination they may have chest pain, crackles, chest dullness and fever.
4. There is usually a cough with "rusty" sputum or blood.
5. Treatment:
   IM Benzyl or Procaine Penicillin 6 hourly for 48 hours or more, then
   then Penicillin V for 5 days.
   If no improvement in 48 hours give IM Chloramphenicol and refer to hospital

Lobar pneumonia:
CXR and clinical examination suggests lobar consolidation.
The infection is more commonly caused by pneumococcus.
Treatment:
IV Benzyl Penicillin QID at double normal dose.
As patient improves they can complete treatment with Amoxycillin TDS at double normal dose.
Patients allergic to Penicillins:
IV Chloramphenicol if severe or oral if not
OR
IV Erythromycin QID infused over 60 minutes in Normal Saline or Hartmanns and when improving complete
   treatment with Erythromycin tablets.
If patient looks very unwell take a blood and sputum cultures and cover for gram negative pneumonia by adding:
IV Gentamicin 5mg / kg once per day (Given over 5 minutes in Normal Saline or Hartmanns).
Do not use in patients with renal failure and do not use for more than three days to avoid renal or oro
(ear) toxicity unless senior medical order otherwise.
Alternative drugs to Gentamicin are Chloramphenicol (IV or oral) QID, Ceftriaxone IV daily or Ciprofloxacin oral BD.

Non Lobar Pneumonia:
CXR and clinical examination suggests non lobar pneumonia which could be caused by mycoplasma, chlamydia or
pneumonia.
Chloramphenicol (IV or oral) QID
Ciprofloxacin oral BD
Erythromycin oral QID
DENTAL CONDITIONS

† Prevention is best!
† Eating healthy foods (aolean kaika) and brushing teeth every day will prevent most dental problems.

1. Gum Disease:
   a) Definition: Infected, red, swollen gums (called gingivitis)
   b) Causes: Poor oral hygiene
   c) Treatment:
      ➢ Daily tooth brushing
      ➢ Healthy Diet, "Alean Kaika" nemo, no sugar
      ➢ If gums are painful and bleeding:
         ➢ Proper oral hygiene.
         ➢ Metronidazole up to 400mg BD for 5 days.
      ➢ Treat pain:
         ➢ Paracetamol

2. Tooth Decay and Abscesses:
   Treatment should be based upon how bad the infection is.
   ➢ If no pain or swelling around the tooth:
      ➢ Keep mouth clean (rinsing with water, brushing)
   ➢ If swelling and pain
      ➢ Penicillin oral for 5 days.
   ➢ If no improvement after 48 hours or the swelling is spreading under the jaw and getting worse, refer immediately.

3. Trauma:
   a) Knocked out or broken permanent teeth:
      i. If a Dentist is available:
         ➢ If possible and you have the tooth put it directly back into the socket straight away. Make sure it is clean, do not
eros the tooth by the root.
         ➢ If tooth is dirty you must rinse in milk, normal saline or patient's saliva
         ➢ Have the patient hold in place until the dentist is available.
      ii. No Dentist available:
         ➢ Have patient rinse and clean the mouth and apply pressure to stop the bleeding
   b) Broken Jaw:
      i. If you think there is a fracture:
         ➢ Check the Tetanus immunisation status. Give if contact with environment or foreign bodies
         ➢ Paracetamol. May require something stronger
         ➢ Insert IV for hydration and commence Penicillin IV.
         ➢ REFER to the hospital for x-rays

Any trauma to the face below the level of the cheek bones should be followed closely and started on antibiotics
DIABETES

Definition: A condition where the blood glucose [sugar] is high. Two blood glucose levels of 10 mmol/l or more or fasting blood glucose levels of 8 mmol/l or more confirm diabetes.

Type 1
1. Known as "Insulin dependent diabetes".
2. Not enough insulin is produced by the body.
3. Usually develops in children and young adults.

Type 2
1. Known as "Non-insulin dependent diabetes".
2. Insulin doesn’t work as well as usual.
3. Usually develops in obese middle-aged or elderly.

Clinical features:
1. Many people with diabetes have no symptoms and are not diagnosed for a long time, or ever.
2. Too much glucose in the blood causes glucose in the urine. This may make the patient pass too much urine and become thirsty and tired.
3. Young people with type 1 diabetes often lose weight.
4. Older people with type 2 diabetes are often fat.
5. Patients often come with complications of diabetes.

Complications:
1. Skin: Boils, abscesses, or skin sores, especially feet.
2. Coma: "Diabetic coma" is caused by a very high blood glucose.
3. Eyes: Cataracts and damage to the retina cause blindness.
   Impotence.
   Proteinuria.
   Kidney failure.
6. Blockage of arteries: Affects the feet, heart, brain, and kidneys.

Diabetes in Pregnancy
* Can cause stillbirths, premature delivery, and large babies.
* All pregnant women with diabetes must be referred to hospital.
* All pregnant women should have their urine tested for glucose. If glucose present on 2 or more visits, refer to a doctor.
* Diabetes usually does not continue after delivery in women who develop diabetes in pregnancy.

Diagnosis:
1. If you suspect diabetes, test urine and blood for glucose.
2. Test the blood glucose of every unconscious patient.
3. Refer people with newly diagnosed diabetes if:
   * Under 30 years old.
   * Thin and wasted.
   * Pregnant.
   * They have infections e.g. chronic injury or ulcer of foot

Suspicious People:
1. Usually overweight and over 30 years and may have hypertension

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2. Has less energy than other people e.g. doesn't play sport, doesn't walk a lot, doesn't do heavy work like working in garden
3. Eats well and eats less local food and more imported food e.g. rice, bread
4. May come complaining of other illness e.g. urinary tract infection (especially older women), sores that don't heal well
5. Sick older people who do not get better as quick as you would expect
6. A few people may come to you because they are losing weight
7. People who have ketones in their urine – they may not necessarily show glucose in urine but blood level will be elevated

Treatment:
1. Aims of treatment
   a) Relief of symptoms.
   b) Control of blood glucose
   c) Prevention of complications.
2. Types of Treatment
   a) Diet.
   b) Diet and tablets.
   c) Diet and insulin.
3. Talk
   a) Explain to patients that diabetes cannot be cured, but can be controlled.
   b) If diabetes is not controlled the patient will become sick.
   c) Start older obese patients with no complications on diet treatment at home.
4. Diet and Exercise
   a) "Aetaile kakea: kakea blong garen mo kakea blong solwata" is the best. Imported food "kakea blong stoa" should be avoided.
   b) No sugar. Low fat. Low salt. Regular spaced meals.
   c) Obese people must lose weight. Daily physical activity is important.
   d) Most people with diabetes in Vanuatu should be on diet alone.
5. Tablets
   a) Tablets are not an alternative to a good diet. ONLY give tablets if diet alone does not control diabetes.
   b) Explain that tablets must be taken every day and that diabetes treatment is for life. Explain several times.
   c) If supplies of tablets are low, patients must get more before they run out of supplies.
   d) Compliance is difficult. If possible tablets should be given two times every day; three times a day is more difficult to remember.
   > Gilbebrandam (5mg tablets).
   > Start treatment with 2.5mg (1/2 tablet) BD, with meals.
   > Maximum dose 10mg BD
   > Metformin (500mg tablets).
   > Often added to glibenclamide when control is poor.
   > Useful in fat people.
   > Try first, start with 500mg BD, with meals. Maximum dose 1g BD.
   > Do not use in patients with kidney failure.
   > Tolbutamide (500mg tablets)
   > Start with 250mg TDS with meals, up to 500mg TDS
   > Do not use with glibenclamide

Poor control:
© The most common cause of poor control of diabetes is non-compliance: failure to follow diet, exercise and/or take tablets regularly.
© Make sure advice is being followed before changing treatment.

6. Insulin
© Insulin treatment should only be started in hospital under supervision of a doctor or nurse practitioner trained in the treatment of diabetes.
   a) Indications:
i. Young patients [under 30 years].
ii. Thin and wasted patients.
iii. Pregnancy
iv. During surgery
v. During infections if diabetic control is lost.
vi. If diet and drug treatment fails to control symptoms.

b) Problems with Insulin treatment:
i. Missed doses [many reasons].
ii. Failure to follow diet.
iii. Poor vision with difficulties with preparing injection.
iv. Availability of cold storage [icebox] for insulin.

c) Insulin injection:
i. Always give subcutaneous by lifting up a fold of skin, usually in the abdomen
ii. Rotate the injection sites
iii. Do not inject insulin into the arms.

d) Monitoring treatment:
i. Symptoms
⇒ Passing too much urine, thirst = not enough treatment.
⇒ Hunger, dizziness, sweating = too much treatment.
⇒ Weight
⇒ Weight gain can follow over treatment.
⇒ If thin diabetics lose weight = too little treatment.
ii. Blood and Urine Glucose
⇒ A single reading is not very useful.
⇒ The symptoms and weight are a better guide to control.

Diabetes and Feet:
1. Foot problems are the most important complications of diabetes in Vanuatu.
2. Teach patients about foot care:
   ➤ Wear proper fitting shoes to avoid injuries
   ➤ Check feet every day
   ➤ Seek help immediately if there are wounds or sores.
   ➤ Refer if chronic injury or ulcer on foot, or diabetes cannot be controlled.

This is similar to advice given about foot care to people with leprosy.

Patient Education:
☞ Provide written material, preferably in Bislama.
☞ Patients should know the common complications of diabetes so they can be detected and treated quickly.
☞ Patients need community support to manage their condition, after all, if there is one known diabetic in a community there are likely to be more
☞ Encourage people to form older person lifestyle groups e.g. walking groups three times per week in the evening, women getting together and cooking local food on a regular basis, older people educating youth on healthy lifestyle

☞ Patients and their families must understand the importance of coming quickly to hospital if ill.
### DIARRHOEA

Refer to IMCI Guidelines for further information

**Children Under 5 years of Age**

For every patient with diarrhoea:

- 1) Assess for symptoms and signs of dehydration.
- 2) Record the temperature and weight.
- 3) Examine the stool and ask about blood in stools.
- 4) Take a history and examine for other diseases.

The most important part of the management of diarrhoea is the prevention and treatment of dehydration.

Once you have begun treating dehydration look for and treat cause.

Remember coconut water if no ORS!

<table>
<thead>
<tr>
<th>Treatment Plan</th>
<th>Plan A</th>
<th>Plan B</th>
<th>Plan C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOOK AT:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Condition</td>
<td>Well Alert</td>
<td>Restless irritable</td>
<td>Less than normal movements Abnormally sleepy Very difficult to awaken</td>
</tr>
<tr>
<td>Eyes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thirst</td>
<td>Drinks normally Not thirsty</td>
<td>Thirsty Drinking eagerly</td>
<td>Not able to breastfeed or drink Vomits everything</td>
</tr>
<tr>
<td>FEEL:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fontanelle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin pinch</td>
<td>Goes back immediately</td>
<td>Goes back slowly &lt;2 seconds</td>
<td>Goes back very slowly &gt;2 seconds</td>
</tr>
<tr>
<td><strong>DECIDE and CLASSIFY:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Child has NO SIGNS of DEHYDRATION</td>
<td>If the child has 2 or more signs from this column then child has SOME DEHYDRATION</td>
<td>If the child has 2 or more signs from this column then the child has SEVERE DEHYDRATION</td>
<td></td>
</tr>
<tr>
<td><strong>TREATMENT:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan A: More fluids at home</td>
<td>Plan B: ORS under supervision, if improves Plan A at home</td>
<td>Plan C: IV Fluids if possible, if not, NG, if not ORS - REFER</td>
<td></td>
</tr>
<tr>
<td><strong>OTHER TREATMENT:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treat fever if present</td>
<td>Treat fever and Malaria if present</td>
<td>IM Quinine and Chloroquine</td>
<td></td>
</tr>
<tr>
<td><strong>FOLLOW UP:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>In 3-4 hours, then reassess</td>
<td>REFER IMMEDIATELY</td>
<td></td>
</tr>
<tr>
<td><strong>REFER:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If develops signs in column C.</td>
<td>If no response to ORS or develops signs in column C.</td>
<td>IMMEDIATE REFERRAL</td>
<td></td>
</tr>
</tbody>
</table>

1. **Assessment of dehydration In a child with diarrhoea**

   a) Treatment of diarrhoea with no dehydration (Plan A)

      i. Home treatment of diarrhoea focuses on teaching the mother to:
         > Give more fluids than usual
         > Use coconut water, rice water, thin soups.
         > If this is not possible give water.
         > Give as much fluid as the child will drink after every loose stool.
           ‚ Up to 2 years: 50-100mL after each loose stool
           ‚ 2 years or more: 100-200mL after each loose stool
      ii. Breastfeed frequently and longer
         > The more fluid the child drinks, the less the chance of becoming dehydrated.
         > Continue to give these fluids until diarrhoea stops.
         > Encourage the mother to give ORS
         > Every health worker should establish an ORS Centre in their health facility
         > This is especially important if they have been on Treatment Plans B or C, or cannot return if diarrhoea gets worse.
iii. Show the mother how to mix ORS for home treatment of diarrhoea:

> Child under 2 years: one teaspoon every 1-2 minutes.
> Older child: frequent sips from a cup.
> If the child vomits: wait 10 minutes and give ORS again slowly.

<table>
<thead>
<tr>
<th>Age</th>
<th>Amount of ORS after each loose stool</th>
<th>Amount of ORS to take home</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 24 months</td>
<td>50-100mL</td>
<td>500mL per day</td>
</tr>
<tr>
<td>2 to 10 years old</td>
<td>100-200mL</td>
<td>1000mL per day</td>
</tr>
<tr>
<td>Older than 10 years</td>
<td>As much as wanted</td>
<td>2000mL per day</td>
</tr>
</tbody>
</table>

> Give mother enough packets of ORS to last 2 days.
> If diarrhoea continues after all packets of ORS are used - give home fluid or water as described above.

iv. Salt-water solution

> Only use salt-water solution if no supplies of ORS are available.
> Use 1 litre size bottle (e.g. cooking oil or plastic juice bottle).
> Dissolve into 1 litre of water: 2 level tablespoons sugar.
> 1 level teaspoons salt.

v. Continue feeding and give plenty of food:

> Continue to breast-feed frequently and take opportunity to encourage mother to breastfeed as long as possible.
> If under 6 months:
> ⇒ If not breastfeeding then dilute the milk with equal amount of boiled water for 2 days.
> If 6 months or older or taking solid food:
> ⇒ Encourage the child to eat.
> ⇒ Offer food at least 6 times a day.
> ⇒ Encourage extra feeding after diarrhoea finishes and take opportunity to encourage mother to commence food if infant >4 months.

vi. Return to the clinic if:

> The child is not better in 3 days.
> The child develops any of the following
> Many watery stools.
> Eating or drinking poorly.
> Repeated vomiting.
> Marked thirst.
> Fever.
> Blood in the stool.
> Severe abdominal pain.
> Pallor.

b) Treatment of diarrhoea with some dehydration (Plan B)

i. This should be treated in Dispensary or Outpatients.
ii. Do not send the child home if they are unable to take fluids.
iii. If the child wants more than that shown, give to the child.
iv. Show the mother how to give ORS.
v. Check from time to time to see if there are any problems and regime carried out – don’t leave mother totally alone!

> Child under 2 years - a teaspoon every 1-2 minutes.
> Older child - frequent sips from a cup.
> If the child wants more ORS, give more.
> Encourage the mother to continue breastfeeding.

> For infants under 6 months who are not breastfed, also give 100-200mL water PLUS the ORS regime for 4 hours.

<table>
<thead>
<tr>
<th>Age</th>
<th>Up to 4 months</th>
<th>4 months to 12 months</th>
<th>12 months to 2 years</th>
<th>2 years up to 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>&lt;6kg</td>
<td>6 to &lt;10kg</td>
<td>10 to &lt;12kg</td>
<td>12-19kg</td>
</tr>
<tr>
<td>Amount of ORS to give during first 4 hours</td>
<td>200-400mL</td>
<td>400-700mL</td>
<td>700-900mL</td>
<td>900-1400mL</td>
</tr>
</tbody>
</table>
viii. If the child vomits:

- Wait 10 minutes, then continue ORS slowly - 1 teaspoon every 2-3 minutes.

ix. If the child’s eyelids become puffy:

- Stop ORS
  - Give plain water or breast milk until puffiness gone then continue ORS.

x. After 4 hours re-assess hydration:

- NO dehydration: Use PLAN A.

- SOME dehydration: Repeat PLAN B, offer food, milk, juice.

- SEVERE dehydration: Use PLAN C.

c) Treatment of diarrhoea with severe dehydration (Plan C)

i. If you cannot give IV fluids, see next page.

ii. If you can give IV fluids, see below.

iii. Use Normal Saline or Hartmanns not 5% Dextrose or 0.18% Saline.

iv. Start IV fluids immediately:

<table>
<thead>
<tr>
<th>Weight in Kg</th>
<th>FIRST give a load of IV fluids</th>
<th>Then run the IV fluids at a rapid rate for 4 hours and re-assess</th>
<th>Then until the patient is drinking well run at the following rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mLs</td>
<td>mLs/hr</td>
<td>drops/min</td>
</tr>
<tr>
<td>3-5</td>
<td>100</td>
<td>60</td>
<td>15</td>
</tr>
<tr>
<td>6-9</td>
<td>150</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>10-14</td>
<td>250</td>
<td>150</td>
<td>40</td>
</tr>
<tr>
<td>15-19</td>
<td>350</td>
<td>250</td>
<td>60</td>
</tr>
<tr>
<td>20-29</td>
<td>500</td>
<td>400</td>
<td>100</td>
</tr>
<tr>
<td>30-39</td>
<td>750</td>
<td>800</td>
<td>200</td>
</tr>
<tr>
<td>40-59</td>
<td>1000</td>
<td>1000</td>
<td>250</td>
</tr>
<tr>
<td>60+</td>
<td>1000</td>
<td>1000</td>
<td>250</td>
</tr>
</tbody>
</table>

v. If the patient can drink:

- Give ORS while drip is being set up.

- Try to give ORS from start of treatment.

vi. Assessment:

- Re-assess every 1-2 hours during treatment.

- Do a full dehydration assessment:
  - Infants: after 6 hours treatment.
  - Adults: after 3 hours treatment.

vii. If still severe dehydration:

- Continue IV fluids at rapid rate and fully assess again after 3 hours.

viii. If improving and only some or no dehydration:

- Start Plan B or A.

- Continue IV fluids at maintenance rate until drinking well and no longer vomiting.

ix. If the patient’s eyelids become puffy:

- Change IV from Normal Saline to IV Dextrose/Saline

- Slow the infusion to maintenance rate.

2. Severe dehydration if you cannot give IV fluids

a) IV treatment is available within 30 minutes:

- Refer immediately for IV treatment.

- Start ORS solution if the patient can drink.

  - Show the mother how to give ORS during the trip.

  - ORS volume per hour for severe dehydration.

  - Use the patient’s age ONLY if you cannot weigh.
<table>
<thead>
<tr>
<th>Age</th>
<th>Under 4 months</th>
<th>4-11 months</th>
<th>12-23 months</th>
<th>2-4 years</th>
<th>5-14 years</th>
<th>Over 14 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight in kg</td>
<td>Under 5kg</td>
<td>5-7</td>
<td>6-10</td>
<td>11-15</td>
<td>16-29</td>
<td>30+</td>
</tr>
<tr>
<td>mls/hr</td>
<td>60-100</td>
<td>100-150</td>
<td>150-200</td>
<td>200-300</td>
<td>330-600</td>
<td>600-1000</td>
</tr>
</tbody>
</table>

b) IV treatment IS NOT available within 30 minutes
i. If you can pass a nasogastric tube:
   ▶ Start ORS by tube.
   ▶ Give 20mL/kg/hour for 6 hours, total of 120mL/kg (see table).
   ▶ Re-assess patient after 1-2 hours.
   ▶ If patient worse - refer for IV treatment.
   ▶ Do a full dehydration assessment after 6 hours, continue treatment with Plan A, B or C.
ii. If the patient CAN drink:
   ▶ Start ORS by mouth.
   ▶ Give 20mL/kg/hour for 6 hours (see table).
   ▶ Re-assess patient after 1-2 hours.
   ▶ If patient worse - refer for IV treatment.
   ▶ Do a full dehydration assessment after 6 hours, continue treatment with Plan A B or C
iii. If the patient CANNOT drink:
   ▶ Urgently refer the patient for IV or nasogastric treatment

Treatment of Cause in Children & Adults

1. Acute diarrhoea:
a) Diarrhoea for less than 14 days
b) The commonest causes of acute diarrhoea are infections of the gut.
c) In children any infection may cause diarrhoea.
d) Look and ask
   i. Is there fever?
   ii. Is there blood?

<table>
<thead>
<tr>
<th>Fever</th>
<th>Blood</th>
<th>Common Causes</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO</td>
<td>NO</td>
<td>Toxins</td>
<td>Rehydration therapy only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E.coli</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Viruses e.g. Rotavirus</td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>NO</td>
<td>Salmonella</td>
<td>Do not give antibiotics routinely.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Viruses</td>
<td>Fever over 38.5°C:</td>
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<td>Malaria</td>
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<td>Any infection in children</td>
<td>If very toxic:</td>
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<td>Start Chloramphenicol</td>
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<td>YES</td>
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<td>Shigella</td>
<td>Fever over 38.5°C:</td>
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<td>Salmonella</td>
<td>Antimalarials and Paracetamol</td>
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<td>Campylobacter</td>
<td>If very bloody:</td>
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<td>Children &lt;5 years give Cotrimoxazole</td>
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<td>Adults: Ciprofloxacin or Chloramphenicol</td>
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<td>If very sick - Refer to hospital</td>
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2. Persistent Diarrhoea:
a) Diarrhoea for more than 14 days
b) Refer if:
   ▶ Under 6 months old.
   ▶ Dehydration is present.
   ▶ Malnutrition.
c) Treatment:
   ▶ Teach the mother home treatment of diarrhoea. (Treatment Plan A).
3. Treatment of symptoms:
   a) If there is a severe colicky pain:
      ➢ Stop oral treatment and give IV fluids.
   b) If the pain is very bad:
      ➢ Refer to hospital.

☐ Never give anti-emetics e.g. Maxolon, Stemital to children < 16 years
☐ If you have given Maxolon or Stemital and patient reacts funny go to Oculogyric Crisis section of this manual
☐ Never give anti-diarrhoeal drugs e.g. Lomital, Imodium.
☐ Antibiotics should not be given if no blood in stool unless patient is very ill – fluid replacement is the priority.
☐ Remember that coconut water is OK for fluid replacement but not as good as ORS as it is lower in sodium.
☐ Another important message in diarrhoeal disease is to re-start feeding (breastmilk and solids) as soon as possible, preferably after 4 hours of rehydration.
☐ Prolonged fasting is bad for the gut and recovery occurs quicker with early refeeding.
DENGUE FEVER and DENGUE HAEMORRHAGIC FEVER

Dengue virus infection may be asymptomatic or may cause undifferentiated febrile illness (viral syndrome), dengue fever (DF), or dengue haemorrhagic fever (DHF) including dengue shock syndrome (DSS). Infection with one dengue serotype gives lifelong immunity to that particular serotype, but there is no cross-protection for the other serotypes. The clinical presentation depends on age, immune status and the virus strain. Dengue, DHF are viral infections transmitted by the Aedes mosquito. Dengue is NOT transmitted directly from person to person. It commonly appears in epidemics, as mosquito's bite infected patients, and then the infection is passed on when the mosquito bites another person.

If you suspect dengue fever in addition to treating the patient you must alert villages to clean up and check all water sites within a 300-metre radius of the village or any dwellings AS SOON AS POSSIBLE and spread word that people should be under mosquito nets day and night when resting.

Suspected cases should be immediately notified to either Provincial Health Manager or Directorate of Public Health.

Directorate of Public Health have a larger document about dengue in Vanuatu – this will help especially in hospitals about clinical management and tests required.

Dengue is difficult to diagnose and is similar to other common diseases. Consider and treat for other diseases such as malaria and meningitis in addition to dengue as required.

DIFFERENT PRESENTATIONS OF DENGUE:

Undifferentiated Fever
Infants, children and adults who come in contact with dengue virus for the first time will probably develop a fever and may also develop a rash with or after the fever. Rashes can be itchy. Common on soles of feet and hands.

DO NOT GIVE aspirin it will make any bleeding tendency worse

DO NOT GIVE Indocid or similar drugs until you are sure the patient has no bleeding tendency

DO NOT give IM injections

Treatment:
- Paracetamol and tepid sponging
- Plenty of fluids including continue to breastfeed
- Encourage light nutritious food e.g. fruit, mashed vegetables
- Isolate under mosquito net as much as possible
- Calamine may help itching

Notify either Provincial Health Manager or Directorate of Public Health immediately you suspect dengue

Dengue Fever
1. More common in older children and adults.
2. Usually acute fever with periods of no fever in between over a few days.
3. Usually also have headaches, muscle and bone pains, pain behind eyes, rashes and low white blood cells. May have unusual haemorrhages e.g. nose bleeds, gum bleeds. Apply "tourniquet test" – count spots or dots – a positive result is >10 dots per square inch. 50% of cases will have them on first day, about 70% on second day and >90% on third day.
The dots are very small haemorrhages or petechiae.
4. Recovery may be short but can also take several weeks and the patient may complain they feel weak and depressed and their pulse may be slow.

Tourniquet test is performed by inflating a blood pressure cuff on the upper arm to a point midway between the systolic and diastolic pressure for five minutes. Wait for one minute after the release of pressure before reading the test.

THIS MAY BE NEGATIVE IF PATIENT SHOCKED.

5. Treatment:
- Treat as for undifferentiated fever above
- If patient unable to take enough oral fluids they should have IV fluids
- You should discuss (refer) these patients with a higher level e.g. nurse practitioner or hospital

Notify either Provincial Health Manager or Directorate of Public Health immediately you suspect dengue
Dengue Haemorrhagic Fever / Dengue Shock Syndrome (DSS)
1. More common in children less than 15 years but CAN occur in adults.
2. Onset is sudden similar to dengue fever but with more obvious bleeding points and can rapidly develop into "shock syndrome".
3. Before DSS the patient may present with more severe signs and symptoms than 1 and 2 above. Sore throat, epigastric discomfort, tender right costal margin and general abdominal pain are the common ones with abdominal pain becoming more acute just before development of DSS.
4. In the early stages of DSS the systolic and diastolic BPs will be very close together and the pulse will be weak and rapid.
5. The patient will become restless, get cold clammy skin and BP will fall.
6. Treatment:
   - Maintain airway
   - Commence oxygen – try not to irritate nose with catheter – mask is best
   - Commence IV fluids of normal saline and or Hartmann’s – rapidly if DSS developing
   - Give paracetamol either syrup or tablets per rectum and cool sponge
   - Refer as soon as possible to hospital – NDH or VCH preferable – the patient will need tricky blood tests and intensive care
   - Timely infusion of IV fluids is the most important factor in patient recovery from DSS

Grading the Severity of DHF
Grade I Fever accompanied by non-specific constitutional symptoms; the only haemorrhagic manifestation is a positive tourniquet test.

Grade II Spontaneous bleeding in addition to the manifestations of Grade I patients, usually in the form of skin and/or other haemorrhages.

Grade III Circulatory failure manifested by rapid and weak pulse, narrowing of pulse pressure (20 mmHg or less) and hypertension, with the presence of cold clammy skin and restlessness

Grade IV Profound shock with undetectable blood pressure and pulse
EAR DISEASE

1. Deafness:
   Look in the ear with an auroscope:
   If there is wax or a foreign body ⇒ syringe the ear.
   If there is pus ⇒ treat as chronic otitis media.
   If the drum is red ⇒ treat as acute otitis media.
   If you see nothing ⇒ the patient should be seen by a doctor.

2. Acute Otitis Media:
   a) Painful ear with fever.
   b) Eardrum red and dull in appearance, or
   c) Pus discharging from ear for less than 2 weeks.
   d) Treatment:
      ⇒ First-line antibiotic - Amoxicillin TDS for 5 days.
      ⇒ Second line antibiotic - Cotrimoxazole (bactrim) BD for 5 days.
      ⇒ Paracetamol or aspirin for pain/fever.
      ⇒ If pus discharging, dry the ear with toilet tissue QID.
   e) Review after 5 days:
      If ear discharging pus, or still pain and fever
      ⇒ Continue Cotrimoxazole for 5 more days.

3. Chronic Otitis Media
   f) Ear discharging pus for more than 2 weeks.
   g) Treatment:
      ⇒ The most important treatment is cleaning the ear.
      ⇒ The eardrum will only heal when it is dry.
      ⇒ Antibiotics do not usually help but you may use drops e.g. Sofradex
   h) Ear Cleaning (Toilet)
      ⇒ Must be done QID.
      ⇒ Twist a piece of toilet tissue to make a spear.
      ⇒ Break off and throw away both ends.
      ⇒ Gently push and twist into ear canal until it stops.
      ⇒ Leave for 2 minutes to absorb pus, then gently remove.
      ⇒ Repeat until the ear is dry.
      ⇒ Sofradex drops or similar after ear toilet
   c) Education:
      i. Teach the family to do ear cleaning QID.
      ii. Tell the patient to keep inside the ear dry.
      iii. Explain no swimming and care when washing.
   d) Remember:
      ⇒ Cotton buds are no good and must not be used.
      ⇒ Never plug a discharging ear with cotton wool.
   e) Review:
      i. Every week until the ear is dry.
      ii. Check how the family do ear cleaning.
   f) Refer if:
      ⇒ Discharge continues for more than 6 months.
      ⇒ Suspected Mastoiditis (painful swelling behind ear).

4. Otitis Media with Effusion (OME):
   a) Common in young children.
b) May last for weeks or months.
c) Eardrum appears dull or retracted with fluid behind drum.
d) Causes transient hearing loss in some children.
e) No benefit from antibiotics.
f) Increases risk of AOM with febrile upper respiratory tract infection.
EYE DISEASE

1. Red Eye
   a) Remember, not all red eyes are conjunctivitis.
   b) Examine the eye
   c) Is it painful:
      i. If yes, think:
         Iris: small, often irregular pupil, + pain
         Corneal Ulcer: often follows an injury, ++ pain
         Glaucoma: large, non-reactive pupil, +++ severe pain
      ii. No pain:
         Conjunctivitis: can be viral (watery discharge) or bacterial (pus discharge)
   d) Is there a foreign body in the eye?
      Refer to eye injury
   e) Test Vision
      i. Vision is normal in conjunctivitis.
      ii. Vision may be reduced in Iris, Corneal Ulcer and/or Glaucoma
   f) Treatment:
      i. Viral conjunctivitis:
         No treatment necessary unless severe or with complications
      ii. Bacterial conjunctivitis:
         Clean away the pus with a cotton wool and/or clean water
         If in hospital, obtain a pus swab for microscopy / culture before starting treatment
         Apply chloramphenicol / tetracycline drops/ointment QID for 5 days or until resolved.
   g) Refer:
      Any person with painful eye and decreasing vision.
      If no improvement after 2 days of treatment or if patient becomes worse at any time.

2. Eye Injuries
   a) Examine:
      i. To make examination easier, apply 2-3 drops of Amethocaine or Lignocaine 1%, particularly before attempting
         removal of foreign bodies
      ii. Look carefully for any foreign body.
      > Carefully remove any seen object with clean water and cotton buds or swab
      > Apply antibiotic eye ointment and cover with loose eye pad and shield before referral.
      > Review patient daily until improved.
   b) Refer
      Eyeball lacerations (Penetrating eye injuries)
      Eyelid injuries
      Deep foreign bodies
      Foreign Bodies in the Eye

3. Penetrating Eye Injuries
   a) This includes eyeball lacerations, puncture wounds etc
   b) Should all be referred for specialised care
      > Calm the patient, do not remove anything.
      > Give pain relief, tetanus toxoid.
      > Cover the eyes with eye pad and eye shield.
      > Do not handle the eye too much as this may cause further damage.
      > Patients may need sedation during transfer. Have Diazepam available.
4. Chemical Spills
   ➢ Wash the eye with tap water or saline for at least 20 minutes.
   ➢ You can use a IV set and run it slowly into the eye.
   ➢ Do this before checking vision.
   ➢ Put antibiotic eye ointment and pad worse eye, then review daily until healed.

5. Other common eye disorders accompanied with poor vision
   a) Test vision with an eye chart placed at 6 meters from the patient
      i. Test each eye in turn, the right eye first
      ii. A person with normal vision can read line labelled “6”, recorded as “6/6”
      iii. If worse than “6/6” re-test having the patient looking through a tiny pinhole.
         ➢ If vision improves the patient just needs glasses.
   b) Examine the eye with a torch or a good light source for:
      i. Scar on the cornea.
      ii. Cataract (a white looking pupil).
      iii. Squint (abnormal deviation of the eye).
      iv. Pterygium
   c) Treatment:
      i. No immediate treatment is required for above.
      ii. There is a Primary Eye Nurse at each hospital who can advise on these non urgent referrals.
      iii. There is no treatment for corneal scar but refer ASAP if found in children <8yrs.
      iv. Surgery will be performed if there are cataracts affecting normal activities.
      v. Refer new squint causing double vision and all children with squint.
      vi. If there is nothing to find except poor vision, and vision does not improve with a pinhole, refer to Provincial Primary Eye Nurse consultation.

6. Neonatal Conjunctivitis
   d) Conjunctivitis in babies within the first month of life.
   e) It may be due to gonococci if seen within the first 2-4 days of life though it can take up to 4 weeks to present (Chlamyd and others: 4-10 days after birth).
   f) It can cause blindness if not treated appropriately.
   g) Treatment:
      i. Less than 7 days old:
         ➢ Ceftriaxone IM/IV 50mg/kg daily for 7 days
         ➢ Or BenzylPenicillin IM/IV 15mg/kg BD for 7 days
      ii. More than 7 days old:
         ➢ Ceftriaxone IM/IV 50mg/kg daily for 7 days
         ➢ Or BenzylPenicillin IM/IV 7.5mg/kg QID for 7 days
      iii. Purulent conjunctivitis and more than 28 days old (just over neonatal period):
         ➢ Procaine penicillin IM as a single dose
         ➢ Or Ceftriaxone IM as a single dose
       ii. Other treatments
         ➢ Irrigate eyes hourly with saline until pus decreases
         ➢ Tetraacycline eye ointment 4 times a day for 2 weeks — any less will not cover chlamydia
         ➢ Treat mother, father and contacts for gonorrhoea or chlamydia if suspected.

7. Vitamin A Deficiency (Xerophthalmia)
   a) Vitamin A Deficiency causing changes in the eye.
   b) Probably not a health problem in Vanuatu due to mangoes and paw paw.
   c) Main signs are night blindness, Bitot’s spot, conjunctival and corneal dry spots, corneal ulceration and scars.
d) Treatment:

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<tr>
<th>AGE</th>
<th>&lt; 6 months</th>
<th>6 – 12 months</th>
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<tr>
<td>1st Day</td>
<td>50,000 IU</td>
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<td>2nd Day</td>
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<td>2 – 4 weeks later</td>
<td>50,000 IU</td>
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Repeat single prophylactic doses in 4 – 6 months intervals.

e) The above treatment should also be given to all children:
   i. With any non-traumatic corneal ulceration from any cause
   ii. With measles
   iii. Who are severely ill such as ARI etc
   iv. Who are underweight

☞ Refer to IMCI Guidelines for further information
FAMILY PLANNING (FP)

Aims: to enable women and their partners to plan pregnancies so that each pregnancy is wanted and has the best chance of a positive outcome and to improve maternal and child health (MCH).

How: By encouraging couples to follow 3 main FP messages:

① Plan to have children between maternal ages of 18 & 35 years.
② Space pregnancies by at least 2 years.
③ Advise to have a family size of 4 children or less.

Talk: to men and women about FP, and help each couple to choose the best method for them.

Reversible methods:

2. Progesterone only Pill (POP).
3. Long acting Progestosterone injection (‘DEPOT’).
4. Intrauterine contraceptive device (IUCD, Loop, Coil).
5. Implantable devices (Implanon,Norplant)
6. Condom.
7. Natural Methods.

Irreversible methods: (used when family completed or sometimes for medical reasons e.g. cardiac disease):

1. Sterilization
2. Tubal ligation.
3. Vasectomy.

②②No method is 100% effective.
②②If a woman misses 2 periods, check for pregnancy.

Family Planning Visits

1. At First visit:
a) Follow Family Planning Record to conduct first examination
b) Exclude risk factors and discuss options for woman or couple to decide
c) Male nurses can refer woman to female nurse for initial examination if required
d) This visit is a good opportunity to show woman or couple how to use condoms even if they do not choose this method

2. Follow-up visit:
a) Discuss problems and assist if possible
b) Check if following instructions, e.g. taking pill regularly, understands condom use etc.
c) Change method if required.
d) Measure BP and weight.
② The family planning visit is ideal for well women’s check, education about breast examination and sexually transmitte infections.
② All men and women should be educated about condoms and how to apply them!

Combined Oral Contraceptive Pill (COC) = oestrogen + progesterone

1. Stops ovulation and thickens cervical mucus
2. Periods are regular and often lighter and shorter too.

Effectiveness:

1. Excellent if taken regularly.
2. NB: reduced effectiveness with some antibiotics and with diarrhoea and vomiting, some common drugs used for
epilepsy and TB for example can reduce effectiveness a lot also.

How to take:
1. Take first hormone pill on first day of menstrual cycle.
2. One pill must be taken AT ABOUT THE SAME TIME every day.
3. After the 21 hormone pills, the inactive pills are taken for the next 7 days.
4. Then a new packet of pills started.

What to do for missed pills:
1. If forgotten at the usual time and remembered < 12 hours later
   take the pill as soon as woman remembers and should still be contraceptively safe.
2. If it is more than 12 hours after the due time
   take the pill as soon as the woman remembers but use other precautions as well for the next 7 days.
   ⇒ If these 7 days run beyond the end of the packet, start the next packet at once. That is, do not have a 7 day break
   or take the inactive pills.
   ☺ This will mean that the woman probably will not have a period until the end of two packets, but this will not matter. Nor
   does it matter if they do bleed.
   ☺ If the woman takes a pill late, or forgets to take a pill altogether, she may start to bleed the next day. This is of no
   significance - continue pills as above.

Not suitable for women if:
☐ High BP, heart disease, diabetes, jaundice
☐ Women who smoke and are overweight (>90kgs) and over 35 years of age
☐ Women who are unreliable at taking medication
☐ In the first 8 months of breastfeeding (relative contraindication)

Reversibility:
On stopping pill pregnancy should occur within six months.

Progestosterone Only Pill
(POP) = The breastfeeding pill.
1. Thickens cervical mucus and sometimes can stop ovulation.
2. Does not interfere with milk production. It can be used for older women as well.

Effectiveness:
1. Not as good as COC.
2. More effective if breastfeeding.
3. More effective in older women

Problems:
1. Irregular bleeding can occur at any time.
2. Women may feel nauseated at first - this usually goes away.
3. It must be taken strictly at the same time every day.

How to take:
1. The best time to start is at the 6-week postnatal visit.
2. Can give at the time on discharge after delivery.
3. Do NOT wait for the first period before starting.
4. 1 pill AT THE SAME TIME every day. All pills are the same.
5. The pill works best after 3 hours taking it and up to 3 hours before the next pill. It is therefore more effective to take in
   the morning if women usually have sex at night. Taking the pill at night just before sex will lower the efficiency.
6. After 9 months considering changing to a different contraceptive method - can change to depoprovera or COC or implant.

What to do for missed pills:
1. If the woman misses a pill by more than 3 hours from your normal time of pill-taking
   Take the pill they have missed and use additional contraceptive precautions for the following 48 hours.
2. Likewise, if you have diarrhoea and/or vomiting, the pill may not get absorbed, and additional precautions should be
   used in the same way.

Not suitable for women if:
1. Concerned about irregular vaginal bleeding.
2. Poor compliance with taking medication.
   **Reversibility:**
   On stopping pill pregnancy should occur within six months.

**Long Acting Progesterone**

"Depo" = injections and implants
1. These consist of a progesterone hormone only and work very much like contraceptive pills to stop ovulation.
2. They can be used during breastfeeding.
3. Suitable for women taking medication for epilepsy, TB etc.
4. Maybe suitable for women with cardiac disease etc.
   ♦ Injections: Depo-provera lasts 3 months.
   ♦ Implants: Implanon lasts 3-5 years – not available through CMS but may become available through UNFPA

**Effectiveness:**
Very effective (less failure rate than tubal ligation for implants)

**Common problems:**
1. Irregular bleeding – consult midwife re this as it can be helped
2. Amenorrhea (usually after 6-12 months).
3. Some women may feel nausea – this will usually go away – if women tolerated POP they will probably have less problems
4. Small increase in weight but less than being pregnant!

**Reversibility:**
Possible delayed return (up to 12 months) to fertility after stopping injections.

There is no evidence to say that Depo-provera stops fertility.
Prompt return of fertility after removal of implant – usually within 3 weeks.

**How to take:**
1. Enquire at provincial hospitals about implants if they become available
2. If a woman has an implant that needs removing contact O&G medical staff – they are difficult to remove but easy to insert
3. Depo provera is given by deep IM injection every three months
4. Implants are best put in during a woman’s period
5. If women are on chronic medication check with medical officer as depo may need to be given more frequently

© Remind woman when next injection due – use a date that can be remember e.g. Easter, start of school term etc. It is better to be a week or so early than late.

**Intrauterine Contraceptive Device**

= IUCD, Loop, Coil
Depending on the type of device, it can remain in the uterus for up to 10 years.

**Effectiveness:**
1. A little less than injectables.
2. Suitable for women taking medication for epilepsy, TB etc.
3. Usually not suitable for women with suppressed immunity e.g. long term steroids etc

**Common problems:**
1. Can have heavier periods and cramping but usually settle in 2-3 months
2. Increase in PID if > 1 partner
3. Increase chance of ectopic pregnancy
4. Perforation of uterus on insertion – especially if inexperienced practitioner
5. Not suitable for women with: heavy painful periods, anaemia, no previous pregnancies, Pelvic Inflammatory Disease (PID), previous ectopic pregnancy, abnormal uterus.
6. Other problems are cramping and expulsion but these are less common in women who have had a full term pregnancy.

**How to manage problems:**
1. Counsel women about heavier periods and cramping—may benefit from iron tablets.
2. Remove IUD and commence treatment if signs and symptoms of PID—see STI section of manual.
3. Suspected perforated uterus needs urgent referral to hospital.
4. Suspected ectopic pregnancy requires urgent referral to hospital—see Abdominal Pain section of manual.
5. Teach women to check for sting regularly.

How to use:
1. Available from health facilities with staff trained in insertion
2. Ideally inserted 6 weeks postnatally or during menstruation (silk mun)
3. If the IUD needs removal you should contact trained staff for instructions

Reversibility:
© Pregnancy should occur within six months of removal.

Condoms
1. Are useful when sexual intercourse is infrequent or unplanned.
2. Are useful in preventing STI's including HIV when used correctly. This is part of "SAFE SEX".

Effectiveness:
1. Variable, depends if it is used correctly.
2. Condoms may break.

Problems:
1. Some women are allergic to the Latex that condoms are made of.
2. Some men find them uncomfortable—encourage to try different brands.
3. A water based lubricant (similar to gel used for medical examinations) may help use and decrease breaking. DO NOT USE Vaseline, coconut oil etc.

How to use:
© You must show every "new user" EXACTLY how to use a condom—it is a good idea to demonstrate to men and women how to use even if they do not choose this method—it is a good life skill to have.

Natural methods
1. Withdrawal:
   a) Depends on the motivation of the man.
   b) Generally has a high failure rate.
2. Breastfeeding:
   a) Gives some contraceptive cover for 6 months after childbirth.
   b) Other methods of contraception should be used when breast feeding
3. Ovulation Method (Billings' rhythm or calendar method):
   a) Relies on avoiding sexual intercourse around ovulation time.
   b) Requires full understanding and cooperation by both husband and wife.

Sterilization
1. You must explain that the operation:
   a) Is permanent.
   b) Will not cause body weakness.
   c) Will not affect sexual intercourse.
2. Tubal ligature—for women
   a) A simple operation, usually under general anaesthetic.
   b) A short stay in hospital.
   c) It is effective immediately.
   d) Will not affect periods.
3. Vasectomy—for men
   a) A simple operation, under local anaesthetic.
   b) NO stay in hospital, can be performed in health centres with trained personnel.
c) It is not effective for about 3 months, so another method is needed until then.
d) It does not affect erection, ejaculation or sexual performance.

Emergency Contraception
1. What is it?
   a) Methods used by women after intercourse to prevent pregnancy.
   b) Not to be used as regular contraception but only when there is unprotected intercourse and pregnancy is not desired e.g. sexual assault.
   c) The standard regimen is referred to as "Emergency Contraception Pills or ECPs" that is more effective if taken 1-3 days after intercourse but can be administered up to five days.
   d) IUD insertion can also be used up to five days post intercourse.

2. Effectiveness:
The ECP regime is up to 90% effective in preventing a pregnancy according to a study conducted by WHO published in 2002.

3. How to use ECPs:
   a) First you must make sure the woman is not pregnant.
   b) There are two regimes – both regimes may cause nausea but less than method that uses COC – it does not matter which regime the woman chooses.
      - 750mcg levonorgestrel (microlute) which is 25 tablets plus metoclopramide (maxolon) 10mg
         - Repeat these same doses after 12 hours
         - If the woman vomits the tablets within 2 hours of taking then repeat
      - Or
         - 1500mg levonorgestrel (microlute) which is 50 tablets plus metoclopramide (maxolon) 10mg
         - This dose does not need to be repeated
         - If the woman vomits the tablets within 2 hours of taking then repeat
   c) Common side effects include nausea, vomiting, diarrhoea, lower abdominal pain, headache and dizziness
   d) The woman should expect a period within the following week as the pills change the menstrual cycle’s times
   e) The woman should return and see you after three weeks to either check for pregnancy and or commence on regular contraception if required

4. IUD Method:
   a) An alternative to COC method is to insert a copper IUCD within 5 days of the act of sexual intercourse.
   b) This is a very effective method of prevention with a less than 1% failure rate of contraception.
   c) Suitable for all women UNLESS she is already pregnant.
   d) More suitable for women considering maintaining the IUD as a longer term contraceptive method.
   e) If used post sexual assault prophylactic STI treatments should be given
FEVER

1. Common causes of acute fever are:
   a) Malaria
   b) Acute Respiratory Infection
   c) Otitis Media
   d) Abscesses
   e) Urinary Tract Infection
   f) Pelvic Inflammatory Disease
   g) Diarrhoea
   h) Meningitis
   i) Pneumonia
   j) Typhoid

2. What to do:
   a) Take a history and examine to find the cause of fever.
   b) Treat the cause as well as the fever.

3. Treatment:
   a) Treat the cause of the fever.
   b) Do not give antibiotics for fever without a known cause.
   c) Give extra fluids.
   d) If temperature over 38.5°C
      ➢ Give Paracetamol
   e) Do not use aspirin in children less than 16 years old.
   f) In malarial areas, if the child is under 5 with fever of 38.5°C or higher, consider treating for malaria with:
      ➢ Chloroquine (or Quinine) and Fansidar.
   g) If in addition to a fever of 38.5 or higher and the child is also very sick (not eating, drinking) and no cause is found you should:
      ➢ Start Chloramphenicol and Quinine at the appropriate dose.
   h) Refer urgently.
   i) You may consider Typhoid – see that section in this manual
FILARIASIS

1. What is it?
   a) Filaria or “big leg” is caused by a chronic infection with organisms (filaria) that are transmitted by mosquitoes.
   b) The body’s immune response to these filaria causes inflammation and scarring in the lymphatic channels, which obstructs lymph flow resulting in swelling in the tissues (lymphoedema).

2. What are we doing for it?
   a) In 2000, a 5 year program to eradicate filariasis from the Pacific region began.
   b) Everyone except pregnant women, children under 2 years of age and patients taking medicine for diabetes, cancer or high blood pressure were asked to take an annual dose of albendazole 400mg (regardless of weight) and Di-ethylcarbamazine citrate (DEC).
   c) For patients with significant side-effects to DEC, ivermectin >15 years, 4 tabs can be used instead.
   d) Compliance has been high and prevalence surveys have shown a significant drop in microfilaria positive individuals.

3. Patients who have “big leg”:
   a) The annual medicine should still be given.
   b) Surgery can sometimes reduce the swelling / deformity – non-urgent refer to medical officer for opinion
   c) Filaria or “big leg” is caused by a chronic infection with organisms (filaria) that are transmitted by mosquitoes. The body’s immune response to these filaria causes inflammation and scarring in the lymphatic channels, which obstructs lymph flow resulting in swelling in the tissues (lymphoedema).
FOOD POISONING

1. May be caused by bacteria or their toxins found in improperly prepared, poorly stored or inadequately cooked food.
2. The symptoms may be simple nausea, vomiting and diarrhoea or the same but in a severe manner.
What to do:
1. Do not give antibiotics
2. Prevent dehydration
   ⇒ Either sips of ORS to maintain urine output or IV Normal Saline or Hartmanns if not tolerating any oral fluids
   ⇒ Patient may benefit from hyoscine butylbromide (Buscopan) 20mg oral or IM 6-8 hourly for severe cramping
   ⇒ Patient may benefit from metoclopramide (Maxolon) 10mg oral or IM 4-6 hourly for severe nausea and vomiting or
     Stemetil 12.5mg IM / IV 4 hourly
☑ Do not use Buscopan and Maxolon in young children.
FISH POISONING

Develops less than 6 hours after eating affected fish.

<table>
<thead>
<tr>
<th></th>
<th>Scombroid</th>
<th>Ciguatera</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Type of fish</td>
<td>• Almost any type</td>
<td>• Usually reef fish</td>
</tr>
<tr>
<td>2. Time of catch</td>
<td>• Often a delay between catch and eating.</td>
<td>• Not relevant</td>
</tr>
<tr>
<td></td>
<td>• Fish may smell.</td>
<td></td>
</tr>
<tr>
<td>3. Initial symptoms</td>
<td>• Sudden onset of vomiting and diarrhoea.</td>
<td>• Sudden onset of vomiting and diarrhoea.</td>
</tr>
<tr>
<td></td>
<td>• Often severe abdo pain with cramps.</td>
<td>• Abdo pain may be severe.</td>
</tr>
<tr>
<td></td>
<td>• Lasts less than 24 hours.</td>
<td>• Lasts about 24 hours.</td>
</tr>
<tr>
<td>4. Hypotension</td>
<td>• BP may be very low</td>
<td>• No</td>
</tr>
<tr>
<td>5. Sensory symptoms</td>
<td>• Tingling of mouth is common.</td>
<td>• Tingling and numbness of lips, hands and feet.</td>
</tr>
<tr>
<td></td>
<td>• NO tingling of hands or feet.</td>
<td></td>
</tr>
<tr>
<td>6. Itch and rash</td>
<td>• Itchy rash on trunk in 50%.</td>
<td>• Sometimes itch.</td>
</tr>
<tr>
<td>7. Breathing problems</td>
<td>• Wheeze in 30%</td>
<td>• NO wheeze.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• May have shallow rapid breathing.</td>
</tr>
<tr>
<td>8. Treatment</td>
<td>➢ Promethazine (Phenergan) 12.5mg IV/IM.</td>
<td>➢ Fluid replacement.</td>
</tr>
<tr>
<td></td>
<td>➢ Fluid replacement (if available use Mannitol 250mLs IV for hypotension).</td>
<td>➢ If sensory symptoms are severe or there are breathing problems, refer immediately.</td>
</tr>
<tr>
<td></td>
<td>➢ Atropine 0.5mg to 1.5mg IV STAT if pulse &lt;50 per minute with hypotension – can repeat after 15 mins</td>
<td>➢ May need IV mannitol.</td>
</tr>
<tr>
<td>9. Prevention of recurrences</td>
<td>• Clean fish immediately after catching and eat as soon as possible.</td>
<td>• Repeat attacks are common.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Patients must not eat fish of any type (including 'tin fish') for 6 months.</td>
</tr>
</tbody>
</table>
FOREIGN BODIES

Young children commonly explore parts of their bodies by putting things into them. These parts most commonly include the nose, the ear and the mouth (and after swallowing, to the gut).

1. Principles of Assessment and Removal of Foreign Bodies:
   a) Take a careful history.
   b) Look gently and carefully, being careful not to further penetrate the object.
   c) If the object has been swallowed and X-ray equipment is available, get an x-ray to check positioning, especially if batteries.
   d) Calm the child before attempting any removal.
   e) Diazepam as a suppository or ampoule for injection should be on hand.

2. Nasal Foreign Bodies:
   ➢ Once it is determined which nostril is affected, gently press the other nostril closed and have the victim blow gently through the affected nostril. Avoid blowing the nose too hard or repeatedly.
   ➢ With an infant it is sometimes possible to have the parent blow a sharp puff into the baby’s mouth while holding the opposite nostril closed to blow the object out of the nose.
   ➢ Ideally if the above do not work you must refer to a hospital for possible removal by general anaesthetic.
   ➢ If two nurses present you could try following but be careful you do not push the foreign body in further:
     ⇒ Assure the child is calm and can be held down quietly without resistance – a small amount of Diazepam PR can be given if required.
     ⇒ Lubricate a 8-10 gauge indwelling catheter and insert it gently into the affected nostril until you meet resistance of the foreign body.
     ⇒ Gently move past the foreign body.
     ⇒ Inflate the balloon with no more than 5mL of air.
     ⇒ Slowly withdraw the indwelling catheter.
     ⇒ Examine the nares after removal to check for abrasion, bleeding or other complications.

3. Foreign Bodies in the Ear:
   a) Can usually be syringed out with warm water.
   b) If insects, drown first with cooking oil, then syringe out with water.
   c) Hard wax can be softened first with cooking oil for 2-3 days, then syringed out.
   d) DO NOT syringe an ear with a hole in the drum, except if there is large amount of pus or insects.
   e) NEVER use a forceps to remove foreign body from the ear.
   f) If in doubt, or you cannot syringe out the foreign body, REFER to the hospital.

4. Foreign Bodies in the Eye:
   See section on “Eye Disorders” in this guide.
GOITRE

Definition: Swelling of the thyroid gland.

Causes of gradual, diffuse increase in thyroid size:
1. Iodine deficiency in diet
2. Increase demands for iodine eg. puberty and pregnancy
3. Eating too many foods that interfere with iodine metabolism eg. cassava, peanuts, cabbage
4. Auto immune disorder (Graves Disease = increased thyroid hormone, Hashimoto's disease = decreased thyroid hormone)

Causes of rapid, painful or asymmetrical increase in thyroid size:
1. Tumours
2. Viral thyroiditis

Referral:
Refer the patient if they have:
- Difficulty with breathing (an enlarging thyroid can compress the trachea)
- A rapidly enlarging asymmetrical lump (might be cancer)
- Symptoms or signs suggesting too much or not enough thyroid hormone:
  1. Too much thyroid hormone
     - Tachycardic
     - Sweating
     - Anxious/overactive
     - Increased reflexes
     - Lid retraction (poppy eyes)
     - Diarrhoea
  2. Not enough thyroid hormone
     - Bradycardic
     - Dry skin
     - Depressed / lethargic
     - Decreased or delayed reflexes
     - Loss of hair
     - Constipation

➢ If the patient has a history of a recent or current infection (suggesting thyroiditis) or there has been gradual smooth enlargement of the thyroid, you can advise an increase in iodine in the diet (use salt with iodine added, seafood) and review the patient in 3 months.

Classification of goitre:

<table>
<thead>
<tr>
<th>Grade 0</th>
<th>No palpable or visible goitre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1</td>
<td>A mass in the neck consistent with enlarged thyroid that is palpable but not visible when the neck is in the normal position.</td>
</tr>
<tr>
<td>Grade 2</td>
<td>A swelling in the neck that is visible when the neck is in the normal position and that is consistent with enlarged thyroid when neck palpated.</td>
</tr>
</tbody>
</table>
HEPATITIS B

Hepatitis B is a virus. Screening of blood donors indicates that more than 10% of the population of Vanuatu are carriers of the virus. Hepatitis B vaccine is now included in the childhood schedule and hopefully the prevalence of infection will fall over the next few years.

How is Hepatitis B transmitted?
Hepatitis B is spread in the same way as HIV (see below). Unlike HIV, however, there is a vaccine available to prevent infection. Many infants acquiring hepatitis B at birth never become jaundiced. As adults, these people may be unaware they are carriers of the virus and may unknowingly pass the infection on to others through unprotected sexual activity.

Acute hepatitis B
1. Acute hepatitis B causes an illness with jaundice and malaise onset 2-6 months after becoming infected.
2. Treatment is supportive.
3. 80% of patients who develop acute hepatitis B as an adult will clear the virus naturally during the following year.

Chronic hepatitis B
1. Chronic hepatitis B carriers may develop cirrhosis (gradual scarring of the liver resulting in liver failure) or they may get acute "flares" of hepatitis with jaundice and very high liver function tests (ALT/AST).
2. A small percent will develop hepatoma, a cancer of the liver which may present as a mass in the right upper abdomen and usually progresses to death over about 6 months.
3. It is important to exclude infective causes for liver masses, e.g. liver abscess or hydatid -- which can be done by referring patients for an ultrasound.
4. Treatment:
   a) Supportive only -- low fat diet, no alcohol, kava
   b) Care with drugs as some burden the liver more than others -- penicillin, amoxyccilin, chloroquine, quinine OK, care with panadol i.e. tell patient to take only if really necessary and do not exceed 8 tablets per day in adults -- check with medical officer or pharmacist if you are unsure about a drug
   c) Permanent contraception should be considered as COC and pregnancy contraindicated
   d) Some Kastom medicine that is swallowed most likely is metabolised through liver so care should be taken
   e) Patient may develop easy bleeding or bruising -- refer to medical officer for advice
HIV/AIDS

What is it?
1. The Human Immunodeficiency Virus (HIV) is a virus.
2. Many people infected with HIV stay well for a long time and don’t know they are infected. During this time they can pass the virus to other people.
3. HIV will eventually destroy the body’s ability to fight infection.

How does the virus spread?
1. HIV is spread when blood, semen, or vaginal secretions of an infected person (or carrier) come in contact with the blood or mucous membranes of a healthy person.
2. Virus is spread by
   • Sexual intercourse of hetero and homosexuals
   • Contaminated needles and syringes
   • Transfusion of infected blood
   • Infected mother to unborn child
3. Virus is NOT spread by
   • Shaking hands
   • Playing together
   • Eating together
   • Food or water
   • Insects
   • Toilet seats

4. About 2-6 weeks after HIV enters the body the patient may get a self limiting flu like illness. Apart from this, they do not feel unwell until the virus has destroyed so many white cells that the body no longer fights infections well and symptoms develop (see below)

Infections and illnesses associated with HIV:
• Oral thrush
• Herpes simplex infections
• Shingles
• Chronic diarrhoea
• Swollen lymph nodes lasting 3 or more months
• Night Sweats and/or recurrent fevers
• Chronic weight loss
• Low White Blood count
• Pneumonia (Pneumocystis Carinii)
• Skin Infections and Cancer (Kaposi’s sarcoma)

How to prevent the spread of HIV:
© Promote sex education and safe sexual practices
© For sexually active adults promote the use of condoms
© Early diagnosis in persons suspected of having the illness.
© There is no vaccine; therefore a person must know how to protect him or herself

Treatment:
© There is treatment to prevent transmission from mother to newborn and to suppress the virus thereby reducing the effect of the virus on the immune system.
© Treatment should only be prescribed for HIV by health professionals familiar with the use of anti-retroviral drugs, to prevent development of resistance.
HYPERTENSION

Definitions:
1. A normal adult BP is less than 140/90.
2. Hypertension means the BP is 160/95 or more on 3 different occasions.
3. BPs between these levels indicate borderline hypertension.
4. In pregnancy, the BP should be no more than 120/85.

Causes:
1. In most cases, no cause is found.
2. Sometimes hypertension is caused by kidney disease or pregnancy (pre-eclampsia).

Clinical features:
1. Most people with hypertension feel well; they do not have symptoms.
2. A high BP does NOT usually cause headaches, dizziness or tiredness.

Complications:
Severe or untreated hypertension may cause:
1. Stroke
2. Heart failure
3. Kidney failure

The aim of treatment is to prevent complications.
In most cases hypertension cannot be cured, only controlled.
Treatment is for life. This must be emphasized to the patient.

Diagnosis:
1. One high BP reading does NOT mean hypertension.
2. If you find a patient’s BP is high (see definition above), follow the flow chart below.

Mild hypertension
Diastolic BP 90-100 OR Systolic BP 140-160
What you need to do:
➢ Low salt diet. Recommend ‘aalana kaka ne ma’.
➢ Stop alcohol and smoking.
➢ Weight loss if fat. Regular exercise.
➢ Tell the patient that regular BP monitoring is important.
➢ Give the patient a pamphlet on hypertension to keep AFTER you have explained hypertension to them.
➢ If there is no response after 3 months, you may need to consider drugs.

Moderate and severe hypertension
Diastolic BP 100 or more OR Systolic BP>160.
What you need to do:
➢ Refer for drug treatment IF BP stays up after diet and exercise.

Start with ONE drug:
➢ People with hypertension usually feel well and may not want to take tablets or forget to take them.
➢ It is much easier to take medicine if there are only a few tablets and they are taken only once or twice each day.
➢ Your aim is a BP diastolic of 90 or less.
➢ If the BP is not controlled check carefully that the patient is taking the drug and following other advice. If so, add another drug or refer.
Drug treatment options

- Patients who do not have asthma, diabetes, heart failure, gout or are pregnant
  - Commence on atenolol 25mg in the morning
  - If poor control after 1-2 weeks then:
    - Atenolol can be increased to 100mg and arrange non urgent consultation with a medical officer.
  - If still poor control, then:
    - Continue atenolol and refer to a hospital for further investigation and medication.
    - At hospital:
      - Check baseline renal function (creatinine) – if normal add captopril to above regime commencing 12.5mg BD (give 6.25mg if old and frail) and can be increased to 25-50mg BD slowly over at least one week. Specialist physicians should only increase dose further.
      - Patients commenced on captopril need a repeat renal function after 1-2 weeks of treatment and if increased creatinine the captopril should be ceased and the specialist physician consulted.
      - Renal function should be then monitored 6 monthly.

- Asthma patients with hypertension:
  - Atenolol can make asthma worse, so is best avoided
    - Commence on Nifedipine 30mg Slow Release (SR) BD
    - If poor control after 1-2 weeks then:
      - Nifedipine can be increased to 60mg BD and arrange non urgent consultation with a medical officer.
    - If still poor control, then:
      - Continue nifedipine and refer to a hospital for further investigation and medication.

- Diabetic patients with hypertension:
  - Most diabetic patients with hypertension will likely have other medical problems so should be referred to a hospital for a good assessment.
  - Hydrochlorothiazide can cause a small increase in blood glucose, so should not be given.
    - Captopril is a first choice in diabetics as it reduces renal protein loss. (see notes above and in box below about Captopril use)
    - If poor control after 1-2 weeks then:
      - Captopril plus Nifedipine 30 – 120mg BD – slow release tablets, not capsules
    - If still poor control, then:
      - Captopril plus Nifedipine plus Atenolol

- Pregnant patients with hypertension:
  - See "Obstetrics" section of this manual.
    - If no signs of pre eclampsia, can be commenced on Methyldopa (aiddomet) 250mg – 500mg BD and referred for medical officer assessment and management.
    - If no signs of pre eclampsia (see "Obstetrics" section of this guide), Methyldopa can still be administered for mild pre eclampsia but Hydralazine is recommended for severe pre eclampsia.

- Heart Failure patients with hypertension:
  - Close monitoring of these patients when commencing captopril is required as they are more prone to sudden hypotension.
    - Captopril is the first choice as it does improve heart function (see notes above and in box below about Captopril use).
    - If poor control after 1-2 weeks then:
      - Captopril plus Hydralazine 25mg BD increasing to 50mg TDS if required and / or GTN patch especially for patients with angina.
    - If still poor control, then:
      - Refer to specialist physician.
## About antihypertensive Drugs

### Hydrochlorothiazide were 50mg tablets – may come 12.5mg tablets. (Esidrex)
- The dose has now changed and 12.5mg is found to be as good as 50mg.

<table>
<thead>
<tr>
<th>Dose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.5mg each morning.</td>
<td>12.5mg</td>
</tr>
<tr>
<td>May cause gout or diabetes.</td>
<td>(12.5mg)</td>
</tr>
<tr>
<td>May cause low potassium requiring Slow K replacement.</td>
<td>50mg</td>
</tr>
<tr>
<td>Avoid in pregnancy.</td>
<td>12.5mg</td>
</tr>
<tr>
<td>Avoid in diabetics.</td>
<td>50mg</td>
</tr>
<tr>
<td><strong>BECAUSE OF PROBLEMS WITH POTASSIUM AND OTHER ELECTROLYTES THIS DRUG SHOULD ONLY BE ORDERED BY SENIOR MEDICAL STAFF &amp; IS NO LONGER FIRST DRUG CHOICE</strong></td>
<td>50mg</td>
</tr>
</tbody>
</table>

### Atenolol 50mg tablets.

<table>
<thead>
<tr>
<th>Dose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-100mg daily.</td>
<td>25mg</td>
</tr>
<tr>
<td>Avoid in patients with poor circulation to peripheries (peripheral vascular disease)</td>
<td>50mg</td>
</tr>
<tr>
<td>Effective dose slows heart rate to 60.</td>
<td>50mg</td>
</tr>
<tr>
<td>Do not use in patients with asthma.</td>
<td>50mg</td>
</tr>
<tr>
<td>OK to use in diabetes</td>
<td>50mg</td>
</tr>
</tbody>
</table>

### Methyl dopa 250mg tablets. (Aldomet)

<table>
<thead>
<tr>
<th>Dose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>250mg BD up to 1g TDS.</td>
<td>250mg BD</td>
</tr>
<tr>
<td>Some side effects such as drowsiness and depression.</td>
<td>250mg BD</td>
</tr>
<tr>
<td>Useful in pregnancy.</td>
<td>250mg BD</td>
</tr>
</tbody>
</table>

### Hydralazine 25mg tablets. (ALPHAPRESS 50)

<table>
<thead>
<tr>
<th>Dose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>25mg BD up to 50mg TDS.</td>
<td>25mg BD</td>
</tr>
<tr>
<td>Some side effects such as racing heart.</td>
<td>25mg BD</td>
</tr>
<tr>
<td>Useful in heart failure and pregnancy.</td>
<td>25mg BD</td>
</tr>
</tbody>
</table>

### Captopril 25mg tablets.

<table>
<thead>
<tr>
<th>Dose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>25mg BD up to 50mg BD</td>
<td>25mg BD</td>
</tr>
<tr>
<td>May cause cough or kidney problems.</td>
<td>25mg BD</td>
</tr>
<tr>
<td>Patient’s renal function needs monitoring.</td>
<td>25mg BD</td>
</tr>
<tr>
<td>First dose can cause significant drop in BP – take at bedtime</td>
<td>25mg BD</td>
</tr>
<tr>
<td>Dose is usually built up over one to two weeks.</td>
<td>25mg BD</td>
</tr>
<tr>
<td>Avoid in pregnancy.</td>
<td>25mg BD</td>
</tr>
<tr>
<td>Avoid in heart failure unless ordered by specialist.</td>
<td>25mg BD</td>
</tr>
</tbody>
</table>

### Nifedipine 30mg SLOW RELEASE tablet.

<table>
<thead>
<tr>
<th>Dose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-120mg BD</td>
<td>30mg</td>
</tr>
<tr>
<td>May produce peripheral oedema and tachycardia.</td>
<td>30mg</td>
</tr>
<tr>
<td>Do not crash or chew tablet as the tablet is then no longer “slow release”.</td>
<td>30mg</td>
</tr>
<tr>
<td>Do not confuse with capsules which are not “slow release” – CMS does not supply capsules so be careful of donated medicines.</td>
<td>30mg</td>
</tr>
<tr>
<td>Avoid in first trimester of pregnancy unless ordered by specialist.</td>
<td>30mg</td>
</tr>
<tr>
<td>Avoid in patient’s with heart failure unless ordered by specialist.</td>
<td>30mg</td>
</tr>
</tbody>
</table>

### Nitrates GTN Patches

**Can be supplied by CMS – can also use Isosorbide Dinitrate Tablets 5mg see below**

<table>
<thead>
<tr>
<th>Dose</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–2 patches applied in the morning.</td>
<td>1-2 patches</td>
</tr>
<tr>
<td>Take the patch off at night to avoid becoming tolerant to the BP lowering effects of the nitrates.</td>
<td>1-2 patches</td>
</tr>
<tr>
<td>May cause headaches.</td>
<td>1-2 patches</td>
</tr>
<tr>
<td>More likely to be used in combination with another drug e.g. hydralazine.</td>
<td>1-2 patches</td>
</tr>
<tr>
<td>Useful in heart failure and angina.</td>
<td>1-2 patches</td>
</tr>
</tbody>
</table>
| **Isosorbide Dinitrate Tablets** | **Stat Dose:** 1 tablet under tongue stat for chest pain – can repeat up to 3 tablets  
**Maintenance Dose:** 2 tablets BD or TDS  
**Note:** 16 hour break between taking last tablet and the next day’s dose to avoid becoming tolerant  
**Not normally used for management of hypertension but can lower blood pressure for a short time** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5mg</strong></td>
<td><strong>Main use is for relief or prevention of chest pain but can be used to replace GTN patch or spray if you do not have</strong></td>
</tr>
</tbody>
</table>
IMMUNISATIONS

Children Under 5 Years
1. Must be given:
   1 dose of BCG vaccine (Tuberculosis).
   3 doses of DPT (Diphtheria, Pertussis, Tetanus).
   3 doses of Hepatitis B vaccine.
   3 doses of Polio vaccine.
   1 dose of measles vaccine.

© The vaccination schedule is only a guide.
© Aim to fully vaccinate children before the age of 1 year.
© Children must be given the missed doses.

2. When to give Vaccines:

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>6 wks</th>
<th>10 wks</th>
<th>14 wks</th>
<th>9 mths</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB</td>
<td>BCG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>HepB 1</td>
<td>HepB 2</td>
<td>HepB 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polio</td>
<td>Polio 1</td>
<td>Polio 2</td>
<td>Polio 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DPT = Diphtheria &amp; Pertussis &amp; Tetanus</td>
<td>DPT 1</td>
<td>DPT 2</td>
<td>DPT 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Measles</td>
</tr>
</tbody>
</table>

3. The interval between vaccinations is important.
   There should be at least:
   4 weeks between DPT and Polio.
   4 weeks between 1st and 2nd dose Hepatitis B.
   8 weeks between 2nd and 3rd Hepatitis B.

© Always warn parents about the side effects of vaccination and assure them they are normal.
© Some of these are sore injection site, fever, and poor appetite – mainly related to DPT – can be minimised if
Paracetamol is given at immunisation and 6 hourly x 3 doses.

School Children
Should get 2 sets of booster vaccinations to make sure they remain protected.
When to give Vaccines:

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Class 1</th>
<th>Class 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polio</td>
<td>Polio booster</td>
<td>Polio booster</td>
</tr>
<tr>
<td>Diphtheria &amp; Tetanus</td>
<td>DT booster</td>
<td>DT booster</td>
</tr>
</tbody>
</table>

Preventing Neonatal Tetanus
1. Women must be vaccinated against tetanus to protect their babies during the critical time after birth.
2. 5 doses of Tetanus Toxoid Vaccine gives complete protection.
3. Women need at least two vaccinations with the second 4 weeks prior to delivery to give protection for that baby if the
   have not been immunised before.
4. Tetanus Toxoid Vaccine can be given during pregnancy, before pregnancy, or between pregnancies.
5. Pregnant women tetanus vaccination schedule:
   1st dose: At first Antenatal visit.
   2nd dose: At least 1 month later.
   3rd dose: 6 months to 1 year after 2nd.
   4th dose: 1 year after 3rd.
   5th dose: 1 year after 4th.
Hygienic delivery also helps to prevent neonatal tetanus

Adult Tetanus Immunization

1. Ideally everyone should be vaccinated against Tetanus.
2. A course of 3 doses gives protection for several years.
3. Booster doses should be given every 10 years.
4. ANY patient with an infected or contaminated wound should have a booster.
5. A full tetanus course should be given unless they have a record of immunization in the last 10 years.
6. Tetanus immunization for adults and children over 12 years old:

<table>
<thead>
<tr>
<th>Dose 1</th>
<th>Dose 2</th>
<th>Dose 3</th>
<th>Booster</th>
</tr>
</thead>
<tbody>
<tr>
<td>At first contact</td>
<td>4-6 weeks</td>
<td>6mths-1year</td>
<td>Every 10 yrs</td>
</tr>
<tr>
<td>after 1st dose</td>
<td>after 2nd dose</td>
<td></td>
<td>Open wounds</td>
</tr>
</tbody>
</table>

How to Give Vaccines:

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Method</th>
<th>Site</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>Intra-dermal</td>
<td>Left arm</td>
<td>0.05mL - Newborn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.1mL - Child over 3mths.</td>
</tr>
<tr>
<td>DPT</td>
<td>IM</td>
<td>Babies - thigh</td>
<td>0.5mL - All doses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children - shoulder</td>
<td></td>
</tr>
<tr>
<td>DT</td>
<td>IM</td>
<td>Shoulder</td>
<td>0.5mL - All doses</td>
</tr>
<tr>
<td>HEPATITIS B</td>
<td>IM</td>
<td>Babies - thigh</td>
<td>0.5mL - Newborn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Children - shoulder</td>
<td>0.25mL - 2nd &amp; 3rd doses</td>
</tr>
<tr>
<td>MEASLES</td>
<td>SC</td>
<td>Children - shoulder</td>
<td>0.5mL</td>
</tr>
<tr>
<td>POLIO</td>
<td>ORAL</td>
<td>Placed in mouth by dropper.</td>
<td>3 drops - All doses</td>
</tr>
<tr>
<td>TETOX</td>
<td>IM</td>
<td>Shoulder</td>
<td>0.5mL - All doses</td>
</tr>
</tbody>
</table>

Storage of vaccines:

DPT, DT, Tetox and HepB ⇒ Must NEVER be frozen - store between +2 to +8°C
Polio, Measles and BCG ⇒ Can be frozen or stored between -20 to -20°C

Vaccine use tips:

- Always check the expiry date of the vaccine before you use it.
- Always use older stocks of vaccine before using the new stocks.
- If the vaccine has expired DO NOT USE & dispose of as for sharps disposal.
- Reconstituted vaccines should be destroyed after 6 hours.
- Do not keep food and drink in the same ice box with vaccines.

It is better to open a vial of vaccine for 1 child than to miss the chance to vaccinate.
JAUNDICE

1. Common causes:
   a) Viral Hepatitis.
   b) Malaria.
   c) Medicines (e.g. chlorpromazine, TB drugs, contraceptive pill).
   d) Severe bacterial infections. (e.g. pneumonia, leptospirosis).
   e) Obstructive jaundice. (e.g. tumour or stones).
   f) Kava

2. Investigate (if available)
   a) Hb, malaria film
   b) Liver function
   c) Urine: check for bile and/or blood
   d) Hepatitis serology (blood test).
   e) Ultrasound abdomen

3. Treatment:
   > Stop any drugs that might cause jaundice including kava.
   > Antimalarials if fever.
   > Treat any bacterial infection — (e.g. pneumonia).
   > Suspected viral hepatitis (the patient should not have a fever)
     ⇒ usually treat as an outpatient.
     ⇒ plenty fluids.
     ⇒ avoid alcohol (and or kava) for life

4. Refer if:
   ☑️ There is jaundice PLUS fever.
   ☑️ The patient is very sick.
   ☑️ There is abdominal pain — especially if right upper quadrant pain.
   ☑️ The patient is still jaundiced after 4 weeks.
JOINT PAIN AND ARTHRITIS

1. Many people suffer from painful joints and as a result seek medical treatment.

2. It is necessary to take a very careful history and perform a complete examination to decide if joint pain is due to "overuse" and plain old "wear and tear", if it is due to an infection, if it is due to metabolic disorders or if it is a symptom of some other disease process.

3. The most important distinction you need to make in a acute, hot inflamed joint is: IS THE JOINT INFECTED? The only way this can be done is to aspirate fluid out of the joint for microscopic examination and culture. There is a risk that we could introduce infection into the joint, so aspiration should only be done under sterile conditions.

4. Joint infections can progress rapidly and may need to be surgically washed out before the antibiotics get them under control.

5. Severe joint inflammation that is not due to infections may require second line drugs (sulphasalazine, methotrexate) or steroid injections into the joints. These are only available under specialist treatment in hospital.

<table>
<thead>
<tr>
<th>Type of Arthritis</th>
<th>Cause</th>
<th>Onset / Pattern</th>
<th>No. of Joints Involved</th>
<th>Signs and Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traumatic</td>
<td>Injury</td>
<td>Acute</td>
<td>Usually one</td>
<td>Blood in the joint</td>
</tr>
<tr>
<td>Septic</td>
<td>Infection More common in children</td>
<td>Acute</td>
<td>Only one joint involved</td>
<td>Fever, Hot, red, swollen joint</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>Degenerative disease in Adults</td>
<td>Chronic</td>
<td>Weight bearing joints</td>
<td>Effusions Crepitus</td>
</tr>
<tr>
<td>Reactive</td>
<td>May follow shigella inf.</td>
<td>Acute</td>
<td>Multiple large joints</td>
<td>Swelling and pain</td>
</tr>
<tr>
<td>Rheumatic Fever (see details following table)</td>
<td>Immune reaction to streptococcal infection Children and young adults</td>
<td>Acute</td>
<td>Single or multiple joints lasting days to months</td>
<td>May have fever, cardiac problems, evidence of strep infection</td>
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<td>Reiter's Syndrome</td>
<td>Immune reaction usually to chlamydial infection</td>
<td>Acute and Chronic</td>
<td>Commonly knees, ankles, and feet</td>
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<td>Gout</td>
<td>Urate crystals Male and alcohol drinkers</td>
<td>Acute and Chronic</td>
<td>MTP joints, especially big toe</td>
<td>Joints red, swollen, hot</td>
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<td>Rheumatoid</td>
<td>Immune disorder, mainly in Women</td>
<td>Chronic</td>
<td>Symmetrical, hands and feet</td>
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<td>TB</td>
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<td>Very difficult diagnosis. Biopsy necessary</td>
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ACUTE RHEUMATIC FEVER (ARF)

ARF is a notifiable condition, notify to national rheumatic fever co-ordinator in medical ward at VCH.

1. A person with Acute Rheumatic Fever (ARF) may have any or all of the following:
   a) Painful, swollen and tender one or more large joints (arthritis), may move from one joint to another over days.
   b) Even a single painful joint may be ARF. Joints can be swollen for days to months.
   c) New heart murmur.
   d) Strange body movements that the person cannot control (chorea).
   e) Fever, unwell.
   f) Shortness of breath and fast pulse (signs of heart failure).
   g) Skin rash and lumps under the skin (nodules) can happen, but rarely.
   h) ARF is most common in 5-15 yr olds, rarely over 35 yrs or under 4 years old.
   i) The patient might have had this illness before.

2. Also think about:
   a) Is it joint or bone infection? or some other sort of arthritis?
   b) Discuss any child with a painful swollen joint with a doctor.
   c) If you think a person has rheumatic fever, do:
      > throat swab (m&s)
      > blood for FBC, ESR, blood cultures
      > ECG
      > Refer to hospital within 1 day

3. Treatment:
   a) If joint pain does not settle with paracetamol and patient is 16 years or older, give;
      > Aspirin (300 mg tabs): 4 tabs QID
      > Do not give aspirin to children under 16 years.
   b) If pain is still uncontrolled patients may need a brief course of
      > Prednisone 1mg / kg / day

4. Prevention of further attacks of rheumatic fever (prophylaxis):
   All patients who have had rheumatic fever must have:
   > Benzathine Penicillin 1.2 million units IM every 4 weeks whatever their age, unless something different is written in their management plan.

5. How long do you give penicillin for?
   > Continue Benzathine Penicillin for a minimum of 5 years since last episode of rheumatic fever (or until 21 years old whichever is longer)
   > If the person has had an inflamed heart (carditis): give for 10 years (or until the person is 35 whichever is longer)
   > If the person has ever had heart surgery, symptomatic heart disease or severe valve damage on cardiac echo, continue for life.

6. Tips:
   ✔ Keep a follow-up list in clinic of all people on regular benzathine penicillin.
   ✔ Missing penicillin does is a common problem. A good relationship between the person and the health service is

---

<table>
<thead>
<tr>
<th>Gonococcal Infection</th>
<th>Unreated Gonococcal Infection</th>
<th>Chronic</th>
<th>One or more joints, migratory</th>
<th>Fever, skin pustules, urethral or vaginal discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
likely to help.

Always make sure the person's family understand the reason for the penicillin.

Always give antibiotics (cover) for dental and surgical procedures and wounds to prevent endocarditis (SEE) in patients with underlying heart disease (rheumatic or congenital).
KIDNEY DISEASE

Try and establish a cause - "Renal failure" is not a diagnosis.

Acute renal failure
Definition: Condition where the kidneys, which normally excrete waste, fail to function almost completely. Fluid and waste rapidly accumulate, and the electrolytes in the body rapidly accumulate. What is causing the kidneys to fail?
1. PRE-RENAL: not enough blood getting to the kidneys due to dehydration or shock,
2. RENAL: infection or toxins damaging the kidney
3. POST-RENAL: something obstructing the urine flow e.g. kidney stones, prostate enlargement.
Signs and Symptoms:
- Reduced or no urine output
- Dark or bloody urine
- Body swelling
- Shortness of breath
- Confusion
Treatment:
1. REFER urgently
2. If infection is suspected:
   - Begin antibiotic treatment – do not give Gentamicin
3. If blood loss or dehydration is suspected, treat with IV fluids but be careful not to cause fluid overload or high blood potassium.

Chronic renal failure
Definition: This is a condition where the kidneys slowly stop functioning, wastes builds up in the body and urea accumulates
What has caused the kidneys to fail?
Chronic, untreated hypertension, diabetes, TB, and chronic kidney disease
Signs and Symptoms:
1. Frequent urination (polyuria)
2. Urination at night (nocturia)
3. Later in the disease the patient may have nausea, anaemia, hypertension, ascites and breathing difficulties
Treatment:
1. These patients should have ongoing care with a medical officer.
2. Manage and treat diabetes or hypertension
3. Treat UTIs
4. Avoid drugs which may further damage the kidneys and use reduced dosages for drugs with renal clearance.
5. If volume overloaded, salt restrict and may need fluid restriction (1.5L/day) and/or diuretic.
6. To avoid secondary hyperparathyroidism, start CaCO3 with meals.

Glomerulonephritis
Definition: An inflammatory condition affecting the glomeruli of the kidney
Causes:
Most occur after streptococcal throat or skin infections in children.
Signs and Symptoms:
1. Haematuria (blood in the urine)
2. Decreased urine and fluid overload
3. Oedema (puffy eyes)
4. Hypertension
5. May cause heart failure with gallop
Treatment:
- These patients should be seen by a medical officer.
- Bed rest until haematuria is gone
- Fluid restrictions and diuretic e.g. Frusemide
- Low salt, but high calorie diet
- Penicillin to eliminate Streptococcal

Nephrotic syndrome
Definition: A syndrome with 3 characteristic conditions: proteinuria; hypoproteinemia and oedema.
Causes: Malaria infections, bacterial infections (streptococcal), diabetes and other diseases.
Signs and Symptoms:
1. Oedema initially around the eyes and face. Later this is generalized.
2. Pleural effusions or ascites can cause shortness of breath.
3. Frequent skin infections and UTIs.
Treatment:
- These patients need to have ongoing care with a medical officer.
- Long-term management usually includes:
  - High protein and low salt diets
  - Diuretics e.g. Frusemide
  - Steroids
- Antibiotics as needed to treat and/or prevent infection
  Diuretics must be used cautiously since they may dehydrate the patient who already has a low blood volume
LEPROSY

National guidelines exist – contact Provincial or National TB/Leprosy Officers

Definition & Cause:
A chronic disabling disease affecting mainly the skin and nerves. It is caused by a bacteria which looks identical to the TB mycobacteria when stained by Ziehl Neelsen stain i.e. it is also an Acid Fast Bacilli (AFB). It can be transmitted to others and usually this occurs only in those who have had long term close contact with untreated multi-bacillary cases. Incubation period is up to 20 years (usually about 5 years).

Think of leprosy if a person presents with:
1. Skin lesions:
   a) pale and anesthetic lesion.
   b) skin nodules.
   c) loss of eyebrows.
   d) painless ulcers on hands or feet.
2. Nerve damage:
   a) weakness of a limb.
   b) loss of feeling.
   c) deformity.
   d) thick and/or tender nerve.

Early detection:
It is important to maintain the low incidence of the disease in the country. If you suspect leprosy then examine ALL household contacts.

Diagnosis and Classification:
1. Skin smears MUST be done to determine:
   a) the type of leprosy
   b) the duration of treatment
2. Specimen collection method:
   Take smears from the edge of an active skin lesion and both ear lobes as follows:
   ➢ With cotton wool soaked in alcohol, swab the ear lobe.
   ➢ Swab dry with another dry cotton wool.
   ➢ Pinch the ear lobe hard to stop blood flow with your thumb and index finger and make an incision with a scalpel blade 5mm long and 2.5mm deep.
   ➢ Dry off any blood and continue to press hard.
   ➢ Use the blade at a right angle to scrape tissue fluid and material and then smear this on a microscope slide producing a uniform smear of 7mm.
   ➢ Fix the smear by air drying or passing over a spirit lamp.
3. Guidelines for Classification:
   a) Smear positive = MULTIBACILLARY (MB).
   b) Smear negative = PAUCIBACILLARY (PB).

<table>
<thead>
<tr>
<th>PAUCIBACILLARY (PB)</th>
<th>MULTIBACILLARY (MB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative smear</td>
<td>Positive smear</td>
</tr>
<tr>
<td>0 to 4 skin lesions with central healing and a clear boorder</td>
<td>5 or more skin lesions</td>
</tr>
<tr>
<td>Complete loss of feeling in lesions</td>
<td>No loss of feeling in lesions</td>
</tr>
<tr>
<td>&lt; 2 nerves involved</td>
<td>&gt; 2 nerves involved</td>
</tr>
</tbody>
</table>

Treatment:
1. All new cases receive multi-drug treatment (MDT).
2. No modification is needed for patients who are pregnant or breastfeeding.
3. The patient becomes non-infectious quickly and there is no need to isolate the patient.
   - **Clofazimine 50mg daily at home**
   - **AND**
   - **Rifampicin 600mg and Clofazimine 300mg once a month supervised by a health worker.**
4. Drugs for adults now come in blister packs with a month’s supply of 28 days cycle.
5. **Paediatric doses:**
   - **Rifampicin 10mg/kg (maximum dose 600mg) monthly**
   - **AND**
   - **Clofazimine 2mg/kg (maximum dose 50mg) daily with monthly dose of 6mg/kg (maximum dose 300mg).**
6. MB cases are treated for at least 12 months (continued until skin smears are negative)
7. PB cases are treated for at least 6 months

**Note:** Due to several deaths in patients on Dapsone in the past (attributed to a genetic predisposition in ni-Vanuatu to hypersensitivity reactions with dapsone), **Dapsone is not used in Vanuatu.** In rare cases the physician may use alternative drugs e.g., Clarithromycin, Olofoxacin.
MALARIA

National policy guidelines exist – contact Provincial or National Malaria & Vector Borne Diseases Officers if you do not have a copy – for children: refer to IMCI guidelines as well.

Malaria can cause:
1. Fever, Headache and body pains
2. Diarrhoea and vomiting
3. Anaemia and/or Jaundice
4. A big spleen and/or liver
5. Coma, convulsions, and confusion
6. Shock and or Kidney failure
OR
7. Malaria may be asymptomatic.

Immunity:
1. Immunity (resistance to infection) develops after repeated attacks of malaria, and protects against severe malaria (e.g. cerebral malaria).
2. Adults living in areas where malaria is common usually do not get very sick with malaria.
3. Visitors, pregnant women and children though DO GET SICK!
4. Children with severe malaria get cerebral malaria and/or anaemia.
5. Pregnant women are at risk and more likely to get malaria.
6. Malaria in pregnancy is dangerous to the mother and baby, so examine carefully.

Key points to remember:
1. The use of insecticide treated bed nets will dramatically decrease the incidence of malaria in your community – you need to constantly promote these and work out a plan of re-treatment at least yearly with malaria officers and community.
2. From mid 2004 the Global Fund will begin distribution of “Long Life” nets which do not need yearly re-treatment. You must make sure you know what nets you are distributing and beware of donated nets through missions and other NGOs.
3. If the patient vomits easily then you need to commence them on IM Quinine instead of oral Chloroquine – this can save lives.
4. All children need to be weighed and dose given by weight and not by guessing.
5. Chloroquine and Quinine attack the parasites before it is a gametocyte and have no effect on P.Falciparum gametocytes – therefore the presence of P.F gametocytes is NOT a sign of treatment failure. Chloroquine and Quinine are usually effective though in destroying P.Vivax gametocytes.
6. The most common reasons for treatment failure are most likely that the nurse did not order the correct dose or the patient did not take all the treatment.
7. A common complaint is an itchy skin but this is not an excuse to stop Chloroquine – you need to explain this to the patient. The drugs used by the MOH in Vanuatu have the less side effects of malaria drugs if used correctly.
8. It is expected that there may be some alteration to drug regimes – you are to use these protocols until informed about changes.

Prophylaxis:
1. Prophylaxis for Ni Vanuatu:
   ▶ MOH policy for pregnant women
   ▶ Patients with big spleens or no spleen
   ▶ HB < 10 g/dL
   ▶ Patients taking steroids (Prednisolone).
   ▶ Give Chloroquine tablets once per week is standard per MOH Policy.
2. Prophylaxis for Foreigners:
   Foreigners often come with own supply e.g. Lariam, Maloprim. CMS do not supply these drugs. Side effects of Lariam (Mefloquine) include abdominal problems, dizziness, a decrease in ability to perform tasks and can have mental health problems. Maloprim does not have a lot of side effects if the patient has taken a number of doses but should not be given to anyone with G6PD deficiency. Both drugs can cause rashes.
   ▶ Give Chloroquine tablets once per week is standard per MOH Policy
Chloroquine. Give once a week on the same day each week e.g. before Church.

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<th>Weight in kg</th>
<th>3-5</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tablet 150mg (base) (5mg/kg) Dose in tabs</td>
<td>¼</td>
<td>½</td>
<td>½</td>
<td>¾</td>
<td>1</td>
<td>1</td>
<td>1½</td>
<td>2</td>
</tr>
</tbody>
</table>

What to do for all patients with suspected malaria:
1. Take a history and examine for other diseases.
2. Weigh the patient to work out treatment doses.
3. Treat for malaria.
4. Watch the patient take the first treatment.
5. If vomiting give Maxalon or Stemetil and or commence on IM or IV Quinine.
6. Tell them to complete treatment even if they feel better or get itchy skin.

Treatments
1. If the patient is or has:
   ▶ Child over 5.
   ▶ Not pregnant.
   ▶ Mild illness.
   ▶ Treat with Chloroquine alone for 3 days.

2. If the patient is or has:
   ▶ Child under 5 years.
   ▶ Pregnant woman
   ▶ Recurrent malaria within 1 month of Chloroquine
   ▶ Fever over 39°C
   ▶ Clinical anaemia
   ▶ Palpable spleen.
   ▶ Treat with Chloroquine for 3 days and give Fansidar.

3. If patient is vomiting but does not have severe or cerebral malaria:
   ▶ Treat with IM Quinine until able to take tablets – total treatment = 7 days followed by Fansidar.

4. If the patient does have:
   ▶ Severe malaria / anaemia.
   ▶ Cerebral malaria.
   ▶ Treat with IM / IV Quinine until able to take tablets – total treatment = 7 days followed by Fansidar.

5. If the patient has confirmed P. Falciparum Malaria:
   ▶ Treat with Chloroquine for 3 days and give Fansidar.

6. If the patient has confirmed P. Vivax Malaria:
   ▶ Treat with Chloroquine ALONE for 3 days.

7. If the patient has confirmed P. Vivax Malaria and will not live in a malaria again and are not pregnant or have a G6PD deficiency (check with a senior medical officer first):
   ▶ Treat with Primaquine 40mg daily for two weeks.
   ▶ The dose for NI Vanuatu or people with G6PD deficiency is 15mg daily for 2 weeks.

8. If you suspect Chloroquine or Fansidar resistant malaria:
   ▶ Fever continues for more than four days OR fever returns in one month
   ▶ Treat with oral Quinine for 7 days and take pre and post slides.

In malarial areas, with children under 5 with fever over 38.5°C, even if another cause is found for the fever, cover for malaria with Chloroquine and Fansidar.
### Antimalarials

#### Chloroquine
Give once a day for 3 days. (after food)

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tablet 150mg (base)</td>
<td>⅛</td>
<td>⅛</td>
<td>1</td>
<td>1⅛</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Dose in tabs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Fasudil
Give once dose only on first day (after food).

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dose in tabs</td>
<td>⅛</td>
<td>⅛</td>
<td>⅝</td>
<td>ⅼ</td>
<td>ⅼ</td>
<td>ⅼ</td>
<td>ⅼ</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Primaquine
(0.3mg/kg; max 15mg) Once a day for 21 days (after food).

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>Under 9</th>
<th>9-15</th>
<th>16-19</th>
<th>20-29</th>
<th>30-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tablet 0.5mg</td>
<td>0</td>
<td>⅛</td>
<td>⅓</td>
<td>ⅼ</td>
<td>1</td>
<td>1⅓</td>
</tr>
<tr>
<td>Dose in tabs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Quinine
Give 10mg/kg/dose (max 600mg) tds. after food, for 7 days. 20mg/kg/dose for loading for IM / IV infusion.

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>3-5</th>
<th>6-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tablet 300mg</td>
<td>⅛</td>
<td>⅛</td>
<td>⅝</td>
<td>ⅼ</td>
<td>1</td>
<td>1⅓</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Dose in tablets</td>
<td>300mg/2ml injection</td>
<td>10ml</td>
<td>⅛</td>
<td>⅝</td>
<td>ⅼ</td>
<td>1</td>
<td>1⅓</td>
<td>2</td>
</tr>
<tr>
<td>⅛</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⅛</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⅛</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⅛</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>⅛</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dose in mL*</td>
<td>10mL</td>
<td>5mL</td>
<td>5mL</td>
<td>7.5mL</td>
<td>10mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dosing Dose x 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All other doses</td>
<td>0.7mL</td>
<td>1mL</td>
<td>1.7mL</td>
<td>2.5mL</td>
<td>10mL</td>
<td>10mL</td>
<td>15mL</td>
<td>20mL</td>
</tr>
</tbody>
</table>

*⅛ tablets dissolve half a tablet (150mg) into 8mL of water, juice or milk.

### Treatments of severe or complicated malaria
- Commence treatments and refer to hospital
- Use Quinine IV or IM:
  - In dispensaries treat with IM Quinine by deep IM injection.
  - In health centres and hospitals give IV Quinine.
- Always do a LP in hospitals to exclude meningitis if convulsions or coma
- Commence Chloramphenicol if in doubt in health centres and dispensaries before referral.
- Treat fever: High fever in children may cause convulsions
- Give paracetamol oral or per rectum.
- Treat Dehydration: Children are more at risk than adults.
- Treat Hypoglycaemia: More common in children with cerebral malaria.
- Use a dextrose / saline IV fluid. Add 50mL of 50% Dextrose to 500mL Normal Saline = 5% Dextrose / Normal Saline if you do not have a solution with dextrose.
- Giving IV Quinine:
  - Be really cautious and give over four hours as faster can kill.
  - Make sure relatives are aware of this and do not increase infusion rate – 5e some red calico around regulator to remind everyone.
  - If you need to give extra fluids put 2nd line in the opposite arm instead of a piggy back into 1st line.
  - Quinine needs to be given in dextrose or dextrose / saline.
  - Extra fluids for hydration should be either Saline or Hartmanns.

### Quinine
- IM Quinine – 60.0mg / 10mL only – if 600mg / 2 mL add 8mL of saline or water to avoid tissue necrosis (abcesses) – doses are given above in drug tables.
- If the patient has severe / cerebral malaria you need to give a loading dose in adults. If you are giving IM Quinine because the patient is vomiting but conscious state normal then it is not necessary to give a loading dose.
3. Older children and adults:
   - First: Give ONE LOADING dose of 20mg/kg (divide the dose into 2 - 4 injections, half the dose into one buttock and the other half into the other buttock). This is to reduce the pain when giving a large volume of the injection and avoid tissue necrosis. Use this dose ONLY once.
   - Then: 8 hours later, give 10mg/kg by deep IM injection, and continue to give the same dose TDS (important to give eight hour spaces) after that until the patient can swallow tablets (see point 8 above). You may still need to divide doses into both buttocks.
   - Then: Continue Quinine tablets for a total of 7 days including the time when given IV/IM quinine
   - Patients needing IM Quinine should rest in clinic until able to take oral Quinine as walking can increase absorption from muscle therefore increasing possible side effects.
4. Children less than 5 years:
   - Make sure you have 600mg / 10mL solution and calculate (using table above) the number of mL you need to give at 10mg / kg per dose
   - Give IM Injection in anterior thigh muscle at front of thigh
   - Repeat 12 hourly and alternate injection sites from one thigh to the other
   - Give oral Quinine as soon as the child can tolerate
   - Always make sure child is taking regular fluids that contain sugar - either oral or IV

**IV Quinine**

In very sick (e.g. deeply unconscious) patients:

**DO NOT** give a loading dose if patient has already had Quinine

- First: Give a loading dose of 20mg/kg Quinine in 5% dextrose or dextrose / saline
  - Run over 4 hours or give IM – use this dose ONLY once.
- Then: Continue 10mg/kg every 6 hours running infusion over 4 hours until patient can swallow tablets.
- Then: Continue Quinine tablets for a total of 7 days including the time when given IV/IM quinine

**IM/IV Quinine doses (10mg/kg) and drip rates:**

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>IM &amp; IV QUININE DOSE TDS</th>
<th>Total daily Volume of IV Fluid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Milligrams</td>
<td>Volume in mL</td>
</tr>
<tr>
<td>4-5</td>
<td>60</td>
<td>0.2</td>
</tr>
<tr>
<td>6-10</td>
<td>90</td>
<td>0.3</td>
</tr>
<tr>
<td>11-13</td>
<td>120</td>
<td>0.4</td>
</tr>
<tr>
<td>14-16</td>
<td>150</td>
<td>0.5</td>
</tr>
<tr>
<td>17-19</td>
<td>180</td>
<td>0.6</td>
</tr>
<tr>
<td>20-24</td>
<td>240</td>
<td>0.8</td>
</tr>
<tr>
<td>25-29</td>
<td>300</td>
<td>1.0</td>
</tr>
<tr>
<td>30-39</td>
<td>360</td>
<td>1.2</td>
</tr>
<tr>
<td>40-49</td>
<td>450</td>
<td>1.5</td>
</tr>
<tr>
<td>50-69</td>
<td>540</td>
<td>1.8</td>
</tr>
<tr>
<td>60+</td>
<td>600</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Complications to watch:

1. Shock (low BP)
   - Start IV Quinine in 1st line over four hours.
   - Run fluids fast as for shock using a 2nd IV line (see IV Fluid Tables back of this manual.
   - When BP raises slow the rate of the IV fluids.
   - Check the urine output.

2. Severe anaemia
   - Refer to hospital after commencing above treatments
   - For transfusion if Hb less than 5
   - Very sick.
   - Breathless or dizzy.
   - Heart failure.
   - Pregnant.
3. Vomiting
   ▶ Repeat oral treatment if vomits within an hour of treatment.
   ▶ If severe vomiting give an 25mg IM meclozine or promethazine 25mg IM.
   ▶ It is better not to use antiemetics in children.
   ▶ If vomiting continues give IM or IV Quinine and IV fluids.

4. Hypoglycaemia
   ▶ Check the blood sugar if the patient’s condition worsens.
   ▶ If low (under 3mmol): Give 50mLs of 50% dextrose IV for adults and 0.5mL per kg over several minutes in children.
   ▶ If the patient is alert give sucrose (sugar) drinks.
MALNUTRITION
☞ Refer to IMCI Guidelines for further information.
☞ Suspect malnutrition if a child’s weight does not go up.

1. At each visit:
   ➢ Weigh all children and record weight on the Road to Health Card.
   ➢ Weight going up and above red line? = Good growth.
   ➢ Weight flat but above red line? = Danger. At risk.
   ➢ Weight falling or below red line? = Very dangerous.

2. A child’s weight should go up every month:
   ➢ If it is the same or falling FIND OUT WHY.
   ➢ Ask about:
     i. Diet:
        Breast-feeding?
        Should have solids as well after 4 months.
        Cup feeding?
        How much, how often, how prepared. Should not use bottle.
        Meals if 6 months old?
        Should have at least 3 good meals every day plus 2 snacks.
        Give good mixture of isdand kaekae, suitable for babies.
        Cook with coconut milk.
        ii. Home: Who looks after the child?
        iii. Mother: Works / pregnant / ill?
        iv. Too many children too close?
        v. Any support?
        vi. Child: Has he been sick?
        vii. Always ask about TB.

3. Children at risk:
   ➢ Treat worms with Albendazole.
   ➢ Treat for Malaria with Chloroquine and Fansidar.
   ➢ Give daily Ferrous Folic and Multivitamins.
   ➢ Give health education.
   ➢ Advise mother on Road to Good Nutrition.
   ➢ Follow-up closely.
     ➢ Refer to MCH team.
     ➢ If no better after 2 months - refer to hospital.

4. Severe or chronic malnutrition:
   ➢ Refer to hospital:
      ☞ Examine fully.
      ☞ Look for other diseases.
      ☞ Use TB Score chart in TB Chapter.
      ☞ Check MPS, Hb, CXR, stool, urine, Mantoux test.

5. General care:
   ➢ Treat worms with Albendazole 400mg as a single dose (before food) if:
      ☞ worms are a problem in children in the area
      ☞ this child is 2 years of age or older (>10kg), and
      ☞ the child has not had a dose in the last 6 months
➤ Give 200mg albendazole as a single dose (before food) in clinic if:
  ➢ Child is under 2 years (<10kg) and
  ➢ History of passing worms
➤ If fever treat for Malaria.
➤ Give daily Ferrous Folic and Multivitamins.
➤ Treat infection if present – look especially for UTIs or Otitis Media
➤ If diarrhoea, follow guide in this manual or IMCI Guidelines.

6. Feeding:
➤ If breast-feeding
  ➢ Continue and supervise feeding.
➤ If not breast-fed:
  ➢ Start ½ strength milk feed for the first 24 hours.
  ➢ Give every 3 hours day and night, (i.e. 8 feeds in 24 hours).
  ➢ Then if no diarrhoea give full-strength milk feeds for 2 days.
  ➢ Then give extra energy milk (MOF:Milk Oil Formula).
  ➢ TO MAKE EXTRA ENERGY MILK FEED (MOF) – do not use in infants less than 3 months old.
    Milk powder     20 level tablespoons.
    Sugar          3 level tablespoons.
    Cooking oil    1½ tablespoons.
    Water          Add to make up to 1 litre.

<table>
<thead>
<tr>
<th>Weight in kg</th>
<th>5</th>
<th>7.5</th>
<th>10</th>
<th>12.5</th>
<th>15</th>
<th>17.5</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>mls per feed</td>
<td>95mL</td>
<td>140mL</td>
<td>190mL</td>
<td>235mL</td>
<td>280mL</td>
<td>330mL</td>
<td>375mL</td>
</tr>
</tbody>
</table>

➤ In severe cases:
  ➢ The child may need feeding with nasogastric tube on a high-energy liquid diet.
  ➢ Add soft foods when the child will eat.
  ➢ Give small amounts often.
  ➢ Mix oil or coconut milk with all food.
➤ Give health education.
  ➢ Advise on Road to Good Nutrition.
  ➢ When discharged, the child should be eating 5 meals a day.
  ➢ Advise mother to give extra food after any illness.
MENINGITIS

Refer to IMCI Guidelines for further information

This is a life threatening illness.
- Take a complete and clear history and always refer early.
- Think of meningitis in every very sick, drowsy, very irritable or convulsing infant or child.
- Neonatal meningitis - see Neonatal Problems

Common symptoms and signs:
1. Fever, headache, vomiting
2. Drowsiness, severe irritability or convulsions
3. Not feeding well, unable to breastfeed
5. Bulging fontanelles

Lumbar punctures:
1. Lumbar punctures should only be preformed in hospitals by qualified health personnel
   - Therefore, if you cannot do a puncture refer patient immediately
   - Start treatment first with IV/IM Quinine as per Malaria Guidelines, Chloramphenicol QID and Penicillin 4 hourly
2. If you can do a lumbar puncture
   - Perform under sterile conditions and act according to findings
   - Even if the CSF is clear meningitis cannot be excluded.
   - In the hospital send CSF for urgent examination and begin treatment with Quinine for cerebral malaria if prolonged drowsiness or coma.
3. If no response:
   - Begin antibiotic therapy.
4. If the CSF is bloodstained or you could not obtain you should:
   - Treat for cerebral malaria AND meningitis with quinine and antibiotic therapy.
5. If the CSF is cloudy:
   - Begin antibiotic therapy immediately and send CSF for urgent examination.

Treatment:
- Nurse in coma position and protect airway and don't forget to clear secretions with suction
- Give oxygen
- Treat convulsions:
  - Give diazepam according to guidelines and phenobarbitone to prevent more fits – see Convulsions section of this manual.
  - Insert IV and give fluids to correct any dehydration then slow to keep hydrated
  - Put a nasogastric tube in for feeding if the patient is still in coma and unable to swallow after 3 days, remember to adjust IV fluids
  - Commence antibiotics:
- If no bacteria are seen or Haemophilus influenza, Meningococcus or Pneumococcus are found:
  - Start Chloramphenicol 100mg / kg / day divided into 6 hourly doses IV or oral / NG if unable to insert IV
  - Commence antibiotics prior to referral
- Ceftriaxone is only available in hospitals and should be used as the first drug choice in hospital

Drug Dosages:
- All drugs should initially be given IV.
- If unable to give IV seek advice from a medical officer as IM dosages.
- Antibiotics should be given by gentle bolus injection whenever possible
Weight in Kg | 3-5 | 6-9 | 10-14 | 15-19 | 20-29 | 30-39 | 40-49 | 50+  
---|---|---|---|---|---|---|---|---
Chloramphenicol (25mg/kg/dose) | Dose in mgs | 100 | 150 | 250 | 350 | 500 | 750 | 1000 | 1000  
Benzyl Penicillin (60mg/kg/dose) | Dose in mgs | 300 | 600 | 900 | 1200 | 1500 | 2100 | 2400 | 2400  
Ampicillin (50mg/kg/dose) | Dose in mgs | 200 | 375 | 600 | 800 | 1250 | 1750 | 2000 | 2000  
Ceftriaxone  
Children: 50mg/kg/dose every 12hrs |  
Adults: 2 G IV every 12hrs |  
- In each type of meningitis, Ceftriaxone is an excellent alternative.  
- Consult a medical officer before giving this drug.  
- You will need to calculate dose according to weight.  
- Do not give more than 2G.  
Important points:  
- Always remember to think about TB as a cause in any case of meningitis.  
- If the fever is high, always consider cerebral Malaria. Don’t forget to order a MPSI  
- Meningitis can cause disabilities:  
  ☑ Refer for hearing testing prior to discharge  
  ☑ Refer to Disability Council if required  
Eosinophilic Meningitis  
There is a high prevalence of rat lung worm (*Angiostrongylus cantonensis*) infection in rats captured in Vanuatu. The eggs of the rat lungworm, after being excreted in rat faeces, are ingested by snails. The snail then excretes small worm larvae, contaminating plants. If a human eats food contaminated by the rat lungworm larvae, eosinophilic meningitis can develop.  
1. Signs and Symptoms  
  ☑ Chronic headache – may be very severe, fever only present in 50%, sometimes loss of vision due to retinal detachment  
  ☑ CSF shows eosinophils.  
2. Treatment  
  a) Treatment is supportive  
  b) Use analgesia liberally:  
  ☑ may need IM Pethidine  
Or  
  ☑ Paracetamol with Codeine Phosphate tablets  
  ☑ Recurrent LPs to drain off CSF sometimes help  
  ☑ Attempts to kill the larvae may cause deterioration due to increased inflammation  
  ☑ Outcome is usually good  
  ☑ Fatalities are rare  
3. Prevention  
Lettuce, island cabbage and other plants that snails may have been in contact with should be cooked or washed in salt water or vinegar.
MENTAL HEALTH DISEASES

Mental disorders are commonly overlooked. There are many reasons for this: Lack of training; patients present with physical rather than psychological complaints; stigma associated with mental illness and the health provider's fear of not knowing what to do.

If you are not sure what to do seek assistance from someone who you think maybe. There are efforts to improve mental health services beginning – focal contact point is VCH Medical Ward at the moment.

✍ Some people are naturally good at dealing with people with mental health problems and they may be willing to help you.

✍ Do not restrain, tie up or lock up people with mental disorders unless they are a real danger to themselves or other.

✍ Look for other causes of deterioration of mental state e.g. injury, malaria, meningitis, diabetes (hypoglycaemia most common).

Anxiety
1. Definition:
Excessive worry, fear, panic associated with muscle tension, irritability, insomnia, jumpiness.
During extreme anxiety people may have heart palpitations, tachycardia, shortness of breath, sweating and tremors.

2. Treatment:
Use of medicines should be short term. It would be helpful for the patient to learn relaxation techniques, avoid aggravating substances (caffeine) get plenty of exercise, and eat a good diet.

➤ Medications: Diazepam 1mg / kg / 24 hours in divided doses orally.
➤ Panic disorder: Sertraline 25mg daily, increasing if necessary after a week to 50mg daily.

Depression
1. Definition:
Symptoms present nearly every day: depressed mood, little to no interest in any activities, significant weight loss or gain, insomnia or hypersomnia; fatigue, loss of energy, inability to concentrate, and thoughts of killing themselves.

2. Treatment:
Medical treatment may not take effect for 2 or more weeks and usually is long term. It is important that the patient has someone to talk to on a regular basis, gets exercise and maintains a good diet.

➤ Amitriptyline 25-150mg / day at bedtime

OR

➤ Sertraline (Zoloft) 50mg daily increasing as necessary to maximum 200mg daily (usually maintenance dose is 50mg daily)

Suicide Attempts
People who attempt suicide must be taken seriously. They must be protected from themselves and evaluated carefully so that in the future they do not complete the act.

Treatment:
➤ Treat the immediate problem according to guidelines (poisoning, overdose, etc)
➤ Talk with the patient and try to understand what is the actual problem
➤ Refer or call a pastor, friend, someone with mental health training

Psychosis
Symptoms may include severe agitation, paranoia (extreme fear that something or someone is after them), hostility, hallucinations, un-recognizable speech patterns, or ways of speaking not understandable to others.

What to do:
1. Look for an organic cause e.g. Head injury, Meningitis, Cerebral malaria, Pneumonia, Typhoid. ALWAYS take the patient's temperature.

2. Treat any organic illness but if necessary you can also give Chlorpromazine
➤ 100mg (1 tab) QID - if withdrawn behaviour.
➤ 200mg (2 tab) QID - if overactive, aggressive, or violent.
➤ 200mg every 1-2 hours if very aggressive.
➤ Can be given IV/IM if the patient refuses tablets.

عروضAlways consider using benzhexol in patients on chlorpromazine to reduce the side-effects (parkinsonism, drooling).
there was an organic precipitant that has been treated, reduce the dose when the patient has been well for a week and stop after 3 months. If illness comes back, or in patients with probable schizophrenia, consider long term treatment with Fluphenazine (Modecate) 25mg (1ml) every 2-4 weeks.

Newer Alternatives Available
1. 
Risperidone (1mg BD increased by 1mg BD each day – max dose 6-8mg). Response occurs in 1-2 weeks, full trial 2-3 months. Daily dosing once patient is stable. Useful for managing loss of personality in schizophrenia, and for aggression in dementia.

2. 
Zuclopenthixol Acetate: IM 50-150mg every 2-3 days as initial treatment of acute psychosis / mania and for exacerbation of chronic psychosis, maximum 400mg per course.
OCULOXYRIC CRISIS AND DYSTONIA

Dystonia (including oculoxyric crisis) can be a side effect of some drugs. In particular, drugs that block dopamine (dopamine antagonists) can do this. Many drugs used to treat nausea or psychosis block dopamine. These drugs include:
1. Metoclopramide (maxalon)
2. Prochlorperazine (stemetil)
3. Chlorpromazine
4. Haloperidol
5. Modessate

*Avoid all of these in patients who get dystonia.

Signs:
1. Patient has usually just had one of the drugs listed above.
2. Eyes roll back in head
3. Neck can spasm
4. Tongue can fall back
5. Dribbling saliva

Treatment:
1. ADULT:
   - Benztrapine (Cogentin): IV (over 3-5 minutes) or IM: 1mg to 2mg
   - Trihexyphenidyl (Benzhexol): 2mg orally
2. Children over 3 years old: (must dilute ampoule before giving dose)
   - 10mcg to 20mcg/kg IV (maximum 1mg to 2mg)

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>DILUTE injection before giving to children</th>
<th>Dose of DILUTED injection</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>Dilute 1mL (1mg) plus 5mL of water for injection = 2mL (200 micrograms)</td>
<td>2mL (200 micrograms)</td>
</tr>
<tr>
<td>20-24</td>
<td>Total volume 10mL</td>
<td>3mL (300 micrograms)</td>
</tr>
<tr>
<td>25-29</td>
<td>This gives you a solution that is 100mcg per mL, then use the dose in next column according to weight.</td>
<td>4mL (400 micrograms)</td>
</tr>
<tr>
<td>30-34</td>
<td></td>
<td>4mL (400 micrograms)</td>
</tr>
<tr>
<td>35-39</td>
<td></td>
<td>5mL (500 micrograms)</td>
</tr>
<tr>
<td>40-44</td>
<td></td>
<td>6mL (600 micrograms)</td>
</tr>
<tr>
<td>45-50</td>
<td></td>
<td>7mL (700 micrograms)</td>
</tr>
</tbody>
</table>

* IV is preferred as it works faster, but IM can be used if reaction is mild. Symptoms are reduced within 2 minutes and resolved within 15-30 minutes after IV dose.
OBTETRICICS

Antenatal Care
AIM: Live and healthy mother and baby.
○ Encourage EARLY booking before 3-4 months of pregnancy.
○ RECORD all information on ANTE-NATAL and DELIVERY RECORD card.

1. First Visit:
2. ALL patients with one or more risk factors must be referred to the nearest hospital or midwife for assessment and recommendations for the type of antenatal care and delivery they need.

   a) MEDICAL RISK FACTORS
    i. Epilepsy
    ii. Hypertension
    iii. Heart disease
    iv. Renal disease or history of urine tract infections
    v. Liver disease
    vi. On TB medication or has had TB
    vii. Diabetes
    viii. Has oedema
    ix. Has malaria
    x. On asthma medication
    xi. On any other medication for chronic medical disease

   b) OBSTETRIC RISK FACTORS
    i. Is now G5 (has been pregnant four times before)
    ii. Had stillbirth or neonatal death last pregnancy
    iii. Last baby <2.5kg or > 4.0kg
    iv. Is less than 15 years or more than 34 years
    v. First pregnancy and is more than 34 years
    vi. Has had a caesarean section
    vii. Had a breech last time
    viii. Has been referred during pregnancy before
    ix. Has a multiple pregnancy
    x. Had a PPH last delivery or retained placenta
    xi. Has had a history of long labour during first delivery
    xii. Has had a fracture of pelvis, hips or spine
    xiii. Has a history of gynae problems e.g. uterine fibroids

2. Previous pregnancies:
   a) Record details of all previous pregnancies on Ante-natal and Delivery Record
   i. Gravidity and Parity
   ii. History of Previous Pregnancies
   iii. Any miscarriages
   iv. Place of deliveries
   v. Type of deliveries
   vi. Complication of deliveries
   vii. Birth weights
   viii. Foetal Outcomes e.g. alive or stillbirth
   ix. Breastfed

3. Present Pregnancy:
   a) Take a history of this pregnancy:
      i. Estimate date of delivery (EDD) from date of last menstrual period (LMP + 7 days + 9 months = EDD, or use gestational calendar).
      ii. Date fetal movements (quickening) first felt: (20 weeks for primips and 18 weeks for multiparas)
      iii. Ask about any problems
      iv. Record previous family planning method
   b) Examination:
      i. Do a FULL general examination and record finding
      ii. Record weight, blood pressure, fundal height, presentation of fetus, fetal heart sounds, and oedema on chart
      iii. Is uterine size compatible with dates?
   c) Tests:
      i. Haemoglobin
         ☐ Check at booking and at 28 and 36 weeks
         ☐ Refer if less than 6g% (or 8g% in late pregnancy)
         ☐ Give Ferrous Folic daily with aelian kaka
         ☐ Repeat Hb in 1 month if Hb less than 8g%.
         ☐ If no increase in Hb, then refer
      ii. Urine
         ☐ Test for sugar and protein at every visit.
         ☐ Refer if 2-3+ sugar or protein on 2 or more visits.
4. Medications:

- It is Ministry of Health Policy that women of childbearing age are vaccinated against tetanus.
- A full immunisation course of five (5) vaccinations gives life long immunity.
- Two (2) vaccinations given at least 1 month apart before 36 weeks will protect that pregnancy.
- It is best to give the vaccinations after or on the due next vaccination date NOT earlier.

a) If never immunized or has no record then start course:
   - 1st dose at the first antenatal visit.
   - 2nd dose at least 1 month later
   - 3rd dose is given at least six months later e.g. a family planning visit
   - 4th dose is given at least one year later e.g. a family planning visit or next pregnancy
   - 5th dose is given at least one year later again e.g. a family planning visit

b) If the woman has a record that she received all childhood vaccinations then:
   - Give a booster vaccination at first antenatal visit

- It is Ministry of Health Policy that women receive iron supplements during pregnancy commencing from the first antenatal visit. See “Anaemia” section of this guideline for further information if anaemic.
  - Ferrous Folic Tablets, Give 1 daily with food.

- Ministry of Health policy is that all pregnant women receive malaria prophylaxis during pregnancy. The use of bed nets should also be encouraged. See “Malaria” section of this guideline for further information.
  - Chloroquine, Give 2 tablets weekly, every Sunday.

- To assist with reduction of anaemia:
  - Albendazole. Give 400mg after 10 weeks.

5. Advice and Education:

- Good nutrition and cleanliness.
- Dental health.
- Counsel about breastfeeding benefits for mother and baby.
- Family spacing for the future.

- Where possible all pregnant women should have a full medical examination at least once during their pregnancy by a doctor, midwife, or nurse practitioner.

Routine Follow-up Antenatal Visits

1. Schedule for Visits:
   - 12 through 26 weeks: Patient visit every 4-6 weeks
   - 30 through 36 weeks: Patient visit every 2-3 weeks
   - 37 through 40 weeks: Patient visit every week until delivery
   - For Twin Pregnancy: Every 1-2 weeks after 30 weeks until delivery.
   - For ‘At Risk’ Pregnancy: According to recommendations of midwife or medical officer

2. At each visit:
   - Ask about health, discuss problems, answer questions.
   - Check weight, BP, and examine for oedema.
   - Test urine for protein and sugar.
   - Watch for signs of anaemia.
   - Record fundal height. Normal growth is 1cm a week after 20 wks.
   - Check presentation and fetal heart sounds.
   - Give feroxan folic and Chloroquine if needed.
   - Give health education.
   - Make sure the tetanus toxoid schedule is followed.

3. Identify and refer high risk factors if and when they occur during the pregnancy:
   - Vaginal bleeding
   - Malpresentation after 36 weeks
   - Uterine size too large or too small for dates
   - Anaemia
   - Twins
   - Poor weight gain
   - Fetal movements diminished
   - High blood pressure
   - 83
Diabetes
Shortness of breath
Oedema
Multiple urine infections

Hypertension & Pre-Eclampsia & Eclampsia

Managing Complications in Pregnancy & Childbirth. WHO. 2000

The only known way to stop pre eclampsia is to deliver the baby – the following is what to do as you arrange referral to a hospital for medical management of delivery as soon as possible.

Chronic Hypertension
A diastolic BP of 90 or more prior to 20 weeks gestation

What to do:
- This is an obvious risk factor and the woman should be referred.
- If the diastolic is >90 she may need to commence antihypertensives prior to referral but try and get advice e.g. oral Methyldopa, Hydralazine.
- If she already takes antihypertensives continue until referral.
- Advise rest until referral.

Mild Pre Eclampsia
Two readings of diastolic BP of more than 90 four hours apart after 20 weeks gestation and may have up to 2+ urine protein.

Increasing protein in urine is a sign pre eclampsia is getting worse.
Oedema of limbs is not considered a reliable sign of pre eclampsia.

What to do:
- The woman should be referred to a hospital or to at least a health centre near an airstrip to await referral. You cannot predict whether or not this woman will or will not get severe pre eclampsia or eclampsia.
- Her blood pressure should be monitored at least twice per day and urine tested daily.
- She should rest, take a normal diet but avoid salt.
- There is no need for drugs and diuretics especially are not indicated and can be harmful unless ordered by a medical officer.

Severe Pre Eclampsia
Diastolic is >90 after 20 weeks of gestation and 3+ or more of urine protein. Other signs and symptoms include:
- Headaches
- Urine <400mL in 24 hours
- Pulmonary oedema
- Clouding of vision
- Upper abdominal pain
- Fitting

This condition needs urgent referral to hospital.

Remember first things first – ensure airway, coma position, oxygen and suction.

1. What to do if woman NOT fitting:
The goal is to lower BP to less than 90 diastolic:
- Give Hydralazine 5mg IV slowly every 15 minutes until diastolic is between 90-100 or you have used a total of 15mg.
- You can continue hydralazine 12.5mg IM every two hours to keep diastolic BP between 90-100.

2. What to do if the woman IS fitting:
The goal is to stop fitting and control BP.

Magnesium Sulfate is first drug of choice:
- The drug of choice is Magnesium Sulfate as it will treat and prevent fitting. If you do not have this drug you can use diazepam (see below for instructions).

a) Loading Dose:
- Magnesium sulphate 4g (8mL of 50% solution) IV over 5 minutes
- PLUS give 4g (8mL of 50% solution) as a deep intramuscular injection in each buttock (8g in TOTAL as intramuscular injection) promptly after IV injection completed
- If convulsions recur after 15 min give further 2g (4mL of 50% solution) IV over 5 min
When giving IM injection you can add 1mL of 2% lignocaine to decrease pain.
Woman will feel warmth spreading over her body after injection – this is normal.

b) Maintenance dose:
- 4g of Magnesium Sulphate (8mL of 50% solution) IM every 4hrs into alternate buttocks
- Continue this treatment for 24 hours after delivery or last fit – whichever is the last event

c) Before repeat administration ensure that:
- Respiratory rate is at least 16/min
- Patellar reflexes are present
- Urinary output is 30mLs/hr or greater
- Withhold magnesium sulphate until these are all present

d) Be prepared for respiratory arrest:
- Best to administer treatment with someone else who can help you.
- First priority is to assist patient’s breathing with oxygen, mask and bagging and or mouth to mouth resuscitation. Also have suction ready.
- Calcium Gluconate is an antidote in the case of respiratory arrest.
- Give 10mLs of 10% solution by SLOW (10mL over 10 minutes) IV injection until respiration re-establishes.

**Diazepam is second drug of choice:**

- IM route of administration is NOT effective
  a) Loading dose:
  - Diazepam 10mg IV slowly over 2 minutes
  - OR you can put Diazepam 20mg in a syringe, lubricate the barrel and insert into rectum and inject – you will need to hold buttocks together for 10 minutes to stop leakage
  - If fitting recurs repeat loading dose
  b) Maintenance dose:
  - Diazepam 40mg added to 500mL (or 80mg added to 1000mL) of normal saline
  - Run infusion to keep woman sedated but easily rousable
  - Do not give more than 100mg in 24 hours
  - OR Diazepam 10mg rectally per hour depending on clinical response and size of woman

3. What to do next
- Check BP and proceed to lower with Hydralazine as described in point 1 above.
- Continue to maintain airway and administer oxygen for the benefit of the fetus even if you think the woman doesn’t need it.
- Nurse woman on left side mainly with small spells on right side – room should be quiet and dark and a reliable attendant should stay with woman if you are busy with other patients
- Monitor BP, pulse and respirations every 30 mins
- Measure urine output hourly via a catheter in situ
- Check fetal heart rate hourly
- Conduct a baseline vaginal examination and commence parogram if in labour
- Record all your observations and medications given with you referral letter
- If you think woman may also have malaria – treat according to malaria treatment guidelines as well as treatment outlined above.

**Drugs in Pregnancy**
- All women of childbearing age should be asked about pregnancy before any drugs are given. During pregnancy some drugs given to the mother can harm the developing baby.
- The most dangerous period for damage to the fetus is the first 12 weeks of pregnancy when the mother may not know she is pregnant.
- No drug is absolutely safe in pregnancy and breastfeeding. Avoid drugs whenever possible.

Drugs are grouped as:

**OK:**
This drug has been taken by pregnant women and women of childbearing age without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the fetus.

**NOT OK:**
Drug is NOT OK to use in pregnancy or breastfeeding.

85
<table>
<thead>
<tr>
<th>DRUG</th>
<th>PREGNANCY</th>
<th>BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albendazole</td>
<td>NOT OK</td>
<td>OK</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Chloramphenicol</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>SINGLE STAT doses for STIs OK. Seek advice for treating other infections</td>
<td>AVOID</td>
</tr>
<tr>
<td>(can cause joint problems)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clotrimazole</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Cotrimoxazole (bactrim)</td>
<td>Seek Advice</td>
<td>Seek Advice</td>
</tr>
<tr>
<td>Erythromycin</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Gentamicin</td>
<td>Seek Advice</td>
<td>OK</td>
</tr>
<tr>
<td>Griseofulvin</td>
<td>NOT OK</td>
<td>AVOID</td>
</tr>
<tr>
<td>Ivermectin</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Miconazole (topical)</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Nystatin</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Ofloxacin</td>
<td>Seek advice</td>
<td>AVOID</td>
</tr>
<tr>
<td>(can cause joint problems)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penicillins :</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Amoxycillin, Ampicillin,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Augmentin, Benzathine Penicillin,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzylpenicillin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cloxacin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenoxymethyl penicillin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procaine Penicillin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetracyclines:</td>
<td>AVOID</td>
<td></td>
</tr>
<tr>
<td>Doxycycline, Minocycline</td>
<td>After week 12</td>
<td>NOT OK</td>
</tr>
<tr>
<td>MALARIA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloroquine</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Fansidar (sulphadoxine and</td>
<td>Seek Advice</td>
<td>Seek Advice</td>
</tr>
<tr>
<td>pyrimethamine)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quinine</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Primaquine</td>
<td>Seek Advice</td>
<td>OK</td>
</tr>
<tr>
<td>TUBERCULOSIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethambutol</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Isoniazid</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Pyrazinamide</td>
<td>Seek Advice</td>
<td>OK</td>
</tr>
<tr>
<td>Rifampicin</td>
<td>Seek Advice</td>
<td>Seek Advice</td>
</tr>
</tbody>
</table>

<p>| HEART AND BLOOD PRESSURE           |             |
| Atenolol                           | NOT OK      | OK                |
| Atropine                           | OK          | NOT OK            |
| Captorol                           | NOT OK      | OK                |
| Digoxin                            | OK          | OK                |</p>
<table>
<thead>
<tr>
<th>Drug</th>
<th>Action</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furosemide</td>
<td>Seek Advice</td>
<td>OK for doses &lt;300mg. OK may reduce milk production</td>
</tr>
<tr>
<td>Glycerol trinitrate</td>
<td>OK</td>
<td>OK has to continue</td>
</tr>
<tr>
<td>Hydralazine</td>
<td>Seek Advice</td>
<td>OK</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
<td>AVOID</td>
<td>AVOID</td>
</tr>
<tr>
<td>Isosorbide dinitrate</td>
<td>AVOID</td>
<td>AVOID</td>
</tr>
<tr>
<td>Isosorbide mononitrate</td>
<td>AVOID</td>
<td>AVOID</td>
</tr>
<tr>
<td>Lignocaine</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Methylene*</td>
<td>NOT OK</td>
<td>NOT OK</td>
</tr>
<tr>
<td>Nifedipine</td>
<td>Seek Advice</td>
<td>Seek Advice</td>
</tr>
<tr>
<td>Spironolactone</td>
<td>NOT OK</td>
<td>NOT OK</td>
</tr>
<tr>
<td>Verapamil</td>
<td>Seek Advice</td>
<td>Seek Advice</td>
</tr>
</tbody>
</table>

**PAIN AND INFLAMMATION:**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Action</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>NOT OK</td>
<td>OK for doses &lt;300mg. OK for inflamation NOT OK. Use paracetamol</td>
</tr>
<tr>
<td>Codeine</td>
<td>OK</td>
<td>OK, OK for chronic use.</td>
</tr>
<tr>
<td>Fentanyl</td>
<td>OK</td>
<td>OK, OK for chronic use.</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>Seek Advice</td>
<td>Use ibuprofen if possible</td>
</tr>
<tr>
<td>Indomethacin</td>
<td>Seek Advice</td>
<td>OK for pain.</td>
</tr>
<tr>
<td>Morphine</td>
<td>OK</td>
<td>OK, OK for chronic use.</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>OK</td>
<td>OK, OK for chronic use.</td>
</tr>
<tr>
<td>Pethidine</td>
<td>OK</td>
<td>OK, OK for chronic use.</td>
</tr>
</tbody>
</table>

**CENTRAL NERVOUS SYSTEM:**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Action</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Benzhexol</td>
<td>OK</td>
<td>Seek Advice</td>
</tr>
<tr>
<td>Benztrpine</td>
<td>OK</td>
<td>Seek Advice</td>
</tr>
<tr>
<td>Chlorpromazine</td>
<td>OK</td>
<td>Seek Advice</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Seek Advice</td>
<td>AVOID for pain.</td>
</tr>
<tr>
<td>Haloperidol</td>
<td>Seek Advice</td>
<td>AVOID for pain.</td>
</tr>
<tr>
<td>Levodopa/carbidopa</td>
<td>OK</td>
<td>AVOID for pain.</td>
</tr>
</tbody>
</table>

**EPILEPSY:**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Action</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbamazepine</td>
<td>Seek Advice</td>
<td>OK for pain.</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Seek Advice</td>
<td>OK for pain.</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Seek Advice</td>
<td>OK for pain.</td>
</tr>
<tr>
<td>Valproate</td>
<td>Seek Advice</td>
<td>OK for pain.</td>
</tr>
</tbody>
</table>

**GASTROINTESTINAL:**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Action</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antacid tablet (Mg silicate)</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Bisacodyl</td>
<td>OK</td>
<td>Seek Advice</td>
</tr>
<tr>
<td>Hyoscine</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Ranitidine</td>
<td>OK</td>
<td>OK</td>
</tr>
</tbody>
</table>

**ASTHMA:**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Action</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beclomethasone (inhaler)</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Common Pregnancy Problems</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Hydrocortisone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salbutamol</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Theophylline</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Prednisolone</td>
<td>OK</td>
<td>OK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DIABETES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Glibenclamide</td>
<td>NOT OK</td>
<td>AVOID</td>
</tr>
<tr>
<td>Metformin</td>
<td>OK</td>
<td>AVOID</td>
</tr>
<tr>
<td>insulin</td>
<td>OK</td>
<td>OK</td>
</tr>
<tr>
<td>Tolbutamide</td>
<td>NOT OK</td>
<td>OK</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VITAMINS AND MINERALS</th>
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<tbody>
<tr>
<td>Calcium</td>
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<td>OK</td>
</tr>
<tr>
<td>Ferrous sulphate/folic acid</td>
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<td>OK</td>
</tr>
<tr>
<td>Folic acid</td>
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<td>Multivitamins</td>
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<tr>
<td>(vit D3 100 IU, vit A 800 IU)</td>
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</tr>
<tr>
<td>Vitamin A</td>
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</table>

<table>
<thead>
<tr>
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<tr>
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<tr>
<td>Promethazine</td>
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<table>
<thead>
<tr>
<th>ANTICOAGULANT</th>
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<tr>
<td>heparin</td>
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<td>AVOID</td>
</tr>
<tr>
<td>Warfarin</td>
<td>OK</td>
<td>Seek Advice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OTHER</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Carbimazole</td>
<td>NOT OK</td>
<td>AVOID</td>
</tr>
<tr>
<td>Ceftriaxime</td>
<td>AVOID</td>
<td>AVOID</td>
</tr>
<tr>
<td>Dexamethasone</td>
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</tr>
<tr>
<td>Ergometrine</td>
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<td>NOT OK</td>
</tr>
<tr>
<td>Metoclopramide</td>
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<tr>
<td>Probenecid</td>
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<tr>
<td>Thyroxine</td>
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<td>OK</td>
</tr>
<tr>
<td>(need blood tests)</td>
<td></td>
<td></td>
</tr>
</tbody>
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Common Pregnancy Problems

Ruptured Membranes
Membranes normally rupture either at onset of first or second stages of labour. There is no indication for the nurse/doctor to rupture membranes unless you suspect fetal distress so you can monitor for meconium liquor. Routine rupture of membranes for no real reason leads to infection and possible delay in progress of labour.

1. Ruptured membranes without labour:
   - Give prophylactic antibiotics -
   - Penicillin 2gram stat IV OR Ampicillin 2gram 6 hourly IV until delivered – only continue post delivery if signs of infection
   - Refer to hospital if gestation is < 36 weeks
   - Refer to midwife if gestation is > 36 weeks and labor has not commenced within 24 hours
2. Ruptured membranes with labour:
   - If delivery not anticipated for 18 hours give prophylactic antibiotics -
   - Penicillin 2gram stat IV OR Ampicillin 2gram 6 hourly IV until delivered – only continue post delivery if signs of infection

Common Pregnancy Problems
3. If meconium liquor observed:
   - If thick, have a doctor present for delivery to suction with laryngoscope
   - If thin or not able to get doctor suction mouth then nostrils when head delivered before complete delivery of baby any
     observe closely once delivered
   - Commence antibiotics if signs of infection

Premature Labor
Labour that commences < 37 weeks gestation. Babies born between 32 and 37 weeks will usually do OK if receiving
special care and mother receives Dexamethasone to help mature lungs for 48 hours prior to delivery.

What to do:
1. See above and treat depending on state of membranes
2. If malaria likely trigger -- commence malaria treatment in addition to:
3. Less than 32 weeks, cervix less than 3cm dilated and no signs of bleeding, pre eclampsia, infection or fetal death:
   - Indocid 100mg loading dose oral or PR followed by 25mg 6 hourly oral or PR x 3 doses only (this is to slow / stop
     labour) -- do not give > 32 weeks
   - Give Dexamethasone 6mg IM 6 hourly for 4 doses
   - Mother to mainly rest in bed to decrease pressure of presenting part on cervix
   - Refer to nearest midwife and or hospital
4. More than 32 weeks and one or more of the following: bleeding, pre eclampsia, infection, fetal death and cervix > 3
   cms:
   - Refer to hospital and or midwife if able after commencing IV fluids and giving treatment for pre eclampsia or infection
   present
   - Allow to labour
   - Deliver gently with episiotomy to relieve pressure on fetal head (if fetus alive)
   - Look after mother as she is prone to PPH and infection post delivery
   - Keep baby warm and feed early -- warmest place is skin to skin contact with mother -- "Kangaroo Method"
   - Re assess referral post delivery if yet not referred

Antepartum Haemorrhage
Bleeding after 22 weeks gestation. Heavy bleeding commonly due to abruption of the placenta or placenta praevia or
ruptured uterus.

What to do:
- Do not perform a VE
- Insert IV and Infuse to prevent / treat shock
- Give oxygen if you have it
- Commence treatment for any other problems e.g. pre eclampsia
- Refer as soon as possible to nearest hospital capable of doing emergency caesarian section and blood transfusion
- If patient has light bleeding, do gentle speculum examination without VE, rest in bed, Insert IV line in case of sudden
  bleeding, observe and consult with a midwife or medical officer

Miscarriage
Treat similar to points 7 and 8 in post natal care section
- Refer to tissue still inside uterus and causing problems e.g. bleeding / infection -- women will probably need D&C
- As women enter 2nd trimester they are more likely to be unable to expel all products of conception, therefore will bleed
  more, more prone to infection and will need D&C

Labour and Delivery
In labour, monitor 3 things:
1. Condition of the mother.
2. Condition of the baby.
3. Progress of the labour.

Vanuatu policy is that partograms are used in hospitals & community health for all women in labour

Signs that labour has started:

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1. Regular, painful contractions
2. "Show" of blood
3. May have ruptured membranes
4. Cervix 4cm dilated or greater

When a woman presents in labour:
1. Check antenatal card for any risk factors.
2. Calculate the gestational age.
3. Obtain a history from the mother about the onset of labour.
4. Do an abdominal examination and check:
   - fundal height and clinical size.
   - presentation, position, and lie of fetus.
   - frequency, and duration of contractions.
   - fetal heart sounds: listen and count (normal 120-160).
5. Record pulse, BP, temo, pulse and test the urine for protein and sugar.
6. Do a Vaginal examination and check for:
   - nature of presenting part
   - cervical dilatation
   - descent of presenting part
   - intact or ruptured membranes.
7. Continue hourly observations.

RECORD ON PARTOGRAM.

When the baby is born:
1. Put baby on the mother's abdomen and suction mouth and nose if indicated.
2. Dry the baby and have the mother hold and keep the baby warm.
3. Clamp the cord with sterile forceps and secure it tight with a sterile clamp or sterile ties.
4. Put the baby to the mother's breast and allow to feed.
5. Check the Baby's APGAR score at 1, 5 and 10 minutes after birth.
   - Give the baby Vitamin K 1mg IM as soon as possible after birth to help prevent Hemorrhagic Disease of the Newborn.

APGAR SCORE TABLE

<table>
<thead>
<tr>
<th>SIGN</th>
<th>SCORE 0</th>
<th>SCORE 1</th>
<th>SCORE 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEART RATE</td>
<td>Absent</td>
<td>Less than 100</td>
<td>More than 100</td>
</tr>
<tr>
<td>RESPIRATORY</td>
<td>Absent</td>
<td>Slow</td>
<td>Good</td>
</tr>
<tr>
<td>EFFORT</td>
<td>Irregular</td>
<td>Crying</td>
<td></td>
</tr>
<tr>
<td>SKIN COLOUR</td>
<td>Blue / pale</td>
<td>Blue arms &amp; legs</td>
<td>Completely pink</td>
</tr>
<tr>
<td>MUSCLE TONE</td>
<td>Floppy</td>
<td>Moves arms &amp; legs</td>
<td>Active movement</td>
</tr>
<tr>
<td>REFLEXIBILITY</td>
<td>No response</td>
<td>Grimace</td>
<td>Cries</td>
</tr>
</tbody>
</table>

After the Baby is delivered:

CHECK THERE IS NOT ANOTHER BABY!
1. If not then:
   - Give IM 10 units of Oxytocin to mother or Ergometrine 0.5mg IM.
2. An alternative to oxytocin or ergometrine is:
   - Give mother a tablet of Misoprostol 200mcg to chew.

Ergometrine should not be given to women with hypertension, pre-eclampsia or eclampsia.
Misoprostol has no advantage over oxytocin in preventing PPH according to Cochrane Reviews – 2003 – further, this drug has more unpleasant side effects than oxytocin e.g. shivering and temperature increase – it's only advantage at the moment is that it is oral and can be stored for long periods in tropical climates.
Oxytocin has less side effects than both ergometrine and misoprostol and stores better than ergometrine – it remains currently the drug of choice in the management of the third stage of labour with or without controlled cord traction – WHO and Cochrane Reviews.
3. Watch for signs of placental separation:
   - Lengthening of cord.
   - Show of blood.
   - Fundus rises and uterus contracts.
     - When placental separation has occurred, assist with expelling the placenta using controlled cord traction (CCT) if you have been taught technique.
     - If you are not confident with CCT – use a modified technique by guarding the uterus above symphysis and lift or placenta by gently pulling cord upwards – when you see placenta use both hands to ease it out with membranes.
     - After the placenta is expelled massage the uterus to expel blood clots and contract the uterus.
     - Check to make sure the placenta appears complete.

4. If there are any problems:
   - Immediately get in contact with the nearest midwife, medical officer or obstetrician nearest to you.
   - An empty bladder and an empty contracted uterus will rarely bleed.
   - The use of oxytocin to speed third stage has a significant effect in decreasing PPH.
   - It is worth asking a midwife to allow you to do a delivery if you are in town to keep up third stage management skills.

**Post Partum Haemorrhage**

**Definition:** The loss of more than 500mLs of blood following a birth.

- It is the most common reason for maternal mortality in the world and Vanuatu.

- **Be aware** of potential risk factors and refer these women to at least a midwife before delivery:
  - Grand multiparity
  - Prolonged labour
  - Multiple Birth or any other reason for over distended uterus
  - Antepartum Haemorrhage
  - Previous Postpartum Haemorrhage

- Other risk factors that you can avoid are a) making sure bladder is empty immediately prior to second stage and b) proper and confident third stage technique.

**Immediate Treatment of Post Partum Haemorrhage:**

1. Act quickly, but calmly.
2. Sing out for help.
3. Do not leave the woman.
   - Give one 10 unit ampoule of Oxytocin IM followed by Ergometrine 0.5mg IM
   - Insert a urine catheter to empty the bladder.
   - Try to deliver the placenta if it is not already out.
   - If the placenta has been expelled then massage the fundus to expel any clots and to contract the uterus.
   - Start an IV and add 2 ampoules of oxytocin (20 units) to the 1L bag of either normal saline or Hartmanns solution.
   - Run the IV wide open or very fast.
4. If the bleeding stops but the placenta is still inside:
   - Continue the IV with oxytocin and refer immediately.
   - Get the patient to a health centre or hospital for help.
5. If the bleeding does not stop:
   - Continue to run the IV with oxytocin as fast as possible and refer immediately to a health centre or hospital for help.
6. If the bleeding stops and the placenta is expelled:
   - Continue the IV with oxytocin 10units in one litre of normal saline every 8 hours.
   - Consider giving the woman antibiotics for 5 days (amoxycillin) to reduce the possibility of infection.

**Postnatal Care**

1. Routine care of the mother:
   - Do daily examination for 1 week.
   - Check the temperature, breasts, perineum, fundal height and the lochia.
There is an observation chart on back of partogram to record this.

Give health education for care of baby, breast-feeding, hygiene (washing hands) and cord care.

Do a complete postnatal check at 6 weeks:
  i. Breasts and breast-feeding.
  ii. Fundus
  iii. Perineum.
  iv. Lochia.
  v. BP

Family planning:
  i. Encourage family planning; explain that a woman can become pregnant if breast-feeding.
  ii. Offer choice of contraception – POPs, Depo provera can be commenced post delivery or at six week postnatal check.

Ask if there are any other problems.

2. Routine care of the newborn

Do daily examination for 1 week:
  i. Check the eyes, the skin, the umbilical and feeding
  ii. All newborn babies need a full examination.
  iii. Refer if any abnormalities found.
  iv. Arrange First Clinic visit for baby at 6 weeks

Breast feeding

It is Ministry of Health Policy that breastfeeding is encouraged for at least the first
  i. Have the mother feed early - as soon as possible after delivery.
  ii. Allow the baby to feed on demand during the day and night.
  iii. Ensure that both breasts are regularly and completely emptied.
  iv. If the baby is unable to suck then express milk 3 hourly and give to baby with cup and spoon.

Do not use or encourage use of baby bottles.

Do not use products that promote infant formula in the health clinic e.g. posters, calendars etc.

Do not give routine supplementary feeds.

4. Engorged Breasts

1) Ensure the baby is attaching properly

2) Express a little milk before feeding

3) Express remaining milk when finished feeding

> Apply warm compresses and give paracetamol if painful

5. Flat Nipples

1) Pull out nipples gently

2) Express a little milk if engorgement

3) Check attachment

4) Feed with cup and spoon if necessary with expressed breast milk

6. Cracked Nipples

1) Check feeding technique.

2) Rub milk into the nipple and expose to sunlight.

3) If very sore have the baby stop sucking from the affected nipple for 1 day

4) Continue to express milk and feed with cup and spoon.

7. Persistent or heavy red lochia

> This is usually caused by retained placental products but may be associated with infection, the fundus stays high.

> Treatment:

Cytolec (misoprostol) tablets 200mcg TDS for 3 days

Amoxylillin 500mg TDS and Metronidazole 400mg TDS (with food) for 5 days if infection.

Refer: If the symptoms continue refer to hospital for further assessment.
8. Postnatal fever and infection
   ➢ Always try and find the cause of fever.
   ➢ Always examine the abdomen, uterus, perineum, lochia, breast, chest and urine. Check for malaria.
   ➢ Treatment:
     ➢ If infection appears to be pelvic and woman looks sick:
       ➢ Ampicillin and Gentamicin IM and Metronidazole oral or rectal suppositories
     ➢ If infection appears to be pelvic and woman does not look sick:
       ➢ Amoxicillin and Metronidazole orally

9. Breast infections
   ➢ Mastitis
     i. Red, swollen, tender breast.
     ii. Treatment:
     ➢ Empty breasts after each feed
     ➢ Give paracetamol for pain relief
     ➢ If the problem persists consider giving Cloxacillin.
     ➢ Continue breastfeeding to prevent breast abscess.
   b) Breast Abscess
     i. Very tender collection of pus with fluctuation.
     ii. Treatment:
       ➢ Surgical drainage of abscess.
     ➢ Keep breast-feeding on good side, express milk of affected side, restart breastfeeding on affected side as soon as possible.

10. Genital tract infections
    a) Perineum/Vulva/Vagina
       i. Local pain, swelling, discharge
       ii. Treatment:
       ➢ Wash with clean water, keep clean and dry.
       ➢ Remove any or all sutures (if present).
       ➢ Refer: If no response.
    b) Uterus
       i. Abdominal and back pain, smelly lochia, high fundus, tender uterus.
       ii. Treatment:
       ➢ Ensure there are no retained products
       ➢ Give Amoxicillin 500mg TDS and metronidazole 400mgs TDS (with food) for 5-7 days
       ➢ Analgesics.
       ➢ Refer: If symptoms continue.

11. Urinary tract infection
    a) Abdominal and back pain, dysuria, frequency, usually fever.
    b) Cloudy urine with protein and blood.
    c) Treatment:
       ➢ In hospital send urine for examination first.
       ➢ Amoxicillin 500mg TDS for 7-10 days
       ➢ Encourage to drink plenty of water

12. Malaria
    ➢ See "Malaria" section in this manual.
Newborns

Key conditions affecting newborns are:
1. Low Birth Weight (LBW): preterm or small for dates (IUGR – Intrauterine Growth Retardation)
2. Respiratory Distress – grunting, chest recession, fast breathing
3. Sepsis
4. Hypoglycaemia and hypothermia
5. Jaundice
6. Asphyxia

The key to management is keeping them:
Pink, warm, sweet, treat infection and correct feeding regime.

1. Feeding & Fluids:
   a) LBW infants (especially preterm) may be too small to breastfeed, so may need nasogastric tube feeds of expressed breastmilk (EBM) every 2-3 hours
   b) Sick newborns with respiratory distress should not be tube fed or breastfed because of the risk of aspiration – they need an IV
   c) Feeding Volumes / IV fluid rates:

<table>
<thead>
<tr>
<th>Days Old</th>
<th>mL per Kilogram per Day</th>
<th>Divide total daily amount by 12 for 2 hourly feeds or 8 for 3 hourly feeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60mL / kg / day</td>
<td>e.g. 60mL x 2.2kgs = 132mL / 8 = 16.5mL every 3 hours for Day 1 for a birth weight of 2.2kgs</td>
</tr>
<tr>
<td>2</td>
<td>90mL / kg / day</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>120mL / kg / day</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4</td>
<td>150mL / kg / day</td>
<td>-------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

c) IV Fluids:
   i) Use 5% Dextrose or 4% Dextrose with 0.18% Saline
   ii) Add 10mL of 50% Dextrose to each 100mL e.g. if you have a 500mL flask then add 50mL of 50% Dextrose
   iii) You MUST USE a PEDIATRIC BURETTE with microdrops – 1 drop per minute = 1mL per hour e.g.
        60mL x 2.2kgs = 132mL / 24 = 5.5mL per hour for Day 1 for a birth weight of 2.2kgs.
   iv) To work out how many drops per minute for a microdrop set you need the following equation:
        mL x 60 drops per mL = Drops per minute
        Hours 60 minutes
        Therefore:
        132mL x 60 drops per mL = 5.5 drops per minute
        24 hours 60 minutes

2. Infection:
   a) Neonatal sepsis is common, especially in small babies or in mothers with prolonged rupture of membranes or fever during labour – See Common Obstetric Problems for what to do to help prevent neonatal sepsis
   b) Signs of infection are usually non-specific such as respiratory distress, fever, refusal feeds, mottling of skin, low temperature, and hypoglycaemia
   c) Treatment:
      i) Antibiotics must be given IM or IV, not orally, newborns need two antibiotics and these should be commenced before referral:
         a) Ampicillin 50mg / kg twice per day
         b) Gentamicin 5mg / kg once per day
      ii) Keep baby warm, including head cover
      iii) Feed 2 hourly or administer IV depending on condition to prevent hypoglycaemia
      iv) Take temperature per axilla to avoid heat loss from exposing for PR temperature, take respirations over full minute and apex heart beat with stethoscope – take observations every hour until stable
      v) In hospital, consider nursing in humidic / isolate if condition unstable

3. Respiratory Distress:
   a) Hyaline Membrane Disease: preterm infants develop grunting, fast breathing and frothy sputum by 4-8 hours of age.
   b) Treatment:
      i) Oxygen
a) Antibiotics as above
b) Stop feeds if respiratory rate more than 80 per minute and insert IV

c) Apnoea: affects preterm infants, usually in week 2.
   - Treatment:
     - Responds to stimulation
     - If early onset or no response to stimulation:
       - Check blood sugar and temperature and treat for sepsis

d) Transient Tachypnoea of Newborn (TTN): affects full term infants, especially after caesarian section or precipitous (far too)
   delivery
   - Treatment:
     - Usually only lasts 4 – 6 hours
     - Take observations and watch carefully
     - If more than 4 – 6 hours
     - Treat for sepsis

4. Asphyxia (Hypoxic – Ischaemic Encephalopathy)
   a) Risk factors include prolonged labour, meconium stained liquor, low APGAR score, cord around neck etc

   - Affected infants may be jittery, very irritable, drowsy and lethargic, unable to breastfeed, convulsions, meconium aspiration syndrome.

   - Treatment:
     - Check blood sugar regularly and treat / prevent hypoglycaemia (<2.2mmol/L) with tube feeds of EBM or IV fluid
     - If fever or respiratory distress, treat for sepsis
     - Treat convulsions with Phenobarb
     - Follow-up developmental milestones at 6, 9 and 12 months

5. Hypoglycaemia
   a) Defined as a blood sugar less than 2.2mmol/L

   b) Large for Gestational Age (LGA) babies (>4.0kg) or infant of a diabetic mother (IDM) are at risk, especially 2 –12 hours after delivery

   c) Small for Gestational Age (SGA) babies and preterm infants also at risk but prevented by frequent feeding

   - Treatment is symptomatic:
     - Hypoglycaemia with IV dextrose or EBM with dextrose via nasogastric tube

- Vitamin K must be given at birth, Hepatitis B vaccine can be given, when to give BCG can be discussed with medical officer.

- Immunisation schedule continues as normal even if they are premature.

- You must take extra time educating mothers who have sick newborns.

- Make sure that infants attend MCH clinic frequently.

- Encourage mothers to exclusively breastfeed, practice good hygiene and place baby under mosquito net when sleeping.

- If infant was admitted to hospital, make sure referral back to clinic is given to mother with any special instructions.

- Check mother has adequate family planning so she can devote time to this baby before having another.
OEDEMA (SWELLING)

General swelling
Swelling of both legs due to:
1. Heart Failure:
   - Fast pulse, raised neck veins, big liver.
   - May have ascites.
   - Often breathless, with crackles in the chest and heart murmurs.
2. Kidney Disease:
   a) Protein in the urine.
   b) May also have high BP and anaemia.
3. Liver Disease:
   a) May have distended abdomen (ascites) in addition to swelling of legs.
   b) Liver not usually big.
   c) Sometimes jaundiced.
4. Anaemia:
   a) Very pale, tired and dizzy.
   b) Usually signs of heart failure too.

What to do:
1. Thoroughly examine the patient and ask about past history e.g. have they had this problem before then decide on treatment according to findings.
2. Try and speak to a medical officer but do not delay initial treatment to do this.
3. People with mild symptoms of heart failure can be commenced on:
   ➢ Hydrochlorothiazide (Esidrex) x 1 tablet daily.
      ➢ If stabilised they do not need to go to hospital but should continue taking a daily tablet and refer to see a medical officer within six months.
      ➢ The younger the patient the more they need to see medical officer.
      ➢ Consider rheumatic heart disease in young patients.
4. Counsel patient:
   ➢ Have rest periods with feet elevated
   ➢ Restrict fluids to 1.5 litres per day
   ➢ Stop using salt
   ➢ Stop smoking.
5. They should see you every month if they are well for examination and tablet resupply.
6. Refer to hospital all other patients after commencing treatment.
   ➢ Commence Frusamide (Lasix) 40mg daily.
   ➢ Always give Potassium Chloride Tablets x 2 for every Frusamide tablet given.
      ➢ Patient may need oxygen.
      ➢ Will be more comfortable sitting up.
      ➢ Elevate feet.
      ➢ Commence on a fluid balance chart.
      ➢ Restrict fluids to 1.5 litres per day.

Swelling due to malnutrition
Usually children, light hair, skin changes, thin arms.

What to do:
1. Adults with malnutrition usually have another underlying disease
   ➢ Refer to hospital and see Malnutrition section of this guide.
2. Examine and commence treatment for fever or infections before referral.
   ➢ Frusamide (Lasix) should only be given on medical officer's orders.
   ➢ Hydrochlorothiazide (Esidrex) is rarely ordered for children.

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Swelling in pregnancy
Some ankle oedema is common in late pregnancy.
If raised BP or protein in urine, may be pre-eclampsia.
What to do:
➢ Follow Obstetrics section of this guide for management and when to refer

Pregnant women are usually not given Frusimide (Lasix) or Hydrochlorothiazide (Esidrex)

Swelling of only one leg
1. Filariasis ("big leg") is present for a long time and painless.
   What to do:
   ➢ See Filariasis section of this manual
2. Infection (eg cellulitis, pyomyositis or osteomyelitis):
   Acute and painful, requires urgent treatment.
   What to do:
   ➢ See Skin Infection section of this manual
3. Bite or Sting (e.g. 'milipat');
   Acutely painful
   What to do:
   ➢ Usually settles with analgesia.
4. Injury or Vein Thrombosis:
   Injury is obvious. Vein thrombosis commonly presents pain at back of calf, worse when foot pushed upwards and the skin on the swollen leg feels hotter than the other leg.
   What to do:
   ➢ Treat the injury, refer if necessary.
   ➢ If you think problem is a vein thrombosis:
     ⇒ Refer as soon as possible to hospital
     ⇒ Rest and elevate limb
     ⇒ Give an Aspirin 600mg stat to decrease further clot formation
PAIN MANAGEMENT

Pain is the most common reason that people come to health facilities and seek medical advice. It is vital to treat the CAUSE of the PAIN and the PAIN itself.

1. How to assess pain:
   a) It is important to know exactly what patients mean by pain and if it is related to other symptoms.
   b) You must ask many questions and explain why you are asking them (to help you diagnose the cause of the pain and how serious it is).
      i. Where is the Pain?
      ii. What is the pain like?
      iii. Is there anything else the person has noticed that goes with the pain?
      iv. Does the pain transfer or go anywhere else?
      v. When did the pain start and how long have you had it?
      vi. Is there anything that makes the pain better or worse?

Different types of pain

1. Mild:
   a) This pain is usually of fairly sudden onset and related to injuries and/or headaches.
   b) Some examples would be cuts, bruises, headaches and sprains
      Paracetamol (See dosage chart).

2. Moderate:
   a) This pain is more severe, lasts longer and often requires medical treatment for relief.
   b) Examples include dental pain, post-major surgery and sprains.
      Ibuprofen 400mg, 6 to 8 hourly or Indomethacin 20-50 mg, 6-8 hourly

3. Severe:
   a) This pain is extremely difficult for the patient to tolerate.
   b) Examples include severe burns, fractures, post-major surgery and acute surgical cases.
      Panadine 0.1-0.15 mg/kg subcutaneous every 2 to 3 hours or
      Fentanyl 1.0-1.5 mg/kg intra-muscular every 2 to 3 hours

4. Chronic:
   a) This pain is long term in nature, often constant and not always easily relieved with medication.
   b) It is very important to determine the cause of the pain PRIOR TO starting treatment.
   c) Examples include low back pain, musculoskeletal, arthritis and cancers.
      Life-style modification (changes in posture, exercise, diets)
      Paracetamol
      Non-steroidal medications like Ibuprofen 400 mg 6 to 8 hourly or Indomethacin 20-50 mg, 6-8 hourly
      Morphine (liquid, tablets or IM/SC)

A Special Note on Cancer Patients

1. Pain associated with cancer almost always becomes chronic and severe.
2. The pain is progressive and pain management may require more expertise than one has at a dispensary level.

What to do:

- If you are unable to manage pain relief refer to a hospital to assure adequate pain management.
  - Initial treatment: Contact Pharmacy at Via Central Hospital to organise supply.
  - Morphine 5-10mg IM every 4-6 hours as required

2. After 2-3 days assess the total dose of Morphine required and then switch to an equivalent dose of Morphine slow release tablets available from Central Medical Store.

- To change from IM to oral, find out how much morphine they have used in 24 hours, then half this number. This is the number of mg to give orally to the patient every 12 hours.
  - e.g. patient was given 100mg of morphine x 5 during last 24 hours multiply this x 3 and divide by 2 = 75 mg. The oral dose to commence will be 75mg per day. You cannot break the tablets and the tablets only come in 10 and 60mg. For this example you will need to give 80mg for the day so you would give 4 x 10mg tablets in the morning and repeat 12 hours later.

3. Extra doses may need to be given – this is normal when a patient has cancer, instruct family in this.
- Continue giving twice per day even if extra is given.
- Make sure family understand that this drug should not be taken by anyone else and is especially dangerous in children.
unless the patient is a child. You should request to have some ampoules of Narcan to administer should someone take the tablets (see drug table in this guide for doses).

4. As time goes by the patient will need increasing doses as they get used to the morphine. The medical officer who ordered the pain relief should write instructions on how to increase the dose but never withhold morphine if the cancer patient has pain. It does not matter if you think they are addicted, they need looking after.

5. As morphine is a drug of addiction you should keep records of administration and when and how much you gave to the family to administer. Have the family member sign that they received the tablets. Keep notes on the pain and when you increase the dose or give extra doses.

Points to remember:
1. Do not withhold strong pain relief medication for short-term pain relief. Short-term use does not pose a significant risk of addiction.
2. If the pain is expected to continue, give regular pain relief. Do not wait for the pain to return or do not wait for the patient to ask. Anticipate pain relief need.
3. If the patient requires transfer, always give pain relief prior to transfer.
4. Patients who do not have diagnosed cancer who continually ask for morphine or pethidine should be referred to a medical officer.
5. If you abuse the administration of morphine and pethidine disciplinary charges can be brought against you and also criminal charges.
isoning can be accidental or not (self-inflicted). All patients showing signs of poisoning or who have known to have been posed or ingested poisons with delayed actions will need careful monitoring. If admission to hospital is possible, this is advisable.

As quickly as possible you will need to find out:

What? How much? When?

If the patient is unconscious, drowsy or convulsing (having fits) you must first:

**ABC Resuscitation**

Manage convulsions - see Convulsions section in this guide.

Do not induce vomiting

Refer to hospital as quickly as possible.

If the patient is fully awake and ate or drank the poisonous substance:

Complete a through history and perform an examination

Check quickly the pulse, respiratory rate, blood pressure and listen for wheezes.

If possible check the temperature

Immediate Supportive Treatment and Management:

<table>
<thead>
<tr>
<th>Inhale and Exspirations</th>
<th>Secure an Airway. If obstructed clear and insert airway if necessary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>If unconscious, lay the patient semi prone, or head down</td>
</tr>
<tr>
<td></td>
<td>Assist ventilation if needed</td>
</tr>
<tr>
<td></td>
<td>Give supplemental oxygen (especially for irritant gas or carbon monoxide exposure)</td>
</tr>
<tr>
<td>Pulse</td>
<td>If no pulse, begin CPR</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>Assure adequate circulation and hydration.</td>
</tr>
<tr>
<td></td>
<td>IV fluids per age and weight</td>
</tr>
<tr>
<td></td>
<td>If transferring patient, keep the head down</td>
</tr>
<tr>
<td>Body Temperature</td>
<td>Conserve body heat, especially in the young and elderly, as well as those malnourished</td>
</tr>
<tr>
<td>Convulsions or Fits</td>
<td>Diazepam stat.</td>
</tr>
<tr>
<td></td>
<td>May need Diazepam IV if persistent</td>
</tr>
<tr>
<td>Gastrointestinal Tract</td>
<td>Give activated charcoal – 1g/kg mixed in a half of cup of water</td>
</tr>
<tr>
<td></td>
<td>DO NOT INDUCE VOMITING If they have ingested burning/corrosive substances, detergents, petrol, diesel or kerosene.</td>
</tr>
<tr>
<td></td>
<td>In these cases use milk and water to dilute the poison.</td>
</tr>
</tbody>
</table>

The most dangerous drugs in Vanuatu which people overdose with are paracetamol, (panadol) chloroquine and quinine. All poisoned patients should be observed and monitored for at least 24 hours and receive counselling prior to discharge.

<table>
<thead>
<tr>
<th>Substance and Effects</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paracetamol / Acetaminophen</strong></td>
<td>• Acute symptoms may include nausea and vomiting.</td>
</tr>
<tr>
<td></td>
<td>• Severe side effects include liver damage, organ failure and death.</td>
</tr>
<tr>
<td></td>
<td>• ALL overdoses should be given activated charcoal, 1g/kg of bodyweight unless the time lapsed between ingestion and presentation is greater than 8 hours</td>
</tr>
<tr>
<td></td>
<td>• Give Methionine 50mg/kg (maximum 2.5g/dose) by mouth every 4 hours for 4 doses for overdoses of more than 9 grams in adults but do not give to children – contact paediatrician</td>
</tr>
<tr>
<td><strong>Chloroquine or Quinine</strong></td>
<td>• Acute symptoms include nausea, vomiting, dizziness, blurred vision and drowsiness.</td>
</tr>
<tr>
<td></td>
<td>• Serious effects are hypotension, irregular pulse, convulsions and cardiac arrest</td>
</tr>
<tr>
<td></td>
<td>• ALL overdoses should be given activated charcoal, 1g/kg of bodyweight unless the time lapsed between ingestion and presentation is greater than 8 hours</td>
</tr>
<tr>
<td></td>
<td>• Use cardiac monitor and treat any arrhythmias that may occur</td>
</tr>
<tr>
<td></td>
<td>• Support with Oxygen and IVF as needed</td>
</tr>
<tr>
<td></td>
<td>• Convulsions should be treated with Diazepam as per guidelines</td>
</tr>
</tbody>
</table>

100
| Kerosene, Petrol, Diesel | DO NOT GIVE OXYGEN  
|                        | DO NOT INDUCE VOMITING  
|                        | Give milk and / or water  
|                        | Symptomatic care  
|                        | Refer immediately if drowsy, short of breath, losing consciousness  

| Insecticides / Organophosphates | Urgently remove all contaminated clothing and wash the skin.  
|                                | Wear gloves and a facemask to protect self from contamination  
|                                | Give IV of IM Atropine 1mg every 5-10 minutes until the amount of secretions (eg. from lungs and mouth) are normal  
|                                | Refer all symptomatic patients  

| Acids and Bleaches | DO NOT INDUCE VOMITING  
|                   | Give plenty of fluids, water or milk  
|                   | Look for and treat burns of mouth or throat  
|                   | Watch for shortness of breath  

Remember PREVENTION: Teach families to keep kerosene, drugs, and other harmful things out of reach of children.
SKIN DISEASES AND WOUND CARE

Boils, abscess, cellulitis
1. If pus present (soft and fluctuant):
   ➢ Incise and drain
   ➢ Antibiotics NOT usually needed unless – large area and or swollen lymph nodes and or febrile
2. If no pus present (hot, hard, and swollen):
   ➢ Give Cloxicillin 500mg QID for adults for 5 days.
   ➢ Give Paracetamol or Ibuprofen or Indomethacin for pain.
3. If pus forms:
   ➢ Incise and drain.

Osteomyelitis
1. Think of bone infection (osteomyelitis) if:
   a) Child with hot, swollen limb.
   b) Pain if the bone is pressed.
   c) No improvement after antibiotics.
   ➢ Refer
      ➢ If unsure as patients require long term specialised antibiotics to prevent bone loss – consult surgeons

Impetigo
1. Many crusted sores mainly on the face.
   ➢ Remove crusted and clean with warm, salted water or antiseptic (eg Medol).
   ➢ Apply Chlorhexidine Cream
2. If fever, many sores, swollen lymph glands.
   ➢ Give Cloxicillin 500mg QID for adults for 5 days.

Sores and Ulcers
1. All sores when they present:
   ➢ Clean the whole limb with soap and water.
   ➢ Clean sore with salted water or antiseptic (eg Medol, Savlon or Betadine).
2. If swollen, red, or infected:
   ➢ Apply antiseptic dressings - Chlorhexidine cream or similar daily, until clean and pink.
3. If clean and not infected:
   ➢ Apply dry dressings daily – Chlorhexidine cream or similar can be applied to stop dressings sticking otherwise soak off with salted water.
4. If many infected sores or large sores:
   ➢ Give Procaine penicillin IM daily for 3 to 5 days or Penicillin V oral QID for 5 days.
5. If no improvement after Penicillin and dressings:
   ➢ Give Cloxicillin 500mg QID for adults for 5 days.
   ➢ Continue to clean and dress daily.
6. Sores bigger than a 20-vatu coin:
   ➢ May need skin grafting when clean.

Always think about:
Diabetes.
Chronic osteomyelitis.
Yaws.
TB
Leprosy.

Scabies
1. Treat all the family if possible.
   ➢ Ivermectin tablets are very effective but do not replace good hygiene.
2. If ivermectin available then use it.
3. Ivermectin doses – use single dose
<table>
<thead>
<tr>
<th>AGE</th>
<th>0-3 mths</th>
<th>4-11 mths</th>
<th>1-3 years</th>
<th>4-6 years</th>
<th>7-10 years</th>
<th>11-16 years</th>
<th>Small Adult</th>
<th>Large Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivermectin 3mg tablet</td>
<td>-</td>
<td>0.5</td>
<td>0.5</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

5. Wash all clothes and bed sheets. Can put clothes inside a plastic bag, close bag and leave in the sun all day.
6. If no ivermectin - use Benzyl Benzocate or permethrin 5% cream
   - Wash the body with soap and water.
   - When dry, apply Benzyl Benzocate or Permethrin cream.
   - Apply to all the body except the head and face – it irritates eyes.
   - Try to do this in the dispensary to demonstrate.
   - Wash the body again after 1 day, and repeat treatment 1 week later.
7. If the scabies are infected:
   - Give Procaine penicillin IM daily or Erythromycin orally QID for 5 days.
   - Educate the family about scabies.

Ringworm (tinea)
1. Make sure the patch is not loproxy - check skin sensation.
2. Wash with soap and water daily.
3. Apply Miconazole or clotrimazole cream BD for 2 weeks.
   - Or gentian violet daily.
1. Explain treatment may take 2 weeks for tinea and good household and personal hygiene needs to be practiced.
2. Make sure animals such as cats are not the cause.
3. If so the cats need to be treated with Whitefield’s.
   - Do NOT give Griseofulvin except after discussing with Medical Officer - this drug can cause liver problems – especially if continually used and regular kava is taken.

Tinea versicolor (Whitespot)
Only needs to be treated if patient requests.
1. Wash regularly with soap and water.
2. Apply Selsun Shampoo (patient will need to purchase this) to dry skin in the evening after washing and let it dry and do not wash off - they will need to do this for a few weeks before change is noticed.
3. Do NOT use Griseofulvin as it does not work in treating whitespot.

Wound care
1. Damage to the skin, soft tissues and deeper structures must be carefully assessed to prevent infection, fluid loss and or further injury.
2. The following skin care principles should be followed:
   a) If you decide to refer a patient clean their wounds, give tetanus toxoid (if required) and consider commencing antibiotics, especially if there is a delay in transfer.
   b) If you think the patient will need urgent surgery make sure they stop eating and drinking and insert an IV.
   c) Wear gloves and use sterile technique whenever possible.
   d) Don't forget pain relief.
   - Offer the patient Paracetamol or a stronger analgesia before exploring and treating the wound.
   - Deep, dirty and/or necrotic wounds that will require extensive cleansing may require local anaesthetic.
   - Lignocaine 1% at a maximum dose of 3mg/kg may be used.
   - At times a general anaesthesia may be needed to scrub wounds to remove road dirt etc.
   e) Carefully assess the wound:
      i. Where is the location?
      ii. How deep is it?
      iii. Are other structures (tendons, bones) affected?
      iv. Does it have a good blood supply?
      v. What is the wound’s colour and is pus or necrotic tissue present?
   - Check the Tetanus immunisation status and give accordingly.
   - If there is an object sticking deeply into the body DO NOT REMOVE. Refer to hospital.
   - Clean the entire limb or area affected with soap and water.
Then thoroughly clean the wound with either salted water, normal saline or antiseptic solution.

f) If the wound is clean and less than 12 hours old
   ⇒ Cut away dead or damaged skin, and close the wound with sutures or tape.

If the wound is clean, but greater than 12 hours old
   ⇒ Cut away dead or damaged skin, do not suture or tape, cover the wound with antibiotic cream, sterile gauze and pressure dressing.
   ⇒ Give Procaine Penicillin for 5 days, and follow up at that time to reassess.

h) All dirty wounds – are treated the same as clean ones less than and more than 12 hours as above
   ⇒ All patients with dirty wounds will require Procaine Penicillin for 5 days, and follow up at that time to reassess.

i) Spear wounds, stabings, bites (animal, fish or human), tooth damaged knuckles or any type of skin ulcer
   ⇒ Do not suture
   ⇒ All Bite wounds should receive Amoxicillin for 5 days.
   ⇒ Patients not responding to Penicillin or those with allergies may be treated with Chloramphenicol

If you refer a patient with a stab wound try and send the knife with the patient for the surgeon’s information.
SEXUAL ABUSE AND DOMESTIC VIOLENCE

Sexual abuse and domestic violence are sensitive and private issues. They are against the law as well as against basic Human Rights. Usually women are the victims of these acts of violence. They are usually perpetrated by men that they know, their family or friends. Men can also be victims and the same sensitivities and respect are due to them.

When you assess and examine patients the health care provider must be knowledgeable, non-judgemental, tactful and extremely sensitive to the needs of the survivor. Because these are acts that are against the law and have the potential to go to court a medical officer should be immediately notified to examine the patient whenever possible. If this is not possible it is important that the steps of care are carefully followed to ensure objectivity and the highest possible quality of care for the patient as possible.

It is also of vital importance that the victim be referred to agencies skilled at and committed to these issues. Be aware of who you can call to assist the patient and her family. These include National Women’s Groups such as Vanuatu Centre for Women, NGOs such as Family Health Association, church groups and pastors as well as Chiefs. There is a special unit at the Port Vila Police Station who can help and also the Public Solicitor. There is a community legal service at the University of the South Pacific Law School in Port Vila.

What to do:
1. Make sure the patient feels safe and comfortable. Try to create an environment of trust. Assure privacy and confidentiality. If the victim is a woman ask if she would like to see a female health provider and if she would like this, try to get a female to examine her. If she feels safer having someone she knows with her before she is examined try to get them or have another female staff member present.
2. Make sure the patient feels in control and makes decisions as to what she wants to happen to her. Inform her (or him) of what you are doing and why you are doing it.
3. Ask direct questions, remain objective and do not make judgements: Ask her / him to describe:
   a) What happened
   b) When it happened
   c) Where?
   d) What has she done since the event?
   e) Douche, shower, change clothes?
   f) Talked to or visited others?
4. If this is a sexual assault, you must also
   a) Find out her risk for pregnancy and illness.
   b) When was her last menstrual period
   c) Does she use birth control, allergies, medical history, past history of sexual assault.
5. Carefully perform an examination.
   a) Look and examine carefully.
   b) Document bruises, lacerations, signs of trauma.
   c) If this is a sexual assault you must perform a speculum examination.
   d) Swab for cultures.
   e) Take blood (serum) for storage for possible Syphilis and HIV baseline if required at a later date.
   f) Finally perform a bimanual exam.
6. You must document very carefully.
   a) Use the patient’s own words when possible.
   b) Describe what is said, do not make a judgement.
   c) For example, if the patient says someone attacked her, and sexually assaulted her against her will, say that, do not say, the patient was "raped".
7. Ask her if she would like the police notified or would she like to report the incident.

What to do next:
1. Treat all wounds and/or injuries according to treatment guidelines
2. Pregnancy Prophylaxis – see Emergency Contraception section in this guide
3. Give sexually Transmitted Infection Prophylaxis
   a) Ceftriaxone 250mg IM
   b) plus Metronidazole 2g (with food) stat (metronidazole can be given later if patient does not want to take all these
tablets at once)

- plus Azithromycin 1g stat.
- plus Hepatitis B vaccine 20mcg IM

4. Offer emotional Support and Reassurance

5. Consider hospitalisation or whatever after-treatment care necessary that assures the patient's safety.

6. Give the patient the names, phone numbers or addresses where she can get ongoing care.

7. Make a follow up appointment to check on the patient after you discharge her or he.

8. Encourage the patient to visit whenever she is upset or worried

9. Follow up tests.
   a) If there is a risk of pregnancy, a repeat pregnancy test is required. This should take place 1 month after emergency contraception pills.
   b) At 3 months she will need a repeat syphilis serology and HIV test.
SEXUALLY TRANSMITTED INFECTIONS (STI)

This is private. Be respectful, maintain confidentiality, and do no pass your own judgement. Stick to the facts.

Syndromic Approach
1. Vanuatu uses the Syndromic Approach to STI Management.
2. This approach is more effective than trying to guess what the patient has.
3. You should report the syndromes you treat in the monthly HIS report.
4. The 4 recognised syndromes are:
   a) Male Urethral Discharge
   b) Vaginal Discharge
   c) Female Abdominal Pain
   d) Genital Sores.
   *All health facilities should have flow charts for easy diagnosis and treatment.

Taking a sexual history and talking about safe sex:
1. Be sure you know what both of you are saying and that you understand each other.
2. Don’t be embarrassed.
3. Don’t assume you know anything about the patient’s knowledge or sexual behaviour
4. “Straight-talk”. Avoid talking around the subject. For example talk about having sex, not just sleeping together.
5. Use the language that the patient is comfortable with and will understand.
6. Make sure you ask about all sexual risk factors: age of the patient, number of sex partners, new partners in the past 3 months.

Examine All Patients:
1. If you don’t look you won’t see.
2. You might miss something.
3. Explain to the patient what and why you are examining – use pictures or models
4. Take this opportunity to do full well women’s check – you may need to reschedule PAP Smear when infection cleared – it is best to wait three months for cells to recover and begin to shed off normally.

All Patients must receive:
1. Education on behaviour change
2. Be provided with and taught how to use condoms
3. Have a plan with the patient for how the partner(s) will be managed

Follow up Plans:
All patients should return if they have not improved in 3 days and/or if they become worse.

Partner Management:
1. It is vital that all partners of patients with STIs be treated for the same infection.
2. Work closely with the patient to find the best way to assure the partner receives treatment.

Treatments:
1. Due to the changing availability of drugs in Vanuatu and the possibility of gonorrhoea becoming resistant to Penicillin, the treatments listed here may change.
2. If you are unsure of the most current therapy make sure you check with a supervisor.
3. You must treat the following syndromes even if you do take swabs – do not wait for the results – the person can get sick and can also infect people.
4. When you get result back you should check it to make sure your treatment was correct e.g. a man with urethral discharge may need to be followed up to give benzathine Penicillin if their syphilis serology is RPR >1:1
5. When you have decided on what syndrome the patient has, go to drug chart and treat with a drug from each disease as indicated for that syndrome.
6. Prior to discharge Educate, Partner Management, Condom Use and Follow up as appropriate.
7. Record you have treated this syndrome on your monthly statistics.

**Male Urethral Discharge Syndrome / Epididymitis (gonorrhea and chlamydia)**

1. Patient complains of urethral discharge
2. Take a history / risk assessment and perform an examination
3. If you are near or in a hospital:
   a. Obtain a blood test for syphilis and HIV (pre-test counselling should be given).
   b. Obtain a urethral swab for culture
4. If the discharge is seen, TREAT immediately (do not wait for test results for:
   
   ▶ **GONORRHOEA & CHLAMYDIA** – choose one drug for each disease.

5. If the patient has sores you must also give treatment for
   
   ▶ **SYPHILIS** and send off blood for RPR if you are able.

**Genital Ulcer Syndrome (HSV (herpes simplex virus) / early syphilis/ chancroid)**

1. Patient complains of genital ulcer/s or sores
2. History/Risk Assessment and Examination
3. Obtain a blood test for syphilis and HIV (pre-test counselling should be given).
4. If the ulcers are shallow and very painful, it is likely to be HSV and antibiotics will be ineffective but you cannot tell this so you should also treat for syphilis and chancroid (Haemophilus ducreyi).
5. If an ulcer is present TREAT immediately (do not wait for test results for:

   ▶ **SYPHILIS & CHANCROID** – choose one drug for each disease and send off blood for RPR if you are able.

**Vaginal Discharge Syndrome (gonorrhoea, chlamydia, trichomones, bacterial vaginois and candida can cause this)**

1. Patient complains of vaginal discharge
2. History/Risk Assessment and Examination
3. Obtain a blood test for syphilis and HIV (pre-test counselling should be given).
4. If you are in a hospital obtain a cervical swab for culture
5. If the patient also has significant lower abdominal pain refer to Female Lower Abdominal Pain Syndrome.
6. If vaginal discharge only TREAT immediately (do not wait for test results for:

   ▶ **GONORRHOEA & CHLAMYDIA & TRICHOMONA & CANDIDA** – choose one drug for each disease.

7. If the patient has sores also treat for:

   ▶ **SYPHILIS** and send off blood for RPR if you are able.

**Female Lower Abdominal Pain (Formally PID) (gonorrhoea, chlamydia, bacteroides \ Enterobacteriaceae, streptococci)**

1. Woman complains of lower abdominal pain, has temperature, + or – vaginal discharge and pain during examination.
2. History/Risk Assessment and Examination
3. Obtain a blood test for syphilis and HIV (pre-test counselling should be given) and a cervical swab for culture if able.
4. If the patient has ANY of the following: pregnant, BP falls when stands up (?rectopic pregnancy), pain only on right side (?appendicitis).

   ▶ Refer immediately to the hospital after starting treatment for what you think may be wrong.

5. If you think that woman has Abdominal Pain Syndrome TREAT immediately (do not wait for test results for:

   ▶ **GONORRHOEA & CHLAMYDIA & ANAEROBIC BACTERIA**

6. If no improvement in 3 days:

   ▶ Refer to the hospital.

7. If the patient has sores treat also for:

   ▶ **SYPHILIS** and send off blood for RPR if you are able.

**Syphilis Tests**

1. If the syphilis test comes back positive (RPR is more than 1:1 eg 1:4) do the following:

   ▶ Benzathine Penicillin G 1.2 million units in 3mL IM into each buttock stat (total dose is 2.4 MIU) and ensure contacts are also tested and treated.

   ▶ Notify to Directorate of Public Health or through your Provincial Health Manager.

2. Repeat RPR blood test every 3 months for the first year.
3. If the RPR becomes smaller (eg 1:4 goes down to 1:2) the treatment has worked.
4. If the RPR becomes smaller but by less than 2 titres (eg 1:4 goes down to 1:3)

   ▶ Benzathine Penicillin should be repeated and both old and any new contacts should be found and re-treated.
5. If the RPR on the next test still hasn't come down by at least 2 litres
   ➤ Contact a medical officer for advice.
6. If the numbers go up (eg 1:4 goes up to 1:8), patient may be re-infected:
   ➤ Benzathine Penicillin should be repeated and both old and any new contacts should be found and re-treated.
   ➤ Syphilis serology can also be positive due to yaws (further info on yaws can be found under yaws section in the manual).
   ➤ Syphilis is a notifiable disease and a form should be sent to Directorate of Public Health, George Pompidou,
     ATTENTION: STI officer or Director

Babies born to mothers with positive syphilis serology:
   ➤ The earlier the mother presents for antenatal visits and RPR of >1.1 is treated the less likely the baby will have syphilis.
   ➤ If you think that mother may have syphilis close to when the baby is born but has not received treatment then:
   1. Treat mother as above for SYPHILIS & CHLAMYDIA / CHANCROID.
   2. Refer mother and baby to a hospital for testing and assessment
   3. Commence baby on treatment for SYPHILIS & CHLAMYDIA.

STI DRUGS – choose one for each disease – the first drug listed is preferred

<table>
<thead>
<tr>
<th>DISEASE</th>
<th>DRUG</th>
<th>DOSE</th>
<th>PREGNANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonorrhoea</td>
<td>Ciprofloxacin</td>
<td>➤ 500mg stat for discharge ➤ 500mg BD for 7 days if Female Lower Abdo Pain</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probenecid plus</td>
<td>➤ 1g oral stat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Amoxicillin</td>
<td>➤ 3g oral stat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probenecid plus</td>
<td>➤ 1g oral stat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Procaine Penicillin</td>
<td>➤ 4.6 megunits IM stat</td>
<td></td>
</tr>
<tr>
<td>Chlamydia</td>
<td>Azithromycin</td>
<td>➤ 1g stat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doxycycline</td>
<td>➤ 100mg BD (with food) for 7 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erythromycin</td>
<td>➤ 500mg QID (before food) for 7 days (adults) ➤ ¼ tablet QID (infants)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tetracycline</td>
<td>➤ Eye ointment QID (infants) for 14 days</td>
<td></td>
</tr>
<tr>
<td>Syphilis</td>
<td>Benzathine Penicillin G</td>
<td>➤ 2.4 million units IM stat (adult) ➤ 1ml IM stat (infant)</td>
<td></td>
</tr>
<tr>
<td>Chancroid</td>
<td>Azithromycin</td>
<td>➤ 1g stat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erythromycin</td>
<td>➤ 500mg QID (before food) for 7 days</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bactrim</td>
<td>➤ 2 tablets BD for 7 days</td>
<td></td>
</tr>
<tr>
<td>Trichomonas</td>
<td>Metronidazole</td>
<td>➤ 2g stat (with food) ➤ 400mg BD for 14 days if Female Lower Abdo Pain</td>
<td>Delay to second trimester for trichomonas</td>
</tr>
<tr>
<td>Candida</td>
<td>Clotrimazole</td>
<td>➤ 500mg pressary into vagina at bedtime once</td>
<td></td>
</tr>
</tbody>
</table>
STINGS AND BITES

1. Centipedes (in Bislama - "Milbud");
   Cause extremely painful bites, often associated with marked swelling.
   ➢ If ice is available, it helps to alleviate acute symptoms.
   ➢ Local injection with 1% lignocaine can provide some short-term relief.
   ➢ Use anti-inflammatory drugs (indocid / indomethacin) regularly until symptoms settle.

2. Hornets/Bees:
   The sting is initially very painful.
   ➢ If ice is available, it helps to alleviate acute symptoms.
   ➢ Anti-histamines (e.g. Phenergan, chlorpheniramine) may be helpful to control the swelling and itchiness if local reaction persists.
   ➢ Some patients are allergic to bee-stings and develop rapid onset shock/anaphylaxis immediately after a sting.
   ➢ If anaphylaxis occurs, treatment (subcutaneous adrenaline) should be administered immediately and the patient should be advised to carry an epi-pen (available at private pharmacies 0.1% adrenaline: 0.3mg for adults, 0.15 mg for children) at all times.

3. Snakebites:
   Fortunately, in Vanuatu there are no venomous snakes and therefore no antivenom is required.
   ➢ The bite should be thoroughly cleaned and if it becomes infected, broad spectrum antibiotic such as Chloramphenical should be given.

4. Cone shells/stone fish:
   ➢ The sting from these shells/fish is agonizingly painful and can cause hypotension, arrhythmias, respiratory distress and neurological signs.
   ➢ Initial treatment is to place the affected area into water as hot as the patient can tolerate (not so hot that you cause a burn!) as the toxin is inactivated by heat.
   ➢ Subsequent treatment is supportive – adrenaline for hypotension, atropine for bradycardia.
   ➢ If the patient is having trouble breathing, they may need short term ventilation and therefore require transfer to a hospital.

5. Jellyfish stings:
   ➢ These can be extremely painful and some jellyfish stings cause rapid onset of cyanosis, convulsions and death.
   ➢ Immediate treatment is vinegar or baking soda mixed with water onto the affected area.
   ➢ Instigate CPR if patient stops breathing.
   ➢ Large doses of narcotic analgesics may be required.
STROKE

A Stroke is the result of an area of the brain dying due to lack of blood supply. This can occur when a clot blocks off one of the vessels in the brain, or alternatively, one of the small blood vessels may burst. A transient ischaemic attack (TIA) initially looks like a stroke but people recover in a few hours because the blockage clears and blood supply gets through to the brain again. A patient who has had a TIA is at high risk of having another more serious stroke.

1. Types of presentations:
   a) Strokes are sudden; if deterioration is gradual, think about other causes, e.g. head injury, malaria, TB, meningitis, tumor
   b) Usually there is weakness on one side of the body and they may have difficulty speaking normally
   c) In severe strokes the patient may be unconscious
   d) Patient is usually more than 45 years of age – if they are young always think about the possibility of underlying rheumatic heart disease / endocarditis which can be associated with a clot breaking free from the abnormal heart and blocking a small blood vessel in the brain.
   e) If the patient describes a sudden, terrible pain and subsequently has neck stiffness the blood vessel may have burst into the CSF. This is called a subarachnoid hemorrhage (SAH). It can be confirmed by finding blood in the CSF on lumbar puncture. The treatment of SAH is the same as for stroke.

2. What to do:
   If the patient is unconscious you will need to:
   a) nurse them in coma position with a clear airway
   b) give oxygen if available 4L/min.
   c) IV or NG fluids to maintain hydration ~2L/day.
   d) Insert a urinary catheter

3. What to do next:
   There is not a lot that can be gained from sending a person who has had a stroke to hospital. Make sure the family understands that there is no medical treatment that changes the outcome for stroke patients.
   ➢ If the patient survives, the family need to learn how to care for them - you can contact the hospital or Disability Council to get walking sticks or a wheelchair. People can gradually improve over a number of months.
   ➢ Aspirin 75mg (¼ tablet) daily for the rest of their lives helps prevent further strokes.
   ➢ People who have a stroke often have been hypertensive and/or overweight.
   ➢ Preventing strokes is one of the main reasons for treating hypertension.
TUBERCULOSIS (TB)
☞ See TB Manual - 2003

TB is caused by the bacteria Mycobacterium tuberculosis. It is usually spread by an infected person coughing up the bacteria. People close to the infected person, usually close contacts, breathe in the bacteria and become infected. The disease is most commonly seen as Pulmonary disease, but it can also involve the lymph nodes, genitourinary tract, cause meningitis, osteomyelitis, peritonitis or pericarditis. It can also cause systemic disease known as miliary TB.

Vanuatu has adopted the Directly Observed Therapy (DOTS) Strategy for controlling TB. In practise this means patients have the first 2 months of treatment as an inpatient. This improves compliance, avoiding the emergence of resistant TB that has become a big problem in countries where patients fail to complete treatment courses. All health facilities and providers should be familiar with the forms and follow the guidelines. If you are unsure or have questions you should contact your Provincial TB Officer.

More information can be found in the Vanuatu DOTs Guidelines available from March 2003.

1. Always think of TB in any person with:
   a) a cough for more than 3 weeks
   b) bloody sputum (haemoptysis).
   c) weight loss.
   d) fever or night sweats.
   e) enlarged lymph glands.
   f) family history (contact) of TB.
   g) children with poor growth or underweight

2. Diagnosis:
   a) TB is confirmed when the bacteria is seen in the sputum or tissue stained with a specific stain to pick up acid fast bacilli (AFB).
   b) The sputum examination for AFB is the most important test for TB.
      i. Get patients to cough up specimens in a well ventilated place, preferably outside.
      ii. Collect 3 early morning sputum specimens and send them to the nearest DOTS centre along with 3 request forms.
   c) Examination of the chest is usually normal
      i. CXR are also very helpful, especially in patients with negative sputum smears.
      ii. In patients being treated with antibiotics for upper or lower respiratory infections who do not improve despite antibiotics be sure and check a sputum for AFB and CXR to exclude TB.
   d) A Mantoux test may aid the diagnosis of active tuberculosis. However a negative Mantoux does not exclude clinical disease.
      i. Up to 10% of patients with active TB will be Mantoux negative.
      ii. In Vanuatu, Mantoux testing is only conducted on children.
   e) In Children, the Paediatric TB Score Chart is used to aid in early diagnosis. Children are usually smear negative.
   f) Not all AFBs are TB. The organisms that cause Leprosy look identical, and there are also many "atypical" mycobacteria that can only be distinguished from TB by culture.
## Paediatric tuberculosis score chart

Score the following features, and add up the numbers.

### Length of illness:

<table>
<thead>
<tr>
<th>How long has the child been sick with this particular symptom (cough, swollen neck, sputum, diarrhoea).</th>
<th>Less than 2 weeks</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 to 4 weeks</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>More than 4 weeks</td>
<td>2</td>
</tr>
</tbody>
</table>

### Previous episodes should not be counted

### Nutritional Status:

<table>
<thead>
<tr>
<th>Look at weight for age.</th>
<th>More than 80% (above red line)</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look at the weight pattern over time.</td>
<td>Between 60-80% line (below red but above black)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Under 60% line (black)</td>
<td>2</td>
</tr>
</tbody>
</table>

### Family History of TB:

<table>
<thead>
<tr>
<th>Ask the child’s parents about household contacts.</th>
<th>None</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>if there is a convincing story of a thin relative coughing up blood</td>
<td>Verbal Family History</td>
<td>1</td>
</tr>
<tr>
<td>score 1.</td>
<td>Sputum positive</td>
<td>3</td>
</tr>
</tbody>
</table>

### Positive PPD Mantoux:

<table>
<thead>
<tr>
<th>More than 15 mm if the child had one or more BCGs.</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>if there is no BCG scar, then positive is 5mm or more</td>
<td>3</td>
</tr>
</tbody>
</table>

### Enlarged, painless, rubbery neck glands:

<table>
<thead>
<tr>
<th>Feel the child’s neck from behind.</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>TB glands commonly stick together and don’t move easily.</td>
<td>3</td>
</tr>
</tbody>
</table>

### Night sweats or unexplained fever:

| Recurrent, especially at night, which does not respond to antimalarial or antibiotic treatment. | 2 |

### Angle deformity of spine:

<table>
<thead>
<tr>
<th>Look at and feel the spine with your hand.</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sharp angle bend in the backbone is often caused by TB</td>
<td>4</td>
</tr>
</tbody>
</table>

### Malnutrition no better after 1 month treatment:

<table>
<thead>
<tr>
<th>Treat the malnourished child with appropriate diet and medicines (see page 88).</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>if there is no weight gain after 1 month or weight loss over 2 weeks score 3.</td>
<td>3</td>
</tr>
</tbody>
</table>

### Firm, non-traumatic swelling of joint:

<table>
<thead>
<tr>
<th>TB arthritis is not acutely painful.</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>if pain is present, consider septic arthritis.</td>
<td>3</td>
</tr>
</tbody>
</table>

### Unexplained abdominal swelling (Ascites):

<table>
<thead>
<tr>
<th>Exclude large spleen or liver as the cause of the swelling.</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>If the abdomen is filled with fluid (ascites) or feels doughy or masses are palpable then score 3.</td>
<td>3</td>
</tr>
</tbody>
</table>

### Coma for longer than 48 hours:

| TB meningitis or abscesses can alter the level of consciousness with or without convulsions. Other neurological signs may be present: blindness; hemiplegia. They usually develop slowly. DO NOT DO an LP, but rather treat for bacterial meningitis and cerebral malaria and REFER URGENTLY. | 3 |

### Total Score:
TOTAL score is 7 OR MORE AND no other disease has been found or is more likely to the explain illness, then refer urgently.

1. Referral:
   i) If the patient is not very sick you can send sputum samples for tests and await results.
   ii) If however you strongly suspect the patient is infected, or the patient is sick, refer immediately.

1. Notification and Registration:
   i) All suspected cases should be referred to the nearest DOTS Centre for diagnosis.
   ii) Confirmed cases will be registered in their TB registry book.
   iii) Quarterly reports will be submitted to the National TB Office and one will be kept at the Provincial level.

1. Treatment:
   i) The recommended protocol in Vanuatu is the "short course" 6 month regime.
   ii) Standard 6 month therapy is adequate for most cases of pleural, bone and urinary tract TB.
   iii) This consists of an initial intensive bactericidal 2 month period with 4 drugs aimed at achieving a rapid reduction in numbers of viable organisms.
   iv) This is followed by a 4 month period of 2 drug therapy with isoniazid and rifampicin to eliminate the remaining organisms and prevent relapse.
   v) 12 month treatment is needed for TB meningitis.
      i. Pyrazinamide and isoniazid cross the blood brain barrier well and should be used for the full duration of therapy.
      ii. Corticosteroids are recommended (prednisolone 1 - 2 mg/kg for per day for 4 - 6 weeks then slowly reduced.

3. The aims of anti-tuberculosis therapy are:
   i) To achieve bacteriological conversion of sputum to negative as quickly as possible.
   ii) To assure a complete cure without relapse.
   iii) To prevent the emergence of drug resistance.
   iv) To minimise the side effects of therapy.

**FOR SPECIFICS OF THERAPY REFER TO VANUATU DOTS GUIDELINES**

7. Drug side effects and Interactions:
   a) Rifampicin – Dose 10mg /kg to maximum of 600mg per day
      i) Reddish discolouration of urine and tears.
      ii) Gastrointestinal intolerance, nausea and vomiting.
      iii) Hepatotoxicity, more common in older patients and with alcohol consumption.
      iv) Flu like syndrome with myalgia, arthralgia, fever, malaise and headache
      v) Skin reactions.
      vi) Renal failure.
      vii) Blood dyscrasias including thrombocytopenia.
      viii) Interaction with the following drugs: oral contraceptives (see special clinical situations below), corticosteroids, anticoagulants, hypoglycaemic drugs, theophylline, antiarrhythmics, anticonvulsants, anti-fungals and dapsone.
   b) Isoniazid – Dose 5mg / kg to maximum of 300mg per day
      i) Gastrointestinal intolerance including nausea, vomiting, epigastric pain and constipation.
      ii) Minor elevation in liver enzymes is common (seen in up to one third of patients).
      iii) Hepatotoxicity, more common in older patients and with alcohol consumption.
      iv) Peripheral neuropathy, paraesthesia of hands and feet. This is due to pyridoxine (Vitamin B6) deficiency.
         Preventive pyridoxine is prescribed for all adult patients receiving isoniazid.
      v) Hypersensitivity reactions include fever, rash, itch and lymphadenopathy. This can range from mild to serious (Stevens Johnson Syndrome).
      vi) Neurological side effects including drowsiness, insomnia, irritability, euphoria, dizziness, tremor and rarely psychosis or convulsions. Drug interactions with some anti-convulsants.
      vii) Acne
   c) Ethambutol – Dose 15mg / kg to maximum of 2 gram per day
      i. Anorexia.
      ii. Optic neuritis presenting as blurring of vision or colour blindness. Avoid use in children under 7 years of age
young to report visual side-effects.
iii. Hypersensitivity.
iv. Contraindicated in renal failure.
d) Pyrazinamide – Dose 25mg / kg to maximum of 2 gram per day
   i. Mild arthralgia
   ii. Flushing.
   iii. Hepatotoxicity (more common in older patients and with alcohol consumption).
   iv. Gout.
v. Renal impairment.
vi. Lability of blood glucose in diabetic patients.

8. Special clinical situations:
   a) Paediatrics:
      i. Ethambutol is not used in children too young to report visual side-effects eg. under 7 years of age.
      ii. Children should be weighed monthly and dosages adjusted accordingly.
   b) Women of child bearing age:
      i. OCP is NOT EFFECTIVE while patient is taking rifampicin and for 2 months after rifampicin therapy has ceased
      ii. Alternative forms of contraception include condoms, IUCD or Depo Provera.
      iii. If DepoProvera is used doses need to be given every 8 weeks, instead of every 12 weeks whilst taking rifampicin.
   c) Pregnancy and breast feeding:
      i. The TB standard treatment regime can be used in pregnancy and breast feeding.
      ii. Most anti-tuberculosis drugs pass into human milk, but not sufficient to protect the child.
      iii. The child still needs isoniazid preventative therapy.
   d) Renal failure:
      i. Ethambutol is largely eliminated by the kidneys and if possible should be avoided where there is renal impairment.
      ii. In mild to moderate renal impairment no modification to isoniazid, rifampicin, pyrazinamide dosage is required.
      iii. In severe renal failure the dosage of isoniazid and pyrazinamide should be reduced.
   e) Liver disease:
      i. Isoniazid, rifampicin and pyrazinamide are all potentially hepatotoxic.
      ii. It is common for serum transaminase levels to rise in the first weeks of therapy.
   f) HIV infection:
      i. Standard therapy is used for the first two months.
      ii. The continuation phase should be prolonged for a total of 12 months.
      iii. Drug interactions may occur with other HIV drug therapies and patients need to be managed in conjunction with an HIV specialist.

If the information you need is not contained in the Vanuatu Policy Guideline of 2003 then you must contact Specialist Physician or Paediatrician at Vila Central Hospital.
TYPHOID

Signs and Symptoms:
1. Prolonged fever (more than a week)
2. Diarrhoea is NOT common, patient may even be constipated
3. Loss of appetite
4. Abdominal swelling and tenderness
5. Mental slowness.

Treatment:
➢ Refer to hospital for evaluation.
➢ Chloramphenicol 500mg QID for 14 days
   ➢ Or Ciprofloxacin 500mg BD 10 days
   ➢ Or Ceftriaxone 2gm IV daily for 5 days

⚠️ If you suspect typhoid you must report immediately to Provincial Health Manager or Directorate of Public Health – do not wait for confirmation tests
URINARY TRACT INFECTION

Common in women, much less common in men, especially young men.
Urine symptoms in sexually active men are usually due to STIs.
UTIs in pregnant women can cause premature labour.

1. Signs and symptoms might include:
   a) Burning with urination (dysuria)
   b) Passing urine more often (frequency)
   c) Back and/or abdominal pain
   d) Haematuria
   e) Fever

2. History Taking:
   a) Make sure you ask about sexual activity and possible STIs and/or pregnancy in women
   b) Ask how much water the person is drinking
   c) Ask about kidney disease

3. Laboratory Tests:
   a) Instruct the patient to wash carefully and collect a mid-stream urine
   b) Examine for pus, blood, protein and sugar
   c) If possible obtain a C&S (culture and sensitivity)
   d) Pregnancy test if suspect pregnant
   e) STI specimens if STIs suspected

4. Treatment for UTIs:
   - Amoxycillin 3g (12 tablets) as a single dose or Amoxycillin 250mg TDS for 3 days
   - Or
   - Cotrimoxazole 2 tabs BD for 3 days
   - Pregnant women should take Amoxycillin 250mg TDS for 7 days.
   - Drink plenty of water.
   - If suspect STI, treat accordingly – see STI section of this manual.

5. Referral:
   - If protein and/or blood in the urine and no pus or leukocytes refer to section on kidney disease in this manual.
   - Refer recurrent cases, especially in children and/or men and pregnant women.

Urine problems in older men
1. Men with retention of urine or “dribbling” or frequency of urination:
2. Usually older men who have an enlarged prostate because in old age the gland can get bigger and put pressure on
   urethra – it can also be due to prostatic cancer which can have a good prognosis if diagnosed early by a surgeon.
3. Retention of urine = palpable bladder, often as high as umbilicus
4. If you have been taught to perform a rectal examination you will usually feel an enlarged prostate gland (normal size
   about 4cm, firm and non tender)
5. A UTI can often irritate the urinary tract leading to retention or other symptoms, therefore check for UTI

What to do:
   - Can encourage voiding by sitting in a bowl of warm water first off to avoid catheter.
   - If unable to void and palpable bladder pass a catheter and allow to empty bladder over about an hour then remove
     catheter – you will need a big soft catheter of about 18G size – never force the catheter or use a metal catheter unless
     you have the ability and means to repair a perforated prostatic bed
   - If you are unable to easily pass a catheter via the urethra you may need to consider a supra pubic tap – if you can do
     this you can leave the tube in well secured until patient referred to hospital.
   - Consider commencing the patient on antibiotics as above to treat a UTI.
   - Refer all men with retention, “dribbling” or frequency of urine to a hospital – timing will depend on whether or not
     symptoms can be relieved in the short term.
YAWS

Yaws is a contagious disease caused by an organism that belongs to the same group as syphilis (Treponema). Infection with yaws will therefore give positive results on syphilis tests (RPR). Unlike syphilis, however, it is transmitted by direct contact particularly within households and among children at school.

A survey in Sanma Province in 2001 found a prevalence of 21% (by RPR) which led to a mass treatment campaign with Benzathine Penicillin, administered to the entire population of Sanma province in 2002.

2. Think of yaws in any patient with a chronic skin or bone lesion

1. The disease:
   a) Initially causes a self-limited primary infection with papules that enlarge into wart-like lesions with superficial erosion and then heal spontaneously within 6 months.
   b) Weeks to months later a generalised eruption of similar lesions occurs. Multiple relapses of these secondary lesions may occur during the first 5 years, often associated with lymphadenopathy.
   c) Osteitis and periostitis can occur particularly in the fingers, long bone (saber tibia) or parasal maxilla.
   d) Late stage is characterized by skin plaques, nodules and ulcers, thick skin on the palms and soles and gummatous lesions involving the skull, sternum, tibia or other bones.

2. Treatment:
   a) Contacts can be tested by syphilis serology but often it is easier to just administer penicillin to all contacts e.g. the entire household:
      > Single dose of Benzathine Penicillin 1.2 million units for persons aged >10 years, 6-9 years give 600,000 units, 3-5 years give 480,000 units, 0-2 years give 240,000 units.
   b) For adults with clinical yaws:
      > Single dose of 1.2 million units Benzathine Penicillin into each buttock i.e total of 2.4 million units.
   c) If patients or contacts are allergic to penicillin:
      > Give a 2 week course of Erythromycin - 500mg QID for adults or appropriate dose by weight for children.
<table>
<thead>
<tr>
<th>Weight in Kilograms</th>
<th>&lt;5 kg</th>
<th>6-9kgs</th>
<th>10-14kgs</th>
<th>15-19kgs</th>
<th>20-29kgs</th>
<th>30-39kgs</th>
<th>40-59kgs</th>
<th>60 +</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Severe Dehydration, Burns and Shock</strong></td>
<td>10-20mL/kg</td>
<td>150</td>
<td>250</td>
<td>350</td>
<td>500</td>
<td>750</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td><strong>Wide Open Rate (mLs stat)</strong></td>
<td>stat dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Seek Advice from senior health officer</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Give specified volume stat and then re-assess.</strong></td>
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</tr>
<tr>
<td><strong>This amount can be repeated.</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Normal Saline or Hartmans Solution</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rehydration and Prevention of Shock</strong></td>
<td>50 mLs/hr</td>
<td>100</td>
<td>150</td>
<td>250</td>
<td>400</td>
<td>800</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td><strong>Rapid Rate (mLs/hour) for 4 hours and re-assess</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Normal Saline or Hartmans Solution</strong></td>
<td>25 mLs/hr</td>
<td>50</td>
<td>75</td>
<td>100</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>250</td>
</tr>
<tr>
<td><strong>Burns or while transferring a patient</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Moderate Rate (mLs/hour)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Normal Saline or Hartmans Solution</strong></td>
<td>20 mLs/hr</td>
<td>30</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td><strong>Maintenance Rate (mLs/hour)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dextrose saline</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**To make Dextrose / Saline Solution**
1. Remove 50 mLs from 1 litre of Normal Saline
2. Add 50mLs of 50% Dextrose
3. Solution = 2.5% Dextrose / Normal Saline (0.9%).
4. If you do the same with 500mL of Normal Saline the solution = 5% Dextrose / Normal Saline (0.9%).
**IV Drips by Drops per Minute**

Many health facilities do not have the medical supplies or equipment to calibrate IV fluid rates as mLs/min or hour. Because of this, it is important to be able to calibrate drops per minute. The following table will assist with that.

Remember, you need to monitor the progress of IV fluids regularly to ensure the patient gets the right amount.

**1 Litre Bag of Solution**

<table>
<thead>
<tr>
<th>Number of Hours over which you are giving the IVF</th>
<th>Number of Drops per minute</th>
<th>Number of Drops per second</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 hours</td>
<td>20 drops / min</td>
<td>1 drop / 3 sec</td>
</tr>
<tr>
<td></td>
<td>(10 drops / min for 500mL bag of solution)</td>
<td></td>
</tr>
<tr>
<td>10 hours</td>
<td>25 drops / min</td>
<td>2 drops / 5 sec</td>
</tr>
<tr>
<td>8 hours</td>
<td>30 drops / min</td>
<td>1 drop / 2 sec</td>
</tr>
<tr>
<td>6 hours</td>
<td>40 drops / min</td>
<td>2 drops / 3 sec</td>
</tr>
<tr>
<td>4 hours</td>
<td>60 drops / min</td>
<td>1 drop / 1 sec</td>
</tr>
</tbody>
</table>

**500 mL Bag of Blood**

<table>
<thead>
<tr>
<th>Number of Hours over which you are giving the blood</th>
<th>Number of Drops per minute</th>
<th>Number of Drops per second</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Hours</td>
<td>30 drops / min</td>
<td>1 drop / 2 sec</td>
</tr>
</tbody>
</table>

**250mL Packed Cells**

<table>
<thead>
<tr>
<th>Number of Hours over which you are giving the packed cells</th>
<th>Number of Drops per minute</th>
<th>Number of Drops per second</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Hours</td>
<td>15 drops / min</td>
<td>1 drop / 4 sec</td>
</tr>
</tbody>
</table>
### DRUG DOSAGE CHART

**NOTE:** IV Doses are sometimes given as mLs per kg (NOT mg / kg) to give you the number of mLs to inject.

<table>
<thead>
<tr>
<th>AGE</th>
<th>0-3 month</th>
<th>4-11 month</th>
<th>1-3 years</th>
<th>4-6 years</th>
<th>7-10 years</th>
<th>11-16 years</th>
<th>Small Adult</th>
<th>Large Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT IN KG</td>
<td>3-5kgs</td>
<td>6-8kgs</td>
<td>10-14kgs</td>
<td>15-19kgs</td>
<td>20-29kgs</td>
<td>30-39kgs</td>
<td>30-49kgs</td>
<td>50+kgs</td>
</tr>
</tbody>
</table>

**ACETAZOLAMIDE QID**
- For glaucoma
- 250mg tablets
- 5mg/kg/dose QID

|            | 0 | 0 | 1/4tabs | 0.25 | 0.5 | 0.75 | 1 | 1 |

**ACYCLOVIR EYE DROPS OR EYE OINTMENT**
- Apply 1cm of ointment or use 1 drop every 4 hours

**ADRENALINE PRN**
- 1mg in 1mL (1:1000) IM dose

|            | 0.1 | 0.15 | 0.2 | 0.3 | 0.4 | 0.5 | 1 |

**ALBENDAZOLE Daily**
- (before food)
- 400mg tablets
  - More than 6 months or 10kgs give 400mg / 1 tablet stat
  - More than 6 months but less than 10kgs give 200mg / ½ tablet stat

**#ALLOPURINOL Daily**
- 100mg tablets
  - Infants and children 10mg / kg once a day

**AMITRIPTYLINE At night**
- 25mg tablet
  - Children: 1mg / kg

**AMINOPYRIN**
- Injection 250mg / 10mL
  - IV loading dose 5mg / kg (slow IV over 20 minutes – any less can kill)
  - IV Maintenance 1mg / kg / hr (infusion)

**AMPICILLIN 6 hourly**
- 50mg / kg / dose
  - Injection 500mg vial - ADD 2mL water
  - IM / IV dose In mL
  - 1mL | 1.5 | 2.5 | 3 | 4 | 4 | 4 | 4 |

**AMOXICILLIN TDS**
- 250mg tablets
  - 1/2tab | 1 | 1 | 1 | 1 | 1 | 1 |

**ANTACID QGH - QID**
- Tablets
  - 1 | 2 | 2 |

**ANTI HAEMORRHOID BD**
- Cream
  - Apply cream using nozzle internally and externally
<table>
<thead>
<tr>
<th>AGE</th>
<th>0-3 month</th>
<th>4-11 months</th>
<th>1-3 years</th>
<th>4-6 years</th>
<th>7-10 years</th>
<th>11-16 years</th>
<th>Small Adult</th>
<th>Large Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT IN KG</td>
<td>3-5kgs</td>
<td>6-9kgs</td>
<td>10-14kgs</td>
<td>15-19kgs</td>
<td>20-29kgs</td>
<td>30-39kgs</td>
<td>30-49kgs</td>
<td>50+ kgs</td>
</tr>
<tr>
<td><strong>ATENOLOL Oral Daily &amp; IV</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>50 mg tablet</td>
<td>1-2tabs</td>
<td>1-2tabs</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Injection 5mg / 10mL</td>
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</tr>
<tr>
<td>IV dose mg 0.1mL = 0.05mg</td>
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<tr>
<td><strong>ATROPINE</strong></td>
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</tr>
<tr>
<td>0.5mg / mL</td>
<td>0.5mg</td>
<td>0.5-1mg.</td>
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<tr>
<td>0.04mL = 0.02mg</td>
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</tr>
<tr>
<td><strong>ATROPINE EYE DROPS BD</strong></td>
<td>1 Drop BD.</td>
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<tr>
<td><strong>AZITHROMYCIN STAT</strong></td>
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<tr>
<td>Before food</td>
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<tr>
<td>250 or 500mg capsules / tablets</td>
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<tr>
<td><strong>BECLOMETHASONE Inhaler BD</strong></td>
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<tr>
<td>Child: 50mcg / puff</td>
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<tr>
<td>Adult: 250mcg / puff</td>
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</tr>
<tr>
<td><strong>BENZATHINE PENICILLIN</strong></td>
<td>SEE PENICILLIN BENZATHINE</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>BENZODrixOL 1-3 x / day</strong></td>
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<tr>
<td>2 mg tablets</td>
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</tr>
<tr>
<td><strong>BENZTROPINE STAT</strong></td>
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<td></td>
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<tr>
<td>0.02mL = 0.02mg</td>
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<td></td>
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<tr>
<td>Injection 2mg / 2mL</td>
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<tr>
<td>IM dose mg</td>
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</tr>
<tr>
<td><strong>BENZYL BENZOATE 25%</strong></td>
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</tr>
<tr>
<td>Lotion</td>
<td>Apply to entire body at night, leave on overnight, and wash off next night.</td>
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<tr>
<td><strong>BETNESOL</strong></td>
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<td></td>
</tr>
<tr>
<td>Eye / Ear / Nasal Drops</td>
<td>CONSULT EYE OR EAR NURSE AND / OR DOCTOR</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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</tr>
<tr>
<td>WEIGHT IN KG</td>
<td>3-6kgs</td>
<td>6-9kgs</td>
<td>10-14kgs</td>
<td>15-19kgs</td>
<td>20-29kgs</td>
<td>30-39kgs</td>
<td>30-49kgs</td>
<td>50+ kgs</td>
</tr>
<tr>
<td>BISACODYL Daily or PRN</td>
<td></td>
<td></td>
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<tr>
<td>5 mg Tablets</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>10 mg Rectal Suppositories</td>
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<td></td>
</tr>
<tr>
<td>CALAMINE 2-3 X Daily PRN</td>
<td>Apply to affected area 2-3 X Daily</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LOTION</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CAPTOPRIL 2-3 X Daily</td>
<td>Neonates: USE ONLY UNDER ADVICE OF MEDICAL OFFICER</td>
<td>Infants and children: 0.1-0.25mg / kg / dose 8 hourly increasing slowly to maximum of 2mg / kg / dose</td>
<td>[dissolve one tablet (25mg) in 25mL of water to make a 1mg / mL solution it is OK to use for 24 hours if the solution is kept in the fridge]</td>
<td>1-2 tab</td>
<td></td>
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</tr>
<tr>
<td>25mg tablets</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CARBIMAZOLE BD or TDS</td>
<td>INFANTS AND CHILDREN</td>
<td>0.2mg / kg / dose 8 hourly for 2-3 weeks, reducing to maintenance of 2.5-5mg 2-3 times a day.</td>
<td></td>
<td>3-12 tab</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5 mg tablets</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Initial dose tabs</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Maintenance dose</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CETRIMIDE (Savlion)</td>
<td>Apply cream 2-3 times per day, PRN</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Cream</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CHLORAMPHENICOL</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Eye drops 0.5%</td>
<td>1-6 hourly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye ointment 1%</td>
<td>1-4x/daily</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CHLORAMPHENICOL QID</td>
<td>1 drop every 2-6 hours for 2-3 days, after eye appears normal, then give 6-8 hourly</td>
<td>1.5 cm to inner eyelid up to every 3 hours (or at night-time if using eye drops)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>IV / IM or oral 25mg / kg / dose</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 mg capsule</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>125mg/5mL syrup</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Injection 1G ADD 6mL water IM / IV dose in mL</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DO NOT USE IN NEONATES WITHOUT CONSULTING MEDICAL OFFICER</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>See notes end of this section</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CHLOROQUINE Daily with food for 3 days</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>150mg tablets</td>
<td>1/4 tab</td>
<td>1/2</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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</tr>
<tr>
<td>WEIGHT IN KG</td>
<td>3-5kgs</td>
<td>6-9kgs</td>
<td>10-14kgs</td>
<td>15-19kgs</td>
<td>20-29kgs</td>
<td>30-39kgs</td>
<td>30-49kgs</td>
<td>50+kgs</td>
</tr>
<tr>
<td>CHLORPHENIRAMINE</td>
<td>Under 1 years</td>
<td>1-2 years: 1mg BD</td>
<td>2-5 years: 1mg every 4-6 hours</td>
<td>6-12 years: 2mg every 4-6 hours</td>
<td>4mg every 4-6 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHLORPROMAZINE TDS / QID</td>
<td>Infants over 6 months and children IV / IM: 0.5mg / kg / dose every 6-8 hours Under 5 years: max 40mg / day 5-12 years: max 75mg / day ORAL: 0.5-1mg / kg / dose every 4-6 hours</td>
<td>IV / IM: 25-50mg TDS-QID Oral: 25-100mg TDS</td>
<td></td>
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</tr>
<tr>
<td>#CIPROFLOXACIN BD</td>
<td>Ciprofloxacin can cause joint problems in infants and children. Do not use without consulting medical officer first</td>
<td>1-3 tabs</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>(before food)</td>
<td>250mg tablets</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CLOTRIMAZOLE 2-3 X / day</td>
<td>Cream 1%</td>
<td>Vaginal Cream 2%</td>
<td>Pessary 500mg as a single dose</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLOXACILLIN QID before food</td>
<td>IV / IM: 25-50mg / kg / dose</td>
<td>ORAL: 12.5-25mg / kg / dose</td>
<td>250 mg capsules</td>
<td>75mg</td>
<td>150</td>
<td>250</td>
<td>375</td>
<td>500</td>
</tr>
<tr>
<td>CODIENE PHOSPHATE QID PRN</td>
<td>For children a medical officer should be consulted prior to initiating drug. Adult 15-50 mg QID</td>
<td></td>
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<tr>
<td>30 mg tablets</td>
<td></td>
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</tr>
<tr>
<td>#COLCHICINE</td>
<td>ADULTS ONLY: Treatment for gout: 1mg (2 tablets) STAT then 500mcg (1 tab) every 3 hours until pain is relieved OR patient gets nausea, vomiting, or diarrhoea OR patient has taken 16 tabs (8mg) in one day. DO NOT repeat above dose until after 3 days has passed Preventing gout: 1 tablet Daily to BD</td>
<td></td>
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<tr>
<td>500 mg tablets</td>
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<td></td>
</tr>
<tr>
<td>#COTRIMOXAZOLE BD with food</td>
<td>400mg / 80mg tablets</td>
<td></td>
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<tr>
<td>DIAZEPAM PRN</td>
<td>10mg / 2mL ampoule IV or per rectum - dose in mg IV dose in mL by slow injection See Convulsions Section for PR instructions</td>
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<tr>
<td>1mg</td>
<td>2.5</td>
<td>2.5</td>
<td>3.5</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>0.2mL</td>
<td>0.5</td>
<td>0.5</td>
<td>0.75</td>
<td>1</td>
<td>1-2</td>
<td>1-2</td>
<td>1-2</td>
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<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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<tr>
<td>WEIGHT IN KG</td>
<td>3.5</td>
<td>6.9</td>
<td>10-14</td>
<td>15-19</td>
<td>20-29</td>
<td>30-39</td>
<td>40-49</td>
<td>50+</td>
</tr>
<tr>
<td>#GENTAMICIN Daily</td>
<td>5mg / kg</td>
<td>Avoid in kidney failure. SEEK ADVICE</td>
<td>15mg</td>
<td>30</td>
<td>50</td>
<td>80</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>IM / IV dose mg</td>
<td>0.4mL</td>
<td>Injection 80mg / 2mL in mLs</td>
<td>0.75</td>
<td>1.25</td>
<td>2</td>
<td>2.5</td>
<td>3.75</td>
<td>5</td>
</tr>
<tr>
<td>GENTIAN VIOLET</td>
<td>Apply sparingly to the affected skin TDS.</td>
<td>Paint 0.5%</td>
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<tr>
<td>GLIBENCLAMIDE Daily to TDS with meals</td>
<td></td>
<td>Avoid contact with normal skin or clothing.</td>
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<tr>
<td>5mg Tablets</td>
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<td></td>
<td></td>
<td>5-10mg</td>
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<tr>
<td>GLYCERYL TRINITRATE PRN</td>
<td>400mcg spray Sublingual</td>
<td></td>
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<tr>
<td>600mcg tablets</td>
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<tr>
<td>5mg / 24 hour patch</td>
<td>(Using the patch up to 14 hours a day only (8 hours without patch) reduces the chance of becoming tolerant to its effects)</td>
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<tr>
<td>GRISEOFULVIN Daily with food</td>
<td>500mg tablets</td>
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<tr>
<td>Skin: use for 4-6 weeks, Nails: 6-12 months</td>
<td>1/4tab</td>
<td>1/2</td>
<td>1/2</td>
<td>1</td>
<td>1</td>
<td>1-3tab</td>
<td></td>
<td></td>
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<tr>
<td>HALOPERIDOL Daily to TDS</td>
<td>5mg tablets</td>
<td></td>
<td></td>
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<tr>
<td>½ tab</td>
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<tr>
<td>HYDRAZINE BD</td>
<td>50mg tablets</td>
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<tr>
<td>1-2tab</td>
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<tr>
<td>HYDROCHLOROTHIAZIDE Daily</td>
<td>50 mg tablets</td>
<td>Infants and children: Under 6 months: up to 1.75mg / kg / dose BD 6 months-12 years: 1.25mg / kg / dose BD</td>
<td>¼ to 1tab</td>
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<tr>
<td>HYDROCORTISONE QID</td>
<td>Injection 100mg (anti-inflammatory eg asthma)</td>
<td>Neonates, infants and children (IV / IM)</td>
<td>50-100mg</td>
<td>100-200</td>
<td></td>
<td></td>
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<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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<tr>
<td>WEIGHT IN KG</td>
<td>3-5kgs</td>
<td>6-9kgs</td>
<td>10-14kgs</td>
<td>15-19kgs</td>
<td>20-29kgs</td>
<td>30-39kgs</td>
<td>30-49kgs</td>
<td>50+kgs</td>
</tr>
<tr>
<td>DOG/GOXIN</td>
<td>CONSULT MEDICAL OFFICER BEFORE USING LOADING DOSE: Neonates: 20mcg / kg Infants and children: 30mcg / kg Adult: 1.5mg in 24 hours All doses are in micrograms (mcg) NOT mg. Give HALF the loading dose stat, followed by a quarter of the loading dose 6 hours later and the last quarter another 6 hours later (Total loading within 24 hours) IV Digoxin is rarely needed and IM is never given. THEN maintenance dose up to 5mcg / kg / dose daily.</td>
<td>1tab</td>
<td>1</td>
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<tr>
<td>DOXYCYCLINE BD with food</td>
<td>Do NOT use in children under 8 years as this can permanently change the colour of their teeth.</td>
<td>1tab</td>
<td>1</td>
<td>1</td>
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<tr>
<td>ERYTHROMYCIN QID before food</td>
<td>12.5mg / kg / dose</td>
<td>½ tab</td>
<td>½ tab</td>
<td>½ tab</td>
<td>¾ tab</td>
<td>1tab</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ERYTHROMYCIN 250mg tablets</td>
<td>250mg tablets</td>
<td>½ tab</td>
<td>½ tab</td>
<td>½ tab</td>
<td>¾ tab</td>
<td>1tab</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>ETHAMBUTOL Daily</td>
<td>Check dosage with medical officer. Not recommended in small children</td>
<td>2tab</td>
<td>2</td>
<td>2</td>
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<tr>
<td>ETHAMBUTOL 400mg tablet</td>
<td>15mg-25mg / kg (max 1g / dose)</td>
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<tr>
<td>FANSIDAR Single STAT dose</td>
<td>(after food)</td>
<td>1/4tab</td>
<td>1/2</td>
<td>1/2</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
<td>2</td>
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<tr>
<td>FANSIDAR 500mg / 25mg tablet</td>
<td></td>
<td>1/4</td>
<td>1/2</td>
<td>1/2</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>FERROUS FUMARATE 1-2 X / day</td>
<td>100mg / 5mL syrup (30mg Fe / 5mL) (0.4mL / kg)</td>
<td>1.5mL</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td></td>
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<tr>
<td>FERROUS SULPHATE / FOLIC ACID Daily</td>
<td>200 mg tablets (60mg Fe)0.25mg</td>
<td>1/2tab</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>FOLIC ACID Daily</td>
<td>5 mg tablets</td>
<td>1/4tab</td>
<td>1/4</td>
<td>1/2</td>
<td>1/2</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>FRUSEMIDE Daily in AM</td>
<td>ORAL / IV / IM - 1-2mg / kg / dose</td>
<td>40 mg Tablets</td>
<td>1/4tab</td>
<td>1/2</td>
<td>1/2</td>
<td>1</td>
<td>1-2</td>
<td>1-2</td>
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<tr>
<td></td>
<td>Injection 20mg/2mL</td>
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<td></td>
<td>IM/IV dose in mg</td>
<td>5mg</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>20</td>
<td>20-40</td>
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<td>Can use higher doses dependant on response</td>
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<td></td>
<td>Patients normally also take potassium supplement (SlowK)</td>
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<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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<tr>
<td>WEIGHT IN KG</td>
<td>3-5kgs</td>
<td>6-9kgs</td>
<td>10-14kgs</td>
<td>15-19kgs</td>
<td>20-29kgs</td>
<td>30-39kgs</td>
<td>30-49kgs</td>
<td>50+kgs</td>
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<tr>
<td>HYDROCORTISONE Daily to TDS</td>
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<td>Cream 1%</td>
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<tr>
<td>HYDROXOCOBALAMIN (VITAMIN B12)</td>
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<td>Injection 1000mcg per 1mL</td>
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<tr>
<td>HYOSCINE QID</td>
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<tr>
<td>10mg tablets</td>
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<td>Injection 20mg</td>
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<tr>
<td>#IBUPROFEN TDS to QID with food</td>
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<td>400mg tablets</td>
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<tr>
<td>#INDOMETHACIN TDS with food</td>
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<tr>
<td>1-2mg / kg / day in 3 divided doses</td>
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<td>25 mg tablets</td>
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<tr>
<td>ISONIAZID Daily</td>
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<tr>
<td>10mg / kg (up to 300mg) before food</td>
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<td>100mg tablets</td>
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<tr>
<td>Give with pyridoxine</td>
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<td>#IVERMECTIN STAT once only</td>
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<td>3mg tablets</td>
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<tr>
<td>LEVODOPA / CARBIDOPA BD to TDS</td>
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<td>250mg / 25mg</td>
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<td>(with food except for first dose if needed whilst in bed)</td>
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<td>MAGNESIUM SULPHATE</td>
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<tr>
<td>Paste</td>
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<tr>
<td>METHYLDOPA BD to TDS</td>
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<td>250mg tablet</td>
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<td>MICROGYNON</td>
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<tr>
<td>Oral contraceptive pill. Take daily (same time each day) as ordered.</td>
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<td>MICROLUT</td>
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<td>Oral contraceptive pill. Take daily (same time each day) as ordered.</td>
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<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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<tr>
<td>WEIGHT IN KG</td>
<td>3.5</td>
<td>6.9</td>
<td>10-14</td>
<td>15-19</td>
<td>20-29</td>
<td>30-39</td>
<td>40-49</td>
<td>50+</td>
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<tr>
<td>METRONIDAZOLE</td>
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<td>ORAL DOSES (with food)</td>
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<td>200mg tablet</td>
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<td>MOST CONDITIONS</td>
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<tr>
<td>10mg/kg BD for 7 days</td>
<td>1/4 tab</td>
<td>1/2 tab</td>
<td>3/4 tab</td>
<td>1 tab</td>
<td>1 tab</td>
<td>2 tabs</td>
<td>2 tabs</td>
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<tr>
<td>Special Indications</td>
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<tr>
<td>1. ACUTE GIARDIASIS</td>
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<tr>
<td>Daily for 3 days</td>
<td>2 tabs</td>
<td>2 tabs</td>
<td>3 tabs</td>
<td>5 tabs</td>
<td>10 tabs</td>
<td>10 tabs</td>
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<tr>
<td>2. AMOEBIASIS</td>
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<tr>
<td>15mg / kg TDS for 10 days</td>
<td>1/2 tab</td>
<td>3/4 tab</td>
<td>1 tab</td>
<td>1 1/2 tab</td>
<td>2 tabs</td>
<td>3 tabs</td>
<td>3 tabs</td>
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<tr>
<td>3. IN SEVERE INFECTIONS</td>
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<td>IV DOSES (500mg / 100mL)</td>
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<td>LOADING dose (15mg/kg)</td>
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<td>STAT dose in mL (max 1g)</td>
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<tr>
<td>THEN</td>
<td>30mL</td>
<td>45mL</td>
<td>60mL</td>
<td>100mL</td>
<td>100mL</td>
<td>100mL</td>
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<td>7.5mg / kg (up to 500mg) TDS - dose in mL</td>
<td>15mL</td>
<td>20mL</td>
<td>30mL</td>
<td>45mL</td>
<td>45mL</td>
<td>100mL</td>
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<tr>
<td>#METFORMIN TDS with meals</td>
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<td>500mg tablet</td>
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<td>MORPHINE 4 hourly PRN</td>
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<tr>
<td>0.1mg/kg/dose IV/IM/SC</td>
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<td>10mg/mL</td>
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<td>MULTIVITAMINS Daily after food</td>
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<td>1-2</td>
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<td>Mixture</td>
<td>2.5mL</td>
<td>2.5</td>
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<td>Injection 400mcg / 1mL</td>
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<td>400 - 800mcg (0.25mL)Y kg / dose</td>
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<td>max 2mg (5ml) IV / IM / SC</td>
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<td>NIFEDIPINE BD</td>
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<td>(Adalat OROS) DO NOT CRUSH</td>
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<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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<tr>
<td>WEIGHT IN KG</td>
<td>3-5</td>
<td>6-9</td>
<td>10-14</td>
<td>15-19</td>
<td>20-29</td>
<td>30-39</td>
<td>40-49</td>
<td>50+</td>
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<td>PHENOBARBITONE Daily</td>
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<td>30mg tablet</td>
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<tr>
<td>200mg / 2mL injection</td>
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<td>LOADING DOSE (STAT dose)</td>
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<tr>
<td>IM dose in mls</td>
<td>1mL</td>
<td>2mL</td>
<td>3mL</td>
<td>4mL</td>
<td>6mL</td>
<td>8mL</td>
<td>10mL</td>
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<tr>
<td>Oral dose tablets</td>
<td>3tabs</td>
<td>6tabs</td>
<td>10tabs</td>
<td>13tabs</td>
<td>20tabs</td>
<td>26tabs</td>
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<td>MAINTENANCE DOSE Daily</td>
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<tr>
<td>(24 hours after loading dose)</td>
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<tr>
<td>IM dose in mls</td>
<td>0.2mL</td>
<td>0.3mL</td>
<td>0.5mL</td>
<td>0.75</td>
<td>1mL</td>
<td>1.5mL</td>
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<tr>
<td>Oral dose tablets</td>
<td>½</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>PHENYTOIN</td>
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<td>LOADING STAT DOSE</td>
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<tr>
<td>(15 - 20mg / kg IV) ONCE</td>
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<tr>
<td>IV: Use Normal Saline ONLY and give over 30 mins.</td>
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<td>THEN</td>
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<tr>
<td>Maintenance dose (24 hours after loading)</td>
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<td>4 - 5mg / kg BD Daily</td>
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<td>100mg tablet</td>
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<td>Injection 250mg / 5mL</td>
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<tr>
<td>½ tab</td>
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<td>½</td>
<td>1</td>
<td>1½</td>
<td>2</td>
<td>3</td>
<td>3</td>
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<tr>
<td>0.5mL</td>
<td>1mL</td>
<td>1mL</td>
<td>2mL</td>
<td>3mL</td>
<td>4mL</td>
<td>6mL</td>
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<tr>
<td>PREDNISOLONE Daily</td>
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<td>(with food)</td>
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<tr>
<td>5 &amp; 20mg tablets</td>
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<tr>
<td>PRIMAQUINE Daily for 14-21 days after food</td>
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<td>7.5mg base tablet</td>
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<td>0</td>
<td>0</td>
<td>½ tab</td>
<td>½ tab</td>
<td>1</td>
<td>1.5</td>
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<td>2</td>
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<tr>
<td>PROMETHAZINE TDS</td>
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<tr>
<td>0.125mg / kg / dose for simple allergy</td>
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<tr>
<td>5mg/5mL syrup</td>
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<tr>
<td>Injection 50mg / 2mL IM dose in mL</td>
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<tr>
<td>1mL</td>
<td>1 ½ mL</td>
<td>2mL</td>
<td>3mL</td>
<td>5mL</td>
<td>25</td>
<td>25-50</td>
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<tr>
<td>Avoid use if under 2 years old except in an emergency.</td>
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<tr>
<td>For emergencies (anaphylaxis) Adults 25-50mg (0.5-1mg / kg) IM</td>
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<td>Child: 1mg / kg (up to 25mg) IM</td>
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<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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<tr>
<td>WEIGHT IN KG</td>
<td>3-5</td>
<td>6-9</td>
<td>10-14</td>
<td>15-19</td>
<td>20-29</td>
<td>30-39</td>
<td>40-49</td>
<td>50+</td>
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<td>PROBENECID STAT</td>
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<tr>
<td>500mg tablet</td>
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<td>2tabs</td>
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<td>PYRAZINAMIDE Daily</td>
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<tr>
<td>35mg / kg</td>
<td>1/2tab</td>
<td>1/2tab</td>
<td>1/2tab</td>
<td>1</td>
<td>1 1/2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>500mg tablet</td>
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<tr>
<td>PYRIDOXINE Daily</td>
<td>Seek medical advice for dosing</td>
<td>Adults: use 25mg</td>
<td>Child: 1/4 tablet (10mg)</td>
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<td>50mg tablet</td>
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<td>QUININE SULFATE TDS</td>
<td>0.75mL</td>
<td>1mL</td>
<td>1.7mL</td>
<td>2.5mL</td>
<td>5mL</td>
<td>5mL</td>
<td>7.5mL</td>
<td>10mL</td>
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<tr>
<td>10mg / kg / dose (max 600mg)</td>
<td>1/8 tab*</td>
<td>1/4</td>
<td>1/2</td>
<td>1/2</td>
<td>1</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
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<tr>
<td>300mg tablet</td>
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<tr>
<td>Injection 600mg / 2mL.</td>
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<tr>
<td>ADD 8mL water to make 10mL (60mg/mL) dose IM / IV in mLs</td>
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<tr>
<td>IMPORTANT: Dilute IV injection and infuse over 4 hours - see Malaria Section</td>
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<tr>
<td>RIFAMPICIN Daily before food</td>
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<tr>
<td>10mg / kg / dose</td>
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<tr>
<td>150mg capsule</td>
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<tr>
<td>300mg capsule</td>
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<tr>
<td>Mixture 150mg/5mL (30mg/mL)**</td>
<td>1 1/2 mL</td>
<td>3mL</td>
<td>5mL</td>
<td>6mL</td>
<td>1cap</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>** Mixture: if you do not have rifampicin syrup, you can make your own. Mix the contents of a 150mg capsule with 5mL water. After giving the correct dose, throw away the rest. Make a new solution for every new dose. Use a syringe to give the dose orally.</td>
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<tr>
<td>RIFAMPICIN &amp; ISONIAZID Daily before food</td>
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<tr>
<td>150mg / 75mg tablets</td>
<td>1/2 tab</td>
<td>1/2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
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<tr>
<td>SALBUTAMOL (5mg / mL)</td>
<td>Nebuliser treatments - Mix 1mL of salbutamol solution, mix with 1mL normal saline (not water)</td>
<td>1mL (2.5mg)</td>
<td>2mLs (5mg)</td>
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<tr>
<td>Nebuliser amount of mixed solution in mLs</td>
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<tr>
<td>Inhaler 100mcg / puff</td>
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<tr>
<td>Nebulisers and inhalers can be used every 20-60 minutes if needed for an asthma attack</td>
<td>Best to give infants a nebuliser but if you don't use inhaler with spacer.</td>
<td>Give 2 puffs for under 1 year — can repeat</td>
<td>Give 5 puffs for others — can repeat</td>
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<tr>
<td>AGE</td>
<td>0-3 month</td>
<td>4-11 month</td>
<td>1-3 years</td>
<td>4-6 years</td>
<td>7-10 years</td>
<td>11-16 years</td>
<td>Small Adult</td>
<td>Large Adult</td>
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<td>-------------</td>
</tr>
<tr>
<td>WEIGHT IN KG</td>
<td>3-5</td>
<td>6-9</td>
<td>10-14</td>
<td>15-19</td>
<td>20-29</td>
<td>30-39</td>
<td>40-49</td>
<td>50+</td>
</tr>
</tbody>
</table>

Effective within 5 minutes.

Use instead of tablets whenever possible

All inhalers should be used with a spacer. If you do not have a spacer, make one out of a plastic juice bottle. Cut a hole at the bottom of the bottle the same size and shape as the end of the inhaler. Fit the inhaler into this hole and use the bottle like a spacer. See picture on back page.

Use 1-2 puffs QID when needed.

Each inhaler can deliver 200 puffs – useful to calculate replacement orders.

See Asthma Section for further information.

**SALBUTAMOL QID**

0.15mg / kg / dose (max 4mg)

4mg tablet

Injection 5mg – as per Medical Officer

* delay effect of up to 30-60 minutes. Use inhaler whenever possible

<table>
<thead>
<tr>
<th></th>
<th>¾ tab</th>
<th>½</th>
<th>½</th>
<th>1</th>
<th>1</th>
<th>1</th>
<th>1</th>
</tr>
</thead>
</table>

**SILVER SULPHADIAZINE**

Cream

Burns: Apply thickly daily and cover with dressing

Ulcers: Apply thickly at least 3 times weekly and cover with dressing

<table>
<thead>
<tr>
<th></th>
<th>½-2 tabs</th>
<th>½-2 tabs</th>
</tr>
</thead>
</table>

**SPIRONOLACTONE Daily**

25mg tablets starting dose in adults for CCF or as a diuretic – other doses as per specialist

<table>
<thead>
<tr>
<th></th>
<th>0.2mL</th>
<th>0.4mL</th>
<th>0.75mL</th>
<th>1mL</th>
<th>1.5mL</th>
<th>2.5mL</th>
<th>3.5mL</th>
<th>5mL</th>
</tr>
</thead>
</table>

**#STREPTOMYCIN Daily**

15mg / kg (maximum 1g)

ADD 5mL water Injection 1G

<table>
<thead>
<tr>
<th></th>
<th>1Drop BD.</th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1 Drop BD.</th>
</tr>
</thead>
</table>

**TETRACYCLINE Daily to TDS**

Eye ointment 1%

Apply 1.5cm inside inner eyelid margin every 8 hours. Continue until a few days after the eye feels better.

Continue for 14 days if you suspect chlamydia / trachoma

<table>
<thead>
<tr>
<th></th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1 Drop BD.</th>
</tr>
</thead>
</table>

**TIMOLOL EYE DROPS BD**

0.5%

As per medical officer’s or IMCI directions.

Repeat single prophylactic doses in 4 – 6 months intervals

Use 1mL syringe to aspirate fluid out of capsule to give correct dose. Eg. One capsule has 200,000 IU in 0.2mL

<table>
<thead>
<tr>
<th></th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
</tr>
</thead>
</table>

<table>
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<tr>
<th></th>
<th>1 Drop BD.</th>
</tr>
</thead>
</table>

**VITAMIN A**

200,000 IU capsule after food

As per medical officer’s or IMCI directions.

Repeat single prophylactic doses in 4 – 6 months intervals

Use 1mL syringe to aspirate fluid out of capsule to give correct dose. Eg. One capsule has 200,000 IU in 0.2mL

<table>
<thead>
<tr>
<th></th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
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</thead>
</table>

<table>
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<tr>
<th></th>
<th>1 Drop BD.</th>
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</thead>
</table>

Use 1mL syringe to aspirate fluid out of capsule to give correct dose. Eg. One capsule has 200,000 IU in 0.2mL

<table>
<thead>
<tr>
<th></th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
<th>1 Drop BD.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>1 Drop BD.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>0-3 month</td>
</tr>
<tr>
<td>-----</td>
<td>-----------</td>
</tr>
<tr>
<td>WEIGHT IN KG</td>
<td>3-5</td>
</tr>
<tr>
<td>VITAMIN A</td>
<td>AGE</td>
</tr>
<tr>
<td>200,000 IU capsule after food</td>
<td>1st day</td>
</tr>
<tr>
<td>As per medical officer's or IMCI directions.</td>
<td>2nd day</td>
</tr>
<tr>
<td>Repeat single prophylactic doses in 4 – 6 months intervals</td>
<td>2-4 weeks later</td>
</tr>
<tr>
<td>WARFARIN Daily</td>
<td>Use 1mL syringe to aspirate fluid out of capsule to give correct dose. Eg. One capsule has 200,000 IU in 0.2mL</td>
</tr>
<tr>
<td>1mg, 3mg and 5 mg tablets</td>
<td>2-10 mg day According to directions of the medical officer. INR result necessary</td>
</tr>
</tbody>
</table>

# Need to reduce dose in patients with renal failure

Chloramphenicol 250mg tabs
Indications as per manual:
∅ Toxic with dehydration and diarrhoea
∅ Bloody diarrhoea in adults
∅ Burns inf. not responding to Penicillin
∅ Very severe ARI (prior to transfer) IM
∅ Meningitis (LP: no organisms or H flu combine with amoxycillin, if gram stain shows meningococcal or pneumocococcus combine with Pen)

Spectrum of activity:
GPC: Covers most streps (including pneumococcus ) but not S. faecalis (enterococcus).
Not good for staphylococci.
GNB: Good gram neg cover except for Pseudomonas, Enterobacter and Serratia
Anaerobes: excellent cover
Atypicals: excellent for chlamydia, mycoplasma and rickettsia

Causes a fall in Hemoglobin in 30%, aplastic anaemia in 1,216,000 courses (never recorded in Vanuatu) and grey syndrome in neonates (therefore avoided in neonates).
NOTIFIABLE DISEASES

1. Main Notifiable Notifications:
   - DENGUE FEVER – Acute fever, sudden onset, headaches, flu like
   - FILARIASIS – Fever, enlarged lymph nodes, skin pigmentation
   - HEPATITIS all – Acute onset jaundice; Hep Ag/Ab
   - HIV/AIDS – Weight loss, chronic diarrhoea, recurrent infection
   - LEPROSY – Skin lesions, thickening of nerve, numbness
   - LEPTOSPIROSIS – Fever, sudden, severe myalgia (calves/legs) jaundice
   - MALARIA – Fever, headache, body aches and pains, "cold shaking"
   - MEASLES / RUBELLA – Maculopapular rash, temp > 38°C cough, conjunctivitis, Koplik spots
   - MENINGITIS all – Fever, stiffness of neck, other symptoms by age
   - PERTUSSIS – Cough illness, inspiratory “whoop”, post-tussive vomit
   - POLIOMYELITIS - Acute flaccid paralysis – isolate poliovirus
   - RHEUMATIC FEVER – Migratory joint pain, fever, sore throat
   - SARS – fever >38°C, respiratory illness, contact SARS patient or area
   - STI – Genital discharge, dysuria
   - TUBERCULOSIS - Chronic productive cough, weight loss, night sweats
   - TYPHOID FEVER - Fluctuating fever, rose spots trunk, constipation
   - YAWS – Chronic skin sores, bone infection

2. Others:
   - Amoebiasis
   - Brucellosis
   - Cholera
   - Conjunctivitis
   - Diarrhoea
   - Dysentary
   - Diphtheria
   - Encephalitis
   - Fish Poisoning
   - RATS in < 5year olds

3. Notification:
   a) If you have MOH form then fill out and send to addresses on form.
   b) If you do not have a copy of the form then notify your Provincial Health Manager or
   c) Phone Director Public Health; 22512
USEFUL RESOURCES:

Many doctors and nurses in Vanuatu reviewed this manual. Information was cross-checked from a number of sources. Many of these sources can be found through the Internet. Useful Internet addresses (but they do not include all the sites used for this manual) you may like to follow-up are:

1. The first site is the World Health Organisation and their address is www.who.int/ By working through the site you can find a lot of publications — some can be downloaded and others cannot be. You can make a note of the publication a see if it is in the libraries of VCH, NDH or the WHO library at George Pompildou. Another place to look is in Directora of Public Health. If you cannot find the publication ask at WHO about obtaining one.

   a) Integrated Management of Pregnancy and Childbirth can be found through www.who.int/reproductive-health/impcindex.html
   b) Other reproductive health related topics including neonatal and adolescents try www.who.int/child-adolescent-health/overview/health/overview/health/overview/health/neonatal.htm
   c) Safe Motherhood is www.safe.motherhood.org
   d) Integrated Management of Childhood Illness is found at www.who.int/child-adolescent-health/integr.htm
   e) Almost every other subject in health can be found at www.who.int/health_topics/en/

2. In addition to WHO another site of note is www.cdc.gov. This site focuses on communicable diseases and is based in USA and has strong links with WHO.

3. The Cochrane Collaboration brings together many people from around the world to review topics and recommend current best practice and evidence. Their website is www.cochrane.org

4. A more specific site for nursing best practice that is Asia / Pacific regional is www.ioannabriggs.edu.au

5. Apart from looking to WHO for essential drug information another useful website is www.essentialnurs.org

6. Management Sciences for Health or www.msh.org has a number of good resources

7. A number of hospitals have their manuals or guidelines on the internet, a few to try are:

   b) The Royal Children's Hospital in Melbourne at www.rch.org.au
   c) The Royal Women's Hospital in Melbourne at www.rwh.org.au and also includes information about developing good practice guidelines
   d) Scottish Intercollegiate Guidelines Network have various guidelines available www.sign.ac.uk
   e) For diabetes there are many sites but difficult to find in English and French – try Canada, their Ministry of Health site www.hc-sc.gc.ca

8. Apart from the sites above there are many others. A must see site is the South African Department of Health – it has many useful publications on it including their manuals. Find it on www.doh.gov.za

9. Lastly, try searching in www.google.com - if you want pictures of health related things they have an "images" section but MFRM do not allow access to this – you will need to do this on a dialup or alternatively USP or the computer lab at VCH may have access. Once you find sites of interest don't forget to make a note of their internet addresses so you can find them next time!

The few pictures in this manual were adapted from: instructions supplied with sterilisers; chlorine concentrations from WHO text as indicated. The pictures on the inside back cover were adapted from IMCI textbook (WHO) and Birell, K., Birell, G. (2000) "Diagnosis and Treatment." VSO. MacMillan, Africa.
<table>
<thead>
<tr>
<th>AGE</th>
<th>0-3 month</th>
<th>4-11 month</th>
<th>1-3 years</th>
<th>4-6 years</th>
<th>7-10 years</th>
<th>11-16 years</th>
<th>Small Adult</th>
<th>Large Adult</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT IN KG</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>3-May</td>
<td>6-Sep</td>
<td>Oct-14</td>
<td>15-19</td>
<td>20-29</td>
<td>30-39</td>
<td>40-49</td>
<td>50+</td>
</tr>
<tr>
<td>ADRENALINE 1mg / 1ml - S/C or IM</td>
<td>0.1ml</td>
<td>0.1ml</td>
<td>0.15ml</td>
<td>0.2ml</td>
<td>0.3ml</td>
<td>0.4ml</td>
<td>0.5ml</td>
<td>1.0ml</td>
</tr>
<tr>
<td>ATROPINE 0.5mg / ml IV</td>
<td>1ml</td>
<td>1-2ml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BENZTROPINE 2mg / 2ml IM / IV</td>
<td>0.2ml</td>
<td>0.3ml</td>
<td>0.4ml</td>
<td>0.5 - 1ml</td>
<td>1 - 2 ml</td>
<td></td>
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</tr>
<tr>
<td>CALCULIUM GLUCONATE 10% /10ml IV</td>
<td>5 - 10ml</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEXTROSE 50mg / 60 ml IV</td>
<td>8ml</td>
<td>14ml</td>
<td>30ml</td>
<td>35ml</td>
<td>60ml</td>
<td>20ml</td>
<td>25ml</td>
<td>30ml</td>
</tr>
<tr>
<td>Give into large vein for adults = 50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Mix 2ml with 18ml of saline = 10%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIAZEPAM 10mg / 2ml IV / PR</td>
<td>0.2ml</td>
<td>0.5ml</td>
<td>0.5ml</td>
<td>0.7ml</td>
<td>1ml</td>
<td>1.5ml</td>
<td>2ml</td>
<td>2ml</td>
</tr>
<tr>
<td>FRUSEMIDE 20mg / 2ml IM / IV</td>
<td></td>
<td>0.5ml</td>
<td>1ml</td>
<td>1.5ml</td>
<td>2ml</td>
<td>2ml</td>
<td>2 - 4 ml</td>
<td>2 - 4 ml</td>
</tr>
<tr>
<td>GLYCERYL TRINITRATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.5mg tablets Sublingual OR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ISOSORBIDE DINITRATE</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>0.5mg tablets sublingual</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>HYDROCORTISONE IV / IM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add 5ml water to make 100mg / 5ml</td>
<td>0.5ml</td>
<td>1ml</td>
<td>1.5ml</td>
<td>2ml</td>
<td>2.5ml</td>
<td>2.5 - 5ml</td>
<td>7.5ml</td>
<td></td>
</tr>
<tr>
<td>MORPHINE 10mg/ml SC / IM / IV</td>
<td>-</td>
<td>-</td>
<td>0.1ml</td>
<td>0.15ml</td>
<td>0.2ml</td>
<td>0.2ml</td>
<td>0.5 - 1ml</td>
<td>0.5 - 1ml</td>
</tr>
<tr>
<td>NALOXONE 400mcg / 1ml SC / IM / IV</td>
<td>0.5 ml IM</td>
<td>1ml</td>
<td>1ml</td>
<td>1ml</td>
<td>1ml</td>
<td>1 ml</td>
<td>1-2ml</td>
<td>1-2ml</td>
</tr>
<tr>
<td>PETHIDINE 50mg/1ml SC / IM / IV</td>
<td>-</td>
<td>-</td>
<td>0.25ml</td>
<td>0.3ml</td>
<td>0.5ml</td>
<td>1ml</td>
<td>1.5ml</td>
<td>2ml</td>
</tr>
<tr>
<td>PHENOBARBITONE 200mg / 2ml IM</td>
<td>1ml</td>
<td>2ml</td>
<td>3ml</td>
<td>4ml</td>
<td>6ml</td>
<td>8ml</td>
<td>10ml</td>
<td>10ml</td>
</tr>
<tr>
<td>PHENYTOIN 250mg / 5ml IV</td>
<td>1mil</td>
<td>2mil</td>
<td>3.5mil</td>
<td>5mil</td>
<td>7.5mil</td>
<td>10mil</td>
<td>13mil</td>
<td>15mil</td>
</tr>
<tr>
<td>Dilute with saline and give over 30 mins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROMETHAZINE 50mg / 2ml IV / IM</td>
<td>0.1ml</td>
<td>0.1ml</td>
<td>0.2ml</td>
<td>1ml</td>
<td>1mil</td>
<td>1-2ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SALBUTAMOL 5mg / ml Nebuliser</td>
<td>0.5ml</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dilute 1ml with 1 ml of saline or water</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT RESUS FLUID IV</td>
<td>50 - 100ml</td>
<td>150ml</td>
<td>250ml</td>
<td>350ml</td>
<td>500ml</td>
<td>750ml</td>
<td>1000ml</td>
<td>1000ml</td>
</tr>
</tbody>
</table>