

# **SIMPLE TREATMENT GUIDELINES**

## **FOR**

# **PRIMARY HEALTH CARE**



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## **About PHASE –Nepal (Practical Help Achieving Self Empowerment)**

### **फेज नेपाल (स्व: सशक्तिकरणको लागी व्यवहारिक सहयोग)**

#### **Background**

Established in 2006, by a group of development professionals involved in various arenas in Nepal, Practical Help Achieving Self Empowerment (PHASE Nepal), is a non governmental, non profit making, non political and equal opportunity providing organization, registered under Social Development Act, 2034 at District Administration Office, Kathmandu, and has also been affiliated to Social Welfare Council. It aims at empowering local communities, providing basic needs and services to them. We appreciate and respect positive endeavours from individual, communities, national and international governmental and non governmental organizations.

#### **Vision**

A self - empowered and prosperous society

#### **Mission**

A multiprofessional, creative, innovative, committed model PHASE, that will generate practical opportunities for better resource utilization in the area of health, education and livelihoods, so that marginalized people will enjoy a better quality life in a sustainable manner.

#### **Programme Components**

##### ***a. Basic health services***

PHASE believes in a rights based approach, stating that even the most remote and poor communities have a right to expect good basic services. Therefore our health programmes aim to deliver the highest possible quality of care to our targets communities. This is why we have developed the clinical guidelines presented here.

PHASE employs female health workers with ANM/CMA qualifications to work in governmental Sub Health Posts, where the government health workers are not present regularly. PHASE health programmes have a strong emphasis on maternal and child health, but they aim to serve the whole community and so empower families. PHASE health workers therefore provide general patients check up treatment and medication and also antenatal care, safe delivery, postnatal care, family planning, behaviour changing health education to community and school, health and hygiene management. They also do child health checks in school and deliver nutrition education. They are supervised by higher qualified health staff who visit all areas regularly.

##### ***b. Educational support***

Adult literacy classes to women, pre primary class to under 6 children, alternative class to out of school children, teachers, furniture and stationery support to school, capacitating teachers through teachers training, scholarship to poor pupils are some of the important steps initiated.

##### ***c. Agriculture, forestry and livelihoods***

We aim to enhance the knowledge and skills of farmers and providing inputs to increase productivity of high value crops, livestock, medicinal and aromatic plants and their marketing.

***d. Gender, governance and social inclusion***

Women are kept in top priority while planning and implementing the programmes. Considerable attentions have been paid to include women in development mainstreams, raising their voices against all kinds of discriminations.

***e. Infrastructure development***

Basic infrastructures viz. school buildings, water taps, toilets, community buildings, clinical buildings are constructed and handed over to the community.

**Target Groups**

Programme activities are always planned from grass roots level based on community need. Poor, disadvantaged, socially excluded, differently able people, women and children, conflict victims, internally displaced people, and marginalized communities are at the centre core of our programme. We concentrate our efforts to work in the most remote villages of the most remote districts. We encourage our target beneficiaries to participate actively in programme activities right from need assessment, implementation, monitoring and evaluation, and sharing benefits in an equitable manner.

**Programme Coverage**

PHASE core working districts in 2065 are Sindhupalchok, Gorkha and Humla. At this time, nearly 20,000 people benefit directly from PHASE programmes. None of the target communities have road access, and the most remote are more than 5 days walk from the nearest road or airport.

**Human Resources**

PHASE - Nepal trustees, executive members and working staff constitute a well experienced working team in various development arenas. PHASE uses its expertise as resource centre to support groups, their networks, alliances and other governmental as well as non governmental organizations as and when needed. Over 90 % of our full time staff are female and over 85 % of our staff are field based. The staff is of diverse origin. We represent over 10 ethnic groups/castes from many parts of Nepal.

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## **I. Introduction**

Why a new book about medical treatments? There are hundreds of medical textbooks already, and some, like “Where There Is No Doctor” also specifically for rural and remote situations.

However, during our work, supporting primary care services in remote rural areas of Nepal, we have noticed that very often the recommendations regarding referral and treatment which are given in these books are not really appropriate in our specific work situations. – Either they assume too high a standard of facilities, or too low a level of medical training for the person using them. We therefore felt that it would be very useful for CMAs and ANMs working in remote rural health posts, to have a guideline for the most appropriate treatments / courses of action in the most commonly seen diseases.

This guideline is not a complete medical textbook. But it covers most of the diseases that rural workers see in their daily work.

It was written for the CMAs and ANMs working in primary health centres in the middle and high hill areas of Nepal. It therefore doesn't place very much emphasis on the tropical diseases only seen in the Terai (such as Malaria, Kala Azar or Japanese “B” Encephalitis). Its aim is to be a reference guide on how to treat the most common diseases, and when to refer.

Naturally not one patient is like the other and every disease is different, but you should have a good reason if you chose to recommend a different treatment from those recommended in these guidelines. Also, in some health posts the distance to the next referral centre is very far, and in others shorter, so starting treatment for a life-threatening disease is justified, even necessary, in one, and referral is obligatory in another centre.

### **How to use this book:**

Every chapter starts with the **Important Symptoms** that usually are the complaints of the patients. If you know the symptoms of the most common diseases, you have a good chance to think of the right diagnosis. The following **Important Signs** and **Investigations** should then be checked to confirm the diagnosis.

If there is doubt about the diagnosis in a patient, you should always try to get advice from a more experienced health worker. If this is not possible, and you need to know the diagnosis, you should consider referring the patient to a different facility, the nearest district / mission hospital.

The part **Essential Disease Information** explains what causes the disease and what this means for the treatment. It often helps to explain the essentials of this to the patient as well: people who understand why they are ill are more likely to follow the advice given. Before making the diagnosis, you should consider the **Differential Diagnosis**, other diseases that cause similar symptoms, and **Other Diseases that May also be Present**, so as not to miss a second problem that the patient can have.

After a diagnosis has been made, you can follow the **Treatment** guidelines in the **Action** part of each chapter. Normally the first medicine mentioned is the cheapest good option

for treatment, the following ones will be the second choice because of unnecessary higher price, more side effects or less good effect. To save space we have not repeated the dosages for medicines in every case - please see the Medication Dose Charts at the end of this book. Not every health centre has exactly the same supply of medicines, therefore all medicine names are given their scientific name, not trade names, and sometimes very similar alternatives are given.

The **Follow-up** part will tell you if and when you should check the patient again. The **Referral Situations** says when it is definitely necessary to refer the patient for further investigations, for a doctor's consultation or for hospital treatment. Sometimes you will find in brackets "(...)" information about what will probably happen after the referral.

If you have questions about this book or about other treatment problems, please always ask your more experienced colleagues. If you find that there is something missing in this book, please also tell your more experienced colleagues or the team of PHASE Nepal.

Finally all the best wishes with using this book and good success with treating your patients!

## **II. The Health Situation in Nepal's Middle Hills**

These guidelines are deliberately designed to be used specifically in Nepal's hill regions – we were trying to produce guidelines which are more or less directly applicable for the health workers in those regions. The infrastructure, health problems and health provision in the lowlands (the Terai) are very different.

The characteristics of the health situation in the Hill Regions are briefly summarized below:

### **Statistics re service provision:**

As in the whole of Nepal, the governmental health service provision is usually as follows:

Hospitals: 1 per district (75,000 to 250,000 inhabitants, but sometimes travelling times from more remote villages to hospital can exceed one week)

Primary Care Centre: 3-4 per district, staffed with one doctor, Health Assistant, CMA, ANM, lab assistant and support staff. In reality, often only CMA and ANM, or HA, CMA, ANM

Doctors: In theory, 2-5 per district hospital, and one per Primary Care Center, in reality, sometimes none of these posts is filled

Health posts: One per Ilaka (5-10 VDCs), staffed with HA, CMA, ANM and support staff

Sub-Health-Posts: One per VDC (2,000 – 6,000 inhabitants, but in sparsely populated hill regions, distances can involve more than one day travel to reach the SHP), staffed with CMA, VHW (village health worker, 6 months training), and MCHW (Maternal and Child Health Worker, 3 months training)

Work-intensive programs – vaccination campaigns etc – are supported by FVHWs (Female Volunteer Health Workers), who are local women who get short trainings twice a year for specific tasks.

### **National statistics (DHS 2006):**

#### **Mortality Rates:**

Crude mortality rate 2.4/1000 (male) 2.1/1000 (female)

Infant Mortality rate (IMR) 48/1000

Neonatal Mortality Rate (NMR) 33/1000

Under Five Mortality rate (U5MR) 61 /1000

Malnutrition in Under 5 Year olds: 48%

Maternal mortality rate (MMR) 281/100,000 (may be much higher)

Current use of contraception: 44%

ANC attendance (at least once): 73%

Births attended by skilled medical worker: 18 %

Births in health facility: 11%

**Common causes of sickness in children:**

Diarrheal diseases, Respiratory infections including measles, malnutrition, other infections (tetanus, polio, TB, infections of the skin) and sicknesses following injury.

**Common causes of sickness in adults:**

Diarrheal diseases, Infections, problems related to pregnancy and childbirth, injuries and accidents, in some areas increasingly hepatitis and HIV, TB

**Major Causes of death:**

(In children under 5 years of age) diarrheal diseases, pneumonia, malnutrition, measles and trauma.

(In neonates) infection, premature birth /low birth weight, birth asphyxia, hypothermia and birth trauma.

(In adult females) obstetric haemorrhage, obstructed labor, pre-eclampsia. Eclampsia, sepsis, unsafe abortion.

(In the general population) TB, COPD, rheumatic heart disease, diarrheal diseases, other infections like tetanus and rabies, accidents, cancer

Illness and premature death are closely related to poverty and lack of access to high quality health services:

In the remote hill regions of Nepal, many families lack food security for a large part of the year, and are dependent on making up the remainder by manual labour, often through seasonal migration.

Some villages are as far as a whole week's walk removed from the nearest hospital with basic diagnostic facilities, and even the village health posts and sub health posts are often vacant, so that the population depends entirely for their health care on traditional healers or for-profit medical shops.

Health workers working in governmental Sub Health Posts or NGO-led health projects can make a huge difference to population health, especially the health of women and children. Simple measures, like propagating vaccination, treatment of diarrheal disease and respiratory infection, teaching about childhood nutrition and antenatal care can greatly improve health and reduce infant mortality rates.

The aim of these guidelines is to help health workers in remote regions to prioritize their service appropriately, and give the best possible clinical service to the local population.

## **Relevance of these guidelines to the current health policies in Nepal**

The Ministry of Health and Population of Government of Nepal has developed a 20-year Second Long-Term Health Plan (SLTHP) for FY 2054-2074 (1997-2017), in which it has identified the following priorities for the improvement of the health of the Nepali population.

### **CHILD HEALTH**

The Child Health programme includes the following:

- Expanded Programme of Immunisation (EPI) including Hepatitis B and JE vaccination
- Supplemental immunization programs
- Community Based Integrated Management of Childhood Illnesses (CB-IMCI)
- Control of Diarrhoeal Diseases (CDD)
- Acute Respiratory Infection (ARI)
- Nutrition Programme

### **REPRODUCTIVE HEALTH**

The main aspects of reproductive health programmes are:

- Family Planning
- Safe Motherhood
- Female Community Health Volunteer (FCHV) Programme
- Primary Health Care Outreach Clinic (PHC/ORC)

### **DISEASE CONTROL**

The disease control programmes concentrate mainly on the following infectious diseases:

- Malaria/Kala-azar
- Lymphatic Filariasis
- Japanese Encephalitis (JE)
- Tuberculosis Control
- Leprosy
- HIV/AIDS/STIs

### **SUPPORTING PROGRAMMES**

Supporting programmes include

- National Health Training
- Health Education, Information and Communication
- Logistics Management
- Community Drug Programme
- National Health Laboratory Services
- Administrative Management

### **FINANCIAL MANAGEMENT**

- Planning, Programming, Monitoring, Supervision, Co-ordination and Information Management
- Health Service Coverage

To address these priorities, the government has identified the following 20 main interventions:

<b>Main Interventions*</b>	<b>Health Problems Addressed</b>
1. Appropriate treatment of common diseases and injuries	Common Diseases and injuries
2. Reproductive health	Maternal and Peri-natal health problems including other RH issues
3. The expanded programme on immunisation (EPI) and Hepatitis B Vaccine	Diphtheria, Pertusis, TB, Measles, Polio, Neonatal Tetanus, Hepatitis B
4. Condom promotion and distribution	STD/HIV, Hepatitis B, Cervical Cancer
5. Leprosy control	Leprosy
6. Tuberculosis control	Tuberculosis
7. Integrated Management of Childhood Illness (IMCI)	Diarrhoeal Disease, Acute Respiratory Infection (ARI), Protein Energy Malnutrition (PEM), Measles and Malaria
8. Nutritional supplementation, enrichment, nutrition education and rehabilitation	PEM, Iodine Deficiency Disorders, Vitamin A Deficiency, Anaemia, Cardiovascular Disease Prevention, Diabetes, Rickets, Perinatal Mortality, Maternal Morbidity, Diarrhoeal Disease, ARI
9. Prevention and control of blindness	Cataracts, Glaucoma, Pterygium, Refractive Error, and other Preventable Eye Infections
10. Environmental sanitation	Diarrhoeal Disease, Acute Respiratory Infection, Intestinal Helminthes, Vector Borne Diseases, Malnutrition
11. School health services	Diarrhoeal Disease, Helminthes, Oral Health, HIV, STDs, Malaria, Eye and Hearing Problems, Substance Abuse, Basic Trauma Care
12. Vector borne disease control	Malaria, Leishmaniasis, Japanese Encephalitis
13. Oral health services	Oral Health
14. Prevention of deafness	Hearing Problems
15. Substance abuse, including tobacco and alcohol control	Cancers, Chronic Respiratory Disease, Traffic Accidents
16. Mental health services	Mental Health Problems
17. Accident prevention and rehabilitation	Post Trauma Disabilities
18. Community-based rehabilitation	Leprosy, Congenital Disabilities, Post Trauma Disabilities, Blindness
19. Occupational health	Chronic Respiratory Disease, Accident, Cancers, Eye and Skin Diseases, Hearing Loss
20. Emergency preparedness and management	Natural and Man-made disasters.

With these priorities in mind, we have written these guidelines especially to support rural health workers in delivering the appropriate treatment for common illnesses and injuries (intervention no 1.), but the guidelines also give advice on how to integrate most of the above activities in Primary Care in rural areas of Nepal.

### **III. Some Notes on Working in Rural Health Posts in Nepal**

Most treatment guidelines or textbooks of medicine – with the exception of books like “Where There Is No Doctor”, which are conceived for non-medical people - have been written by and for doctors working in hospitals, who can refer patients, order blood tests, and consult with specialist colleagues whenever it seems appropriate.

For the health workers in Nepal’s Rural Health Posts, conditions are very different from those in a hospital in the city, for various reasons.

**The health workers:** The highest qualified medical staff in most Health Posts in Nepal are CMAs (AHWs) and ANMs, both with 18 months medical training, as opposed to over 6 years that doctors spend in training before they have to work unsupervised. Often, these health workers get very little chance to gain clinical experience before they start work in remote conditions, and once they are there, there is hardly any opportunity to discuss clinical problems with senior colleagues. Therefore it is even more important for them to be able to refresh their memory and their knowledge by checking information in an appropriate book.

**The health facility:** In comparison to health centres or hospitals in the cities, rural health posts are usually very basic: Hardly any of them have any diagnostic facilities above checking blood pressure, temperature, weight, and ears... So, coming to a clear diagnosis is often much more difficult than in more advanced health facilities. Also, sometimes health posts are run out of the health worker’s own house, or a spare room in somebody else’s house, and there is very often inadequate room for storing medicines, let alone examining patients in privacy. Still, every effort should be made to keep stocks in good order, and to allow patients the privacy they need.

**The place:** Remote rural villages in Nepal’s Hill Regions are just that: remote. Most of them can only be reached on foot – often only after several days’ hike from the nearest road or airport. There are still many villages that have no electricity or telephone, and for young health workers new to the community and the living conditions in the villages, the isolation from their families can be an added burden.

For the villagers, basic living conditions mean that some simple ways of maintaining their own health can be near impossible: If water has to be carried for more than an hour from the nearest well, daily showers just take up too much energy. As they have to grow everything they eat themselves, in many cases the variety of vegetables and fruits available is very limited, and vitamin deficiencies are common. And in many villages, toilets are still something that only people who have travelled are familiar with...

**The patients:** People who live in remote, self-reliant communities often seem resistant to change, even if, on the face of it, change should be easy and bring immediate benefits.

But this has good reasons: In those villages, in general, the community, or the family ties, are more important than anything that may come from outside. – And doing things differently from everyone else can lead to social isolation. Therefore, changes are always easier to implement through groups, rather than individuals.

Another characteristic of remote village populations is the low literacy rate: in many places, the generation who are now adults did not have a school to go to, and often also do not see the importance of sending their own children to school, even if a school is now available. But people who cannot read and write find the concept of foreign medicines, and “book-learning” more difficult to accept, and need a lot more time to understand instructions about medicines, as they cannot use a written reminder.

Something that often seems incomprehensible to outsiders is the fact that many villagers rate their work in the fields and for their livestock more important than a visit to the health post for themselves or their children. But this is no more than logical: If one weighs a possible risk of becoming more ill through delay (and most illnesses do, after all, resolve by themselves in time) against a certain risk of staying hungry next year through delaying field work, the choice seems more clear.

**The distances:** If the health posts are far away from the nearest road, so, too, villagers often come to the health post from very far away (several hours walk). Therefore, they do usually not come in the first stages of a disease, but only when a few days’ home treatment has not brought any improvement.

And to arrange follow-up, in order to review progress or reinforce advice, can be a frustrating business: Many times a patient will nod and assure that he/she will come back after two days, never to be seen again: Has he decided not to come because he was completely well? Has he deteriorated so much that he cannot come back? Has he maybe gone to the next higher centre on his own initiative? – When patients have come from a village many hours’ walk away, it is usually impossible to find out.

**The diseases:** For some of the above reasons, the diseases we see in rural health posts (apart from the simple and easy to treat, like colds, minor wounds etc.) are mainly of three varieties: firstly, those which should not happen, if the villagers had the same facilities of good nutrition, personal hygiene, and preventive care as people in the cities: worm infestation, anaemia, infectious diseases preventable by vaccination, skin infections, diarrhoea, chronic ear infections, malnutrition and others. The second variety are those diseases, which are far more advanced than they would ever be in a good health system, or only became a serious problem because they were not treated in time: the contracted burn scars, the women in obstructed labour, whose baby has long since died inside; the severe generalized skin infections, the infected wounds, the infected teeth which have been all but destroyed by caries; and many more. And then there is the third variety, which



simply cannot be diagnosed or treated in a rural health post: heart disease, epilepsy, diabetes, thyroid problems, and all manner of life threatening serious disease. It can be very frustrating to know that these patients could be helped by medicine, if only they were living in a more accessible place, but to see them die because they haven't got the opportunity to go to a hospital in town...

**The referral system:** Even if a patient is willing to go to the hospital, the referral process is by no means straightforward: First the way of transport has to be decided: Is the patient able to walk up to the nearest road (maybe for 2 or 3 days?). Is she light enough to be carried by one person in a doko? Or will it be necessary to arrange a stretcher and 4-8 people to carry the patient up to the hospital? Then the money matter needs to be sorted: The costs of transport to and stay in the hospital is often more money than the patient and his family can easily raise, so they usually have to go around neighbours and borrow. In some villages there are groups that save up together for emergency funds for these situations.

Once the transport means and costs have been arranged, it is still not always obvious *where* to go: Sometimes, the nearest hospital is the district hospital. Unfortunately, many of these are not always fully staffed, and it can be difficult even for an experienced health worker to judge beforehand whether the district hospital will be able to provide the necessary treatment, or whether the patient will need to be referred on again... If it is decided to go to a higher centre in the first instance, like in Kathmandu or Pokhara, there is a bewildering variety of governmental and private hospitals, and almost every health person asked will give different advice as to where to go. As medicine is also big business in these cities, there is a risk that, if the patient ends up in a hospital that cannot give the ideal treatment, he will not be advised in his best interest...

**Supply problems:** As it is difficult to get patients into higher centres, so it can be difficult to keep up a regular supply of all necessary medicines and supplies: transport frequently disturbed by "strikes" and petrol shortages, and footpaths threatened by landslides, transporting several thousand rupees worth of medicine for several days to a remote health post can pose a major challenge.

There are many other factors that make the provision of a high-quality, acceptable health service very difficult in those inaccessible villages...

But still: In spite of all these difficulties, supplying a primary care service to those isolated communities can be not only rewarding, but also very effective: If it is possible to reach the majority of the population with simple preventive / curative measures, such as: antenatal and delivery care, treatment of worms and anaemia, vaccination, treatment of pneumonia and diarrhoea, and of burns and wounds, and general hygiene measures, even these relatively low-cost measures can prevent a lot of deaths and unnecessary suffering.

Also, to become a valued member of one of these "forgotten" hill communities is a reward in itself.

In the following paragraphs, we have summarized a few guiding principles which will help you to be as effective as possible, and get the most out of your job, both for yourself and for your patients. Try to remember these six principles in your daily work:

**Courtesy:** Nepal is still influenced by the legacy of feudalism and caste system, and lately an elitism that excludes the uneducated from social influence. Illiterate, poor, or low-caste patients often come with the expectation that the educated health worker will “talk down to them”, and that they won’t understand anything they are told anyway. Don’t fulfil this particular expectation! Always try to treat young people as if they were your own young brothers and sisters, and older ones with the respect you would accord your own parents or older brothers and sisters. **Never** give them the impression that they are stupid, or that their illness is their own fault.

**Privacy:** In many Nepali hospitals and clinics, it is an unquestioned tradition to allow patients to wait inside the consultation room, maybe in the – mistaken – belief that this saves time. It is sometimes said that it provides an opportunity for health education, as the waiting patients listen to the advice given to each patient. Do not believe this! Having the consultation room full of people not only distracts you from the problem at hand, but also wastes time and often leads to inappropriate treatment or missed opportunities: Picture a 30 year old man just returned from work in India, who has a smelly penile discharge. – Will he tell you in front of a couple of young mothers, who possibly know him personally? You will most certainly miss the opportunity to treat him, counsel him about STDs and HIV, and advise him how to protect his wife from infection... Or an elderly lady with a uterine prolapse. – She will just complain of a headache or backache, and come away with some Paracetamol, and you won’t be able to give her the relief of appropriate treatment. There are enough such examples to make it imperative that you give every patient the opportunity to speak to you in private.

**Discretion:** Most medical councils adjure their members not to disclose medical information about patients to third parties. In small village communities this may sometimes seem exaggerated as people talk freely about their problems while waiting outside the health post. But don’t forget that this is their own choice! Never answer a question like “what was wrong with so-and-so, I saw her coming to the health post yesterday”. Try to avoid the question, or refer the questioner to the person herself. If you tell them straight “I don’t talk about my patients to others”, they might even be reassured, and come to you with their own embarrassing problem!

**Humility:** Don’t forget that no-one can know everything, and that to pretend knowledge is much more dangerous than to ask for advice (or look something up). Also, accept that sometimes patients may know more about a particular problem, or how they can best deal with it, than you do. Never adopt the position that you are the learned person, so you must know best. Also, don’t believe that patients

will think less of you if you occasionally say “I don’t know” or “I made a mistake”. On the contrary, they will probably respect you more for your honesty.

**Honesty:** Never assume that the patient doesn’t want to know something about their condition. – Ask how much they know, and if they need any further explanation. Always try to explain everything you know about someone’s condition, and tell them where they may be able to get more information.  
Honesty also includes being open about the health post’s budget and your own income. – Do not make a secret out of things that are better know publicly, it may save a lot of trouble.

**Enthusiasm:** Don’t forget: Providing a medical service to remote communities is one of the most rewarding and respected occupations! Aim to provide the best service possible under the circumstances, work hard to constantly improve, and enjoy the satisfaction and the respect that come with it!

## **IV. General Chapters**

### **1. Communication with the patient and Clinical examination skills**

As many health workers are not very intensively trained in examining and treating patients, we have put together a brief guide how to talk to patients and how to come to a diagnosis and treatment plan:

It can be very helpful to have a plan in your own head as to how to proceed when someone comes to you with a health problem. The following is a simple guide with some suggestions to make the task easier. If you always follow these five steps, you will generally not forget anything very important.

#### **1. Build a good relationship with the patient**

Always greet the patient respectfully (try to smile!) and if you do not know the patient, or he/she doesn't know you, introduce yourself. Make sure you have the correct information about name, address and age.

Make the patient comfortable, have them sitting close to you and give them the feeling that at this point in time, they are the most important person in the room. (NEVER allow more than one patient into the examination room at the same time, but do allow an accompanying person, if the patient wishes it.)

#### **2. Understand the patients problem**

First ask an open question such as "what has brought you here today?" and allow the patient to tell their story without interrupting. Try to understand what it is that brought them here at this time (are they worried about anything specific? Have the symptoms got worse? Has someone else said they should come to see you? Etc) Do ask if you are not sure you have understood. A good way to establish you both mean the same thing is to repeat back to the patient what you have understood.

#### **3. Come to a working diagnosis**

After the patient has stated their problem, you should have a few possible diagnoses in your mind. Try to work out which is the most likely diagnosis by asking specific questions that may rule out or confirm your ideas. (For example, if your differential diagnosis includes worms, gastritis, gastric ulcer or gastric cancer, ask for symptoms of all four, such as heartburn, sour burping, change in faeces, worms in faeces, black stool, blood vomiting, weight loss etc. Make sure you understand how long the problem has been going on.)

Finally, do specific examinations which may confirm or rule out your working diagnosis (for example, when you suspect gastric ulcer, look for signs of anaemia, examine the abdomen for tenderness and check haemoglobin. If all are completely normal, gastritis or worm infestation is the more likely diagnosis.)

#### **4. Agree a treatment plan**

Once you have decided on a working diagnosis, explain to the patient what you think is wrong, and what the options for treatment are. (For example, in someone where you suspect a gastric ulcer, you might advise them to go to a bigger health facility to have an endoscopy, but also offer them a trial of treatment if it is very difficult for them to leave the village.)

The treatment plan also includes advice about home treatment and changes in habits and ways to stop recurrence of the problem. (In this example, advise against smoking, alcohol and very hot spices, and to have several small meals a day.)

## **5. Plan for follow up**

Once you have explained the treatment plan to the patient, you need to let them know what to do in every possible situation: The patient needs to know when to come back, even if the treatment works (such as, in gastric ulcer with anaemia, you might just give them 2 weeks of iron tablets, but call them back to collect a further supply). You also have to advise them how long it is likely to take before the treatment works, and what to do if it doesn't work (come back or go to a bigger health facility?) and what are possible side effects of the treatment or possible complications of the illness.

In a situation where it is difficult to work out a definite diagnosis, sometimes the success or failure of a treatment helps you to decide what is really wrong, but the patient needs to understand this, or they may conclude that there is nothing else you can do for them if the treatment doesn't work.

**Remember:** You do not need to know everything, or remember everything! It is not a sign of inexperience or lack of knowledge to look something up in a book during the clinic. Most patients will take it as a sign that you really care about them and try to give them the best treatment possible. If you can communicate well with the patient, you are much less likely to overlook anything or make a serious mistake.

## **2. Normal Values:**

### **1. Pulse**

Age	At birth	0-12mths	1-5yrs	5-15yrs	> 15yrs
Rate	120-140/min	80-140/min	80-120/min	70-100/min	50-90/min

### **2. Blood pressure**

Adult values: diastolic 60-90 systolic 90 – 135

Children: systolic value 80 + (age x 2) or see table:

Age	< 1 yr	2-5 yrs	5-10 yrs
Systolic BP	70 – 90 mmHg	80 – 90 mmHg	90 – 110 mmHg

**Note: to measure BP of a small child, a smaller cuff is needed (cuff should only cover upper 2/3 of upper arm), which is often not available at health posts**

### **3. Respiratory rate**

Age	Birth-2 mths	0-12mths	1-2yrs	2-5yrs	5-10yrs	10-15yrs	> 15yrs
rate	35-60/min	25-50/min	25-40/min	20-30/min	15-20/min	15-20/min	12-20/min

### **4. Temperature**

All age groups: 35.5 – 37.2 degrees Centigrade

Or: 96.0 – 98.8 degree Fahrenheit

(“low fever” – up to 38.5 °C / 101.5°F; “high fever” – over 38.5 °C / 101.5°F; “very high fever” – over 41°C/ 105 °F)

### **5. Weight**

Age	At birth	At 6 mths	At 12 mths	At 2yrs	After 5 years
Weight in kg	2.0 – 3.5kg	Birth weight x 2	Birth weight x 3	Birth weight x 4	(Age + 4) x 2

### **6. Urine output**

In infants (< 1 yr): over 2 ml per kg per hour

In children over 1 yr: over 1 ml per kg per hour

### **7. Normal fluid requirement**

Body weight	Fluid requirement per day	Fluid requirement per hour
< 10 kg	100 ml/kg/day	4 ml/kg/hr
10 – 20 kg	50 ml/kg/day	2 ml/kg/hr
Above 20 kg	20 ml/kg/day	1 ml/kg/hr

### **3. Danger signs that should prompt immediate referral to hospital:**

#### **1. Surgical abdomen**

- Severe abdominal pain, which is either constant or coming in waves (“colicky”)
- Patient unable to move or walk because of pain
- Very painful on palpation; pain may increase when releasing after pressing down, pain on tapping lightly (these are signs of peritonitis)
- Abnormal bowel sounds on listening with stethoscope (either louder than normal, or very quiet)
- Abdomen may look swollen (distended with air)
- Patient may show signs of shock

**Do not give anything per mouth (but iv fluids may be beneficial), refer!!**

#### **2. Signs of kidney failure (or diabetes)**

- Tiredness, weight loss
- Swelling of body, especially face
- Urine output low, or very high
- Thirst, or nausea and vomiting
- Urine may smell odd, or change in colour

#### **3. Signs of heart attack**

- Chest pain, which makes the patient feel he is dying
- Fast pulse
- Skin looking grey, feeling clammy
- Nausea and vomiting
- Collapse, loss of consciousness

#### **4. Acute heart failure**

- Shortness of breath
- Weakness
- May have chest pain
- Swelling of body, especially feet and ankles or lower back
- Fast and/or irregular pulse
- Symptoms developing fast – over a few days
- BP usually low, but may sometimes be high

#### **5. Severe liver disease**

- Jaundice
- Abdominal pain
- Nausea, vomiting
- Diarrhoea or constipation
- Weight loss
- Abdomen swollen with water (ascites)

## **6. Metabolic crises**

- Progressive illness without fever
- BP may be low or high
- Progressive change of conscious state
- Unusually slow or fast pulse
- May have strange smell

## **7. Meningitis**

- Check also in guideline 12.1

Four main signs of:

- Headache
- Nausea, vomiting
- Photophobia (light hurts eyes/ makes headache worse)
- Neck stiffness (bending neck forward hurts)
- May also have skin rash

## **8. Progressive change of mental state**

- Patient getting more and more sleepy, difficult to wake
- Change in personality (for example, unexplained aggressiveness)
- Forgetfulness
- “black-outs” (patient seems awake, but can’t remember what he/she has said or done afterwards)
- Strange behaviour
- Seeing things that are not there
- Hearing voices that others can’t hear



## 4. Pain Management

### What is pain?

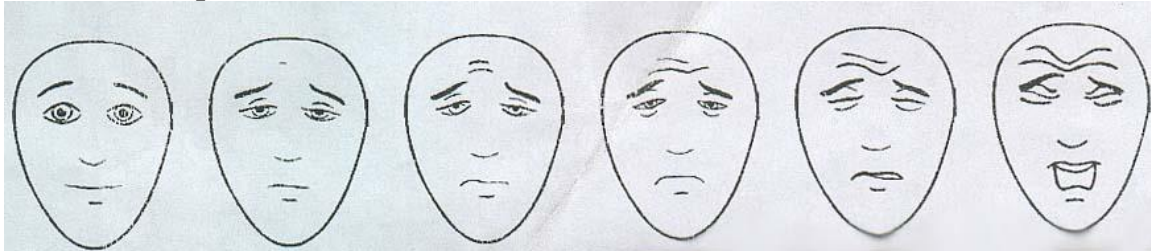
Physical pain is an unpleasant experience usually caused by injury or inflammation. For example the prick from a vaccination causes physical pain but also mental distress.

### Causes for pain:

Generally injury is the commonest cause for pain in children. Simple bruising or sprains can also be very painful. Mental stress and tension can also cause discomfort like headache and abdominal pain. Surgical procedures can also cause pain, as can arthritis, cancer and stress.

When treating pain in children, the causes have to be established.

### Evaluation of pain:



The above picture shows children in pain, and a child can show which face is most representative for its pain. Children over 6-7 years can also quantify their pain verbally, such as: it doesn't hurt, it hurts a little, it hurts quite a bit or it hurts a lot etc. Older children can also use a scale from 0 to 10 or 0 to 100 to quantify their pain, where 0 = no pain, 10 or 100 = the worst pain imaginable.

### Management of pain in children

- 1) psychological methods
- 2) medication
- 3) physical methods

#### 1) Psychological methods

##### 10 simple methods of reducing pain in children:

##### 1. Explanation

Explain to the child exactly what you are going to do, what the procedure is for and how long it will take. Children will be afraid if forced or threatened, and will feel the pain even more. Most children will cooperate better if they understand what is going on and will feel less frightened.

##### 2. Be open and honest

Explain what the procedure is for, and how it can be made least painful

##### 3. Help the child to familiarize him/herself with the procedure

Showing the equipment to be used, allowing the child to look at it and touch it, will reduce the stress and fear.

##### 4. Get the child's trust

Try to fight the child's perception that hospitals, doctors and clinics are objects of fear and pain.

5. Use simple language when explaining things, avoid difficult words. For example, rather than vaccination, say "jab"

6. Allow the child to say anything or ask anything on her/his mind

7. Explore the child's wishes

Allow the child to take part in decision making regarding its treatment. It makes it easier for the child if he can move as it wants to – for example, if he has to have an injection, allow the child to decide if he wants to sit on a chair or on his / her mother's lap.

8. Teach the child to breathe deeply, allow her to shout "ouch!" or "that hurts" when it hurts, encourage her to blow soap bubbles or to sing a song.

9. Help the child to feel comfortable. – rocking, singing a song, murmuring soothing words in a low voice. The presence of the mother or father or other trusted relative alone can help a child feel less threatened.

10. Distract the child. – if time allows, let the child play, use dolls or toys, paint a picture or listen to a story. When they concentrate on something else, children will feel less pain.

## **2. Drug Treatment**

For simple pain relief, use paracetamol or ibuprofen – these can be given at home. Take care to use the right dose!

For operations or procedures, anaesthetic cream applied beforehand can be helpful to reduce pain.

## **3. Physical methods:**

Heat, cold or massage can also help to reduce pain.

Teach the child to breathe deeply, allow it to shout "ouch!" or "that hurts" when it hurts, encourage it to blow soap bubbles or to sing a song.

## 5. Palliative Care

(Treatment to reduce Symptoms in Incurable or Terminal Illness)

### Background:

In some situations, patients may be so seriously ill that there is no hope of curative treatment. They may have been to a hospital and sent home with the information that there is nothing else to be done. Most often this happens in cancer, but severe heart disease or severe lung disease may cause very similar problems and symptoms.

The aim of any treatment in this situation is not to prolong life but to improve the quality of life for the time remaining to the patient – sometimes it has to be accepted that treatment of the distressing symptoms may actually shorten life.

### Principles:

Make the patient as comfortable as possible. Give medications only with the aim of reducing distress, not prolonging life. Do not advise any difficult treatment or care strategies: For example, advise against any diet restrictions.

There are a number of typical problems encountered in incurable disease, and the management is similar, whatever the cause:

### Problems:

#### 1. pain

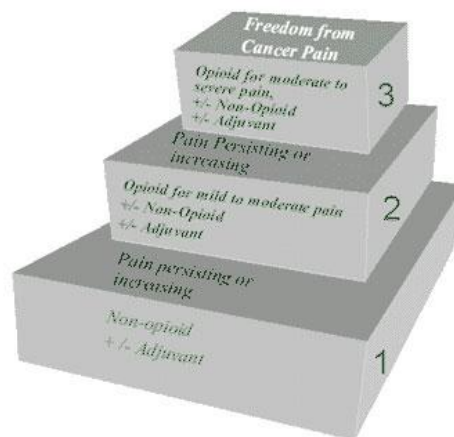
The main principles of pain treatment in terminal disease are:

- step up treatment as needed (see below),
- give pain medication regularly, not just when the pain returns,
- treat side effects such as nausea.

Adapted from WHO pain relief ladder: adult doses:

1<sup>st</sup> step – Paracetamol 1000 mg four times daily  
Or  
Paracetamol as above AND  
Ibuprofen 400 mg three times daily unless contraindicated  
2<sup>nd</sup> step: - as above AND  
Codeine Phosphate 30- 60 mg four times daily  
3<sup>rd</sup> step - Paracetamol and Ibuprofen as in step one AND  
Tramadol 50-100 mg four  
times daily

If it is not possible to control pain with the 3<sup>rd</sup> step above, it is best to refer the patient to an appropriate hospital for pain relief (such as Hospice Nepal in Kathmandu). He/She probably needs morphine, which is not available in the community.



## **2. Anorexia/Cachexia**

Poor appetite is often related to nausea, constipation or pain, also from gastritis or mouth ulcers, so treat these first. Advise diet that is easy to digest, or that the patient likes. Reassure the patient and the family that the patient does not have to eat if he/she doesn't feel like it. (Sometimes, forcing oneself to eat makes symptoms like nausea worse. Weight loss is a normal symptom of terminal disease.) Occasionally, giving steroids can help: Dexamethasone 4mg once a day in the morning

## **3. Ascites**

This is a collection of water in the abdomen and can cause pain and constipation. Sometimes it will respond to diuretics:  
Spironolactone 50 – 100 mg daily and  
Frusemide 40-80 mg daily

If this doesn't help, and the symptoms are very distressing, advise the family to take the patient to hospital to have the ascites drained

## **4. Constipation**

Constipation can be caused by reduced activity, reduced food and fluid intake, pain killers and sometimes narrowing of the bowel. Treat mild constipation by increasing fluid intake, if possible.

Medication:

Lactulose 5 – 15 ml 2 -3 three times daily (adjust dose to effect)  
Bisacodyl 5mg once or twice daily

## **5. Bowel Obstruction**

Bowel obstruction means that the food / faeces cannot move down the bowel. It can happen if constipation cannot be controlled, or it may be caused by narrowing in the bowel. Symptoms may include: not passing any gas from the anus, nausea, pain, vomiting. Clinical examination can show reduced or increased bowel sounds, a swollen and tender abdomen, and sometimes visible movement of the bowel beneath the skin.

Sometimes this can be improved or reversed by giving medication, but oral medication would not help:

Dexamethasone 8mg bd im/iv and Metoclopramide 10 mg im/iv tds . But do not give Metoclopramide if there is a lot of pain, as it may make it worse

Occasionally, if there is a lot of vomiting, a nasogastric tube may relieve this. If the above measures do not help, you may need to refer the patient back to the hospital.

## **6. Nausea and Vomiting**

Try to determine the cause of the nausea – if related to pain or constipation, treat this as well.

Medication: Metroclopramide 10 mg three times daily  
Promethazine 25mg at night or twice daily  
Cinnarizine 15-30 mg three times daily  
Ranitidine or Omeprazole in usual dose

### **7. Dyspnoea (Shortness of Breath)**

Many terminally ill patients feel short of breath and this can be very distressing. Often it is related to the incurable illness and the cause cannot be treated. However, consider treating anaemia, if present.

Other measures: advise patient not to lie down flat at night (prop up with pillows), stay near an open window, don't wear tight clothes.

Medication: Codeine Phosphate 15 – 60 mg four times daily

### **8. Cough**

Often related to shortness of breath – see above. Also try simple steam inhalation.

### **9. Ulcers or Wounds**

Some superficial cancers (such as skin cancer, breast cancer, cancer of the womb) can cause distressing large wounds, which often cause bleeding, pain, and a bad smell.

General management: Clean the wound gently rinsing with Normal Saline. Dress as often as necessary (twice daily or every other day), taking care not to cause bleeding. If there are a lot of secretions, try to use menstrual pads to absorb the fluid.

If dressing changes are painful, give an extra dose of painkillers an hour before the dressing change.

Dealing with smell:

Use antibiotic creams (such as polysporine)

Sprinkle Metronidazole over the wound at every dressing change (tablets can be crushed into powder.)

Sprinkle charcoal powder on top of the dressing or place a bowl of charcoal near the patient. It will absorb a lot of the smell.

Try burning incense to cover the smell.

Bleeding:

Always be very gentle changing dressings to avoid bleeding. If heavy bleeding does occur, apply direct pressure, or try cold compresses.

### **10. Pruritus (itching)**

Itching can be caused by anaemia, dry skin or as a side effect of medication. General measures: Try moisturising the skin (use a mixture of glycerine and warm water, or creams bought in a shop), keep the skin cool, keep nails short to avoid wounds through unconscious scratching.

Medication: Chlorpheniramine 4mg three times daily, Promethazine 25mg once or twice daily, or Cetirizine 10 mg daily

### **11. Hallucinations /Delirium**

A lot of very ill patients experience bad dreams and hallucinations, and sometimes this is caused by the medication they take. These symptoms can also be caused or made worse by pain or infection, so consider treating these.

Reassure the family that this is a common problem. If it is very distressing, try Promethazine 25mg once or twice daily, or you may try some diazepam tablets 5mg once or twice daily, but this can sometimes make the problem worse. Haloperidol is a better drug, but has to be prescribed by a doctor.

### **12. Seizures**

Many cancers can cause secondary tumours in the brain and can cause seizures. These are rarely dangerous in themselves. Treat as convulsions for other reasons (see chapter 7.1.).

Also try prednisolone 60 mg daily, or dexamethasone 8 mg daily in three divided doses to prevent seizures.

## **6. Infection Prevention Procedures at Rural Health Posts:**

It is one of the first duties of any health worker to make sure that the service we are providing does not cause more harm than good. If, for example, by giving a depot injection with an unsterile needle to a woman, she is infected by HIV or Hepatitis, that is worse than having no family planning services. Or if, when treating a clean wound, bacteria from a previous patient are transferred to that wound, that is worse than not treating the wound at all.

If you follow the recommendations set down here, you will be able to avoid this sort of harm:

### **1. Personal protection**

Preventing the transferring of infective material to yourself, or injuring yourself while working, is at least as important as protecting patients! Make sure that you handle instruments and patients safely, that you wear appropriate and safe clothes (i.e. closed shoes) and especially wear protective clothing (apron, mask, goggles) when performing high risk procedures (like pulling teeth, cleaning or suturing wounds, incising abscesses, attending deliveries etc) In case of injury with a large bore needle that you have used on a patient before, consider attending the nearest hospital. Make sure you are vaccinated against hepatitis B (one of the diseases you are at risk of acquiring through accidents at work with contaminated instruments).

### **2. Handwashing**

Many studies in hospitals and other health care settings have shown that most cross-infections between patients are probably caused by the hands of health workers. Apart from this, frequent, demonstrative hand-washing can also have an educational effect on patients. ("practice what you preach")

#### **2.1. Handwashing technique**

When washing hands you should be clear what is the purpose: is it to remove superficial dirt and bacteria from your hands ("hygienic"), or to make your hands as clean as possible, when you are performing a high-risk procedure – e.g. I&D of abscess ("clinical" handwashing)

**Tip: cut soap-pieces in half, so they are finished sooner – this keeps them cleaner**

##### **2.1.1. Hygienic hand-washing**

For hygienic handwashing, you should wash your hands well with soap, for about ½ minute in the normal fashion. Dry with clean towel. Wash your hands like this after every examination and especially before examining small babies.

**Alternative to hygienic handwashing: alcohol hand rub:** if hands appear clean: use 70% alcohol (NOT 96%!!) – add 2ml of Glycerin to each 100ml of surgical spirit. Apply in between patients: use 3-5ml, rub all over hands until dry

##### **2.1.2. Clinical hand-washing**

For clinical handwashing, remember the following steps:

- remove all rings, watches, bangles etc.

- first wash hands normally
- then wash with soap or surgical handsoap for 1 minute, taking care to clean backs of hands, between fingers, under nails, and wrists (6 steps of hand-washing!)
- if possible, dry with sterile towel, otherwise use new towel, or – better - sterile gauze
- finish by applying alcohol hand rub

## **2.2. Hand-Towels**

Hand-Towels are another often-cited source of cross-infection: in many health posts in Nepal, hand-towels are washed less than once a week, and may be much more soiled and inhabited by infectious agents than the health worker's unwashed hands!

Follow these principles:

- Instead of having only one or two large towels, use several (5-10) small ones (or cut one large one in several smaller pieces)
- Change the towel every day
- Change in between, if it looks dirty
- Wash all towels once a week
- After washing, if at all possible, dry in the sun (the ultraviolet light of the sun has an extra sterilizing effect)

## **3. Cleaning of treatment rooms**

Health posts should be an area of active teaching to the community, and should therefore always be obviously cleaner than the patients' own houses.

### **3.1. Cleaning of surfaces**

Surfaces of tables, window-sills, tops of cupboards, etc. should be cleaned with a weak solution of Dettol or Chlorhexidine.

Blood stains or other body fluids should first be removed with a stronger solution. (Wear utility gloves!)

### **3.2. Floor and rooms**

Floors should be swept every day and sprinkled with a weak solution of Dettol before sweeping every other day. Walls should be wiped with a weak solution of Dettol or Chlorhexidine every week

Blood stains or other body fluids should first be removed with a strong solution of Dettol or Chlorhexidine.

### **3.3. Cleaning schedule**

Clean floors every day before starting work. Clean surfaces every second day after finishing work, or more often if they appear dirty.

Clean walls and doors once a week.



#### **4. Cleaning of instruments**

All instruments which have been in contact with patients, and all instruments used to handle sterile equipment, have to be cleaned and/or sterilized before they are re-used.

This includes two stages:

##### **4.1. Decontamination**

**By decontamination we mean the removal of (usually visible) traces of dirt, body fluids etc, which may prevent proper sterilization, if not removed fully.**

For some instruments, thorough decontamination may be all that is needed. (earpieces for otoscope, unless they have been in contact with pus; tongue depressors, water cups for patients)

Decontamination is performed by immersing the instruments in a soap (detergent) solution for at least half an hour, and then cleaning thoroughly with a brush (tooth brush), rinsing, and drying (with a clean towel, or in the sun)

It is even safer to put instruments in dettol water immediately after use, and clean the next morning.

Always wear utility gloves when doing this and protect your eyes from splashes!!!

##### **4.2. Sterilization**

**Sterilization means the inactivation of any invisible infectious agents (fungal, bacterial or viral), which may be on the instruments. There are several ways to sterilize instruments:**

###### **4.2.1. Boiling**

This needs the lowest input of technology and no renewable resources (apart from fuel), but is also the least reliable method: especially at the higher altitudes of Nepalese rural settings, there is no way to control that the adequate temperature is achieved.

To kill all bacteria (but not spores) at sea level, the instruments need to be completely immersed in boiling water (100degree centigrade) for 30 minutes. At higher altitudes, where water may boil at as low temperatures as 80 degree centigrade), the interval should be extended to 45 minutes. But this is NOT a very reliable way of sterilization!!

###### **4.2.2. Steam sterilization**

Much better than boiling – though only effective if done correctly - is steam sterilization: This should be done in a standardized steam sterilizer, which should have a dial to indicate adequate pressure. At this pressure, temperatures of approx. 120 degrees centigrade are reached, and this is independent of the altitude.

To inactivate all relevant infective agents – including most spores – the temperature / pressure has to be maintained for at least 15 minutes.

###### **4.2.3. Autoclave**

Some health posts are equipped with an autoclave, which produces drier heat and high pressures. This is much better suited for sterilizing gauze, cotton and clothes.

##### **Chemical sterilization**

An alternative to heat and pressure is chemical sterilisation. The most commonly available sterilizing chemical in Nepal is sodium hypochlorite (Virex), but Virkon is also available and safer. (but more expensive)

The directions for use are as follows:

**Hypochlorite (Virex):** one packet of 160g is needed for 10 l water – add to 1 l water first and dissolve, then add remaining 9 l. Be careful not to touch – protect eyes and mucous membranes!

**Virkon:** one 50 gm packet is sufficient for 25 l of sterile water – for smaller amounts, divide contents of packet in 5 exactly equal parts, and use one part for 5 l of water.

For high level disinfection, completely immerse instruments (cleaned and dried, with open hinges) for 20 minutes (this does NOT kill spores – NOT sterile!); for sterilization, immerse as above, in closed container, for 10 hours.

## 5. Disposal of sharps

Sharp items which are potentially infective, e.g. needles, scalpel blades, extracted teeth or removed sharp foreign bodies (glass splinters etc.), have to be disposed in such a way that no-one can injure himself when handling them later. The best way is to put them into a large empty plastic or tin container (not glass or carton), and when the container is full, heat it thoroughly in a pit or incinerator, and then bury the container unopened at least 1 m deep in a safe place.

None-infective sharp items (e.g. empty glass ampoules, needles only used for drawing up medicines, not for injecting it) should be buried in the same way after being placed in a closed container. (This can also be carton, but never glass, as that may break and scatter sharps); to be even safer, the sharps container may be filled up with cement before burying.

## 6. Disposal of waste

Waste which is not sharp and therefore does not pose a risk of injury, has to be disposed of according to whether it is potentially infectious or not:

### 6.1. Infectious waste

This includes any dressings or any materials which have been in contact with patients' body fluid (pus, blood, saliva etc.), as well as used syringes (without the needle)

Dispose of in a safe place (bin with a lid) until burning in a pit or high-temperature incinerator. **Expired medicines**, although not infectious, should also be disposed of in this safe way. – If they are found by children or animals, they may cause a lot of harm. Remember to open and empty or break all glass bottle and ampoules before burning as they will otherwise explode in the fire and can cause injuries!

### 6.2. Non-infectious waste

Paper, alcohol or gauze swabs which have only been used on intact skin, packing materials, etc. do not need to be treated in any other way than the waste in any normal household: they can be burned in a normal fire, or buried.

## **V. Clinical Chapters**

### **1. Respiratory Tract**

#### **1.1 “Common Cold”**

##### **Important symptoms:**

- Cough and Rhinorrhea (running nose)
- May have throat pain, headache, slight muscle pain
- Patient not seriously ill

##### **Important signs:**

- Viral infections in children often also involve the gastrointestinal tract with vomiting/diarrhea
- Normally relatively mild fever (<102° F)
- On auscultation, no crepitations or wheezing
- Normal respiratory rate (less than 60/minute if child below 2 months, less than 50 / minute if child below 1year, less than 40 /minute if child below 2 years - see chapter 2. “normal clinical values”)

##### **Essential disease information:**

This is a viral infection by many possible viruses. Antibiotics do not act on viruses, therefore are not useful. There is a risk of bacterial superinfection. In this case you can see the child having more fever and getting sicker.

##### **Differential Diagnosis:**

Other respiratory infections, see following chapters. Influenza.

Gastrointestinal Infection, Worm Infestation.

If fever, headache and body pain, think of Enteric Fever.

##### **Other diseases that may also be present:**

Malnutrition, worms

##### **Action:**

##### **Investigations:**

Normally none needed.

##### **Treatment:**

Supportive treatment for fever: Paracetamol

Supportive treatment for diarrhea: ORS

If a small baby has a lot of difficulty breathing through the nose, putting drops of salty water in its nose may help (keep cleaning the nose)

##### **Counselling:**

Explain about the viral origin of the disease and that antibiotics don't help. Call for review if the patient doesn't get better, or gets sicker.

##### **Follow-Up:**

Only if not improving after 5 days.

##### **Referral situations:**

Usually none.

## **1.2 Upper Respiratory Tract Infection**

### **Important symptoms:**

- Cough
- May have throat pain
- Fever

### **Important signs:**

- On auscultation no crepitations, may be wheezing
- No chest indrawing, no grunting
- Normal respiratory rate (less than 60/minute if child below 2 months, less than 50 / minute if child below 1year, less than 40 /minute if child below 5year - see chart in Annex VII at end of book)

### **Essential disease information:**

This can be a viral or bacterial infection of the trachea and big bronchi, the lung itself is not infected. It will in many cases pass without antibiotics, but can also develop into pneumonia.

### **Differential Diagnosis:**

Other respiratory infections, pneumonia, worm infestation

### **Other diseases that may also be present:**

Other respiratory infections, worm infestation.

### **Action:**

#### **Investigations:**

Physical examination,

#### **Treatment:**

Supportive treatment for fever: paracetamol

Supportive treatment for cough: drink plenty of hot water, with lemon, honey or Tulsi, garlic and ginger

Supportive treatment for wheezing: salbutamol

If more severely ill, treat with antibiotics: Cotrimoxazole, Amoxicillin, Erythromycin

#### **Counselling:**

Protect child from cold.

Give steam inhalations to make the mucus more liquid (only in children over 5 years!), give lots of hot fluids, preferably hot water with honey (see above), give frequent breastfeeds to small babies

#### **Follow-Up:**

If not improving within 48 hours, immediately if breathlessness, chest indrawing, grunting, very high fever, or not drinking / feeding well.

#### **Referral situations:**

If developing towards pneumonia., (In a clinic, WBC and CXR can help to see the cause of the illness.)

### **1.3 L.R.T.I. / Pneumonia**

#### **Important symptoms:**

- Fever
- Cough
- Poor breastfeeding, poor feeding
- Difficulty breathing or talking
- Child may be sleepy / drowsy or irritable

#### **Important signs:**

- Increased respiratory rate (60 or more/minute if child below 2 months, 50 or more/minute if child below 1year, 40 or more/minute if child below 5year)
- Nasal flaring,
- Grunting expiration
- Chest recession (sub costal indrawing)
- Central Cyanosis (blue lips, tongue)
- Reduced air entry
- Abnormal breath sounds and crepitation

#### **Essential disease information:**

Infection of the lungs with bacteria.

#### **Differential Diagnosis:**

Asthma, URTI, PTB, bronchiolitis, inhaled foreign body, generalised infection (e.g. meningitis), heart failure.

#### **Other diseases that may also be present:**

PTB, heart failure, empyema, malnutrition, worm infestation.

#### **Action:**

##### **Investigations:**

Usually none.

If recurrent, refer for CXR to detect type and extent of lesions (lobar or lobular pneumonia, bronchopneumonia and interstitial pneumonia) and WBC.

Assess severity as follows:

Signs	Classify as	Action
Not able to drink, Central cyanosis, Convulsions, Abnormally sleepy or difficult to wake, Stridor in calm spells or tachypnoea, Severe malnutrition, Dehydration, High fever or in small baby hypothermia.	Very severe disease	Give first dose of an antibiotic, Treat fever, if present, Treat wheezing, if present, Refer urgently to hospital for admission

Tachypnoea Chest indrawing No central cyanosis Able to drink	Severe pneumonia	Give first dose of antibiotic Refer urgently to hospital for admission Treat fever if present Treat wheezing if present If referral is not possible treat with an antibiotic and follow up closely Reassess daily.
No chest indrawing High respiratory rate	Pneumonia	Advise mother to give home care Give an antibiotic Treat fever if present Treat wheezing if present Advise mother to return with child in 2 days for reassessment or earlier if the child is getting worse

### **Treatment:**

- Cotrimoxazole, 2. Amoxicillin, 3. Azithromycin/ Erythromycin
- Give first dose of an antibiotic in clinic & instruct mother on how to give the antibiotic for 5 days at home.
- If fever, prescribe Paracetamol to give as required
- If wheezing/obstruction, prescribe Salbutamol
- In children under five years of age, treat suspected vitamin A deficiency with Vit. A capsule 200.000 IU (>1 year) / 100.000 IU (6mths to 1 year) / 50,000 IU (<6 mths).
- Also give all children under 5 years Zink supplements: up to 6 months of age: 10 mg daily for 10 days, 6 months to 5 years: 20 mg daily for 10 days. Tablets can be chewed or dissolved in water or ORS.

### **Counselling:**

Warm the baby (near the fire, warm clothes)

If fever, manage with Paracetamol, advise how to apply cold compresses.

Advise mother to give home care (for the child age 2 months up to 5 years):

Feed the child during illness. Increase feeding after illness.

Clear the nose if it disturbs the feeding

Offer the child extra to drink

Increase breastfeeding

Parents' smoking and smoke from open fire as risk factor for respiratory infections

### **Follow-Up:**

Review after 2-3 days, if not improving. Review immediately if patient getting worse.

### **Referral situations:**

If severe or very severe pneumonia.

If not improving on treatment. If recurrent (more than 3 pneumonias in 1 year).

(In the hospital, chest x-ray to investigate pneumonia, possibility to give i.v. antibiotics and oxygen, if necessary artificial ventilation.)

## 1.4 Asthma

### **Important symptoms:**

- Sudden onset of difficulty breathing
- May have had previous, similar “attacks”
- Dry cough, especially at night
- There may be a wheezing or whistling sound

### **Important signs:**

- When listening to the chest, wheezing is heard
- Breathing out takes longer than breathing in
- Patient may be sitting up and leaning on his hands to breathe better
- Patient may have difficulty talking
- Cyanosis and drowsiness are danger signs!!!

### **Essential disease information:**

Asthma is usually a disease that starts in children or young people, and can either be chronic – get worse over time, or can sometimes get better as the child grows up.

In asthma, the airways are narrowed, and consequently the air does not get in and out of the lungs so easily. Especially breathing out can be difficult. Often, asthma first only causes a dry cough, especially at night.

Generally, the patient has “attacks” of breathlessness, which last from a few hours to a few days, and in between he can breathe nearly normally.

### **Triggers for “attacks”:**

- URTI
- exercise
- cold air
- pollen or animal hairs
- smoke, cigarettes
- dust, cooking gas

### **Differential Diagnosis:**

Pneumonia, COPD, heart disease, Pleural T.B., Bronchiectasis, worms, foreign body in airways,

Hyperventilation: this is a psychological problem, where the patient feels anxious and short of breath, but there is no actual lung disease. Reassure the patient, usually resolves within an hour.

### **Other diseases that may also be present:**

Allergies, eczema, Heart disease (in long-term lung disease, the heart also becomes affected)

### Action:

### **Investigations:**

At first presentation, refer for investigations; if any doubt, also ask for sputum test for TB.

### **Treatment:**

#### **During attack:**

- Salbutamol 0.2mg per kg body weight
    - 1 - 6 yrs 1-2 mg t.i.d. (syrup 2mg / 5ml)
    - 6 - 12 yrs 2 mg t.i.d. (1/2 4mg tablet)
    - >12 yrs 4mg t.i.d.
  - better: Salbutamol inhaler:
    - < 6yrs 1 puff tds or up to 6 times daily
    - > 6yrs 2 puffs tds or up to 6 times daily

note: if very breathless, you can give Salbutamol inhaler 5 - 10 puffs at once
  - In very serious cases: Give Prednisolone 1mg / kg body weight at once, and refer! (adult dose: 30 mg: 3x10mg or 6x5mg Tablets or Dexamethasone 2 mg: 4x 0.5mg)
  - If there is high fever, give antibiotic: Cotrimoxazole, Amoxicillin, Erythromycin, Doxycyclin (only over 12 years of age)
- note: If you have to give Prednisolone / Dexamethasone, refer!!**

### **Continuous treatment:**

Explain that asthma is a chronic condition and usually needs continuing treatment.

#### **1. If there are only very occasional attacks (less than two a week):**

Salbutamol only as required: (inhaler is better than tablets or syrup) take 2 puffs whenever short of breath (up to 4 times daily), or take one 4mg tablet (syrup according to weight) 3 times a day for 2-3 days

#### **2. If there are attacks of breathlessness more than twice a week, continuous treatment:**

Salbutamol (inhaler: 2 puffs tds, syrup / tablet see chart)

#### **3. If there is a lot of breathlessness even with this treatment:**

Continue Salbutamol (inhaler: 2 puffs t.d.s , syrup / tablet see chart)  
and

➤ Beclomethasone inhaler 2 puffs b.d. every day

or

➤ Aminophylline 100mg t.i.d. or q.i.d. (adult only)

Or both

**If with this treatment there is still no improvement, refer!**

### **Salbutamol inhaler technique:**

If used without spacer, you have to press the inhaler and take a deep breath simultaneously. But this isn't so easy to do, therefore it is usually better to use a spacer: you can make this from a plastic bottle (see pictures) or buy it in a medical shop.



**Counselling:**

- Explain that this is chronic disease and explain need to continue treatment
- Stop smoking.
- Explain triggers for attacks
- Advise to consult early during an attack for prompt treatment

**Follow-Up:**

Initially, see patient frequently (1-2 times per month) to assess progress. After that, see once yearly, or advise to see doctor once yearly

**Referral situations:**

- At first presentation (to confirm diagnosis)
- All serious cases (cyanosis, drowsiness, unable to speak, very high – or low - pulse rate)
- If there are very frequent attacks

## 1.5 COPD

### **Important symptoms:**

#### **Like asthma, but:**

- not completely well between attacks
- cough is a main symptom
- usually cough with phlegm
- short of breath with exercise
- usually gets worse with URTI, and often phlegm then shows yellow or green
- anorexia (loss of appetite)

### **Important signs:**

- barrel chest: chest looks very deep
- prolonged expiration time
- on listening to chest, wheezing and other sounds can be heard
- sometimes the breathing sounds are difficult to hear

### **Essential disease information:**

Usually this disease starts after the age of 30 – 40 years

Usually a disease of smokers (although smoke from kitchen stoves can have a similar effect)

### **Differential Diagnosis:**

Asthma, Pneumonia, heart failure, Pleural T.B., foreign body in airways, Bronchiectasis, worms

### **Other diseases that may also be present:**

Malnutrition, heart failure (in chronic lung disease, very often the heart is also affected)

### **Action:**

### **Investigations:**

At first presentation, refer for diagnosis. Also remember that known patients with COPD can ALSO get TB or lung cancer.

### **Treatment:**

#### **During exacerbation (usually there is a chest infection):**

- Doxycycline 100mg b.d for 5 days OR Amoxicillin 500mg t.i.d for 5 days.
- Salbutamol inhaler 2 puffs 3-6 times daily or Salbutamol Tablets 4mg t.i.d.
- Prednisolone 30mg o.d. 3 days ( 3x10 mg in the morning)
- If very short of breath: try to add Aminophylline 100mg for 5 to 10 days

**Continuing treatment:**

- **Mild cases:** Salbutamol Tablets 4mg t.i.d. or Salbutamol inhaler as required
- **More severe cases:** Salbutamol as above and Beclomethasone Inhaler 1-2 puffs twice daily
- **If this is not sufficient:** Salbutamol as above continuously; if necessary, add Aminophylline 100mg b.d. or Deriphylline 150mg b.d.
- **Some severe cases need** continuous Prednisolone 5-10mg. But this can cause other problems, and **therefore needs to be prescribed by a doctor.**

**Counselling:**

Stop smoking. Avoid situations that cause shortness of breath (like cold air, exercise, smoking stoves). Come early for treatment in case of deterioration.

**Follow-Up:**

If continued treatment is needed, you will usually need to see the patient monthly. Otherwise, advise to come as soon as possible, when there is deterioration.

**Referral situations:**

All cases at first presentation to confirm diagnosis.

If there is severe deterioration, or deterioration doesn't respond to antibiotic treatment

If there is severe breathlessness which doesn't improve with above treatment (patient may need steroids)

## **1.6 Pulmonary Tuberculosis (PTB)**

### **Important symptoms:**

- Cough > 3 weeks
- weight loss (more than 10%), or not gaining weight in children
- evening fever, night sweat
- chest pain
- shortness of breath
- haemoptysis (coughing up blood)
- anorexia (loss of appetite)

### **Important signs:**

- thin patient, child below percentiles
- sometimes febrile (usually low grade fever – typically rises in the evening)
- often family history of pulmonary tuberculosis

### **Essential disease information:**

Mycobacterium Tuberculosis and the immune response destroy lung tissue, mostly affecting the upper part of the lungs, can affect other parts of the lung.

### **Differential Diagnosis:**

Asthma, Pneumonia, COPD, CCF, Pleural T.B., Bronchiectasis, worms

### **Other diseases that may also be present:**

HIV, diabetes

### **Action:**

#### **Investigations:**

Unless your health centre has facilities for testing sputum, all patients with suspected PTB need to be referred to the nearest district centre for more investigations. If the diagnosis is confirmed, the patient will be treated with different drugs (ATT= Anti-Tuberculosis Treatment) for 6-9 months. The patient can get the medicine free from the governmental DOTS centres.

Remind the patients NOT to go to a private clinic, as they will be charged for treatment that should be free, AND the follow-up is not as good.

If the diagnosis is in doubt, consider treating for L.R.T.I., see there. Then reassess.

#### **Treatment:**

Is prescribed and given by the nearest TB diagnostic centre (usually district hospital or primary care centre).

#### **Counselling:**

Reinforce need for good compliance with treatment.

Stop smoking.

Family members staying in the same house need to be examined for TB as well.

Do not spit in household.

Find the source of the infection, if possible (Which patient was ill first?).

**Follow-Up:**

Will be done at the treatment centre at the given intervals.

**Referral situations:**

All suspected cases.

(The TB diagnostic centre will take chest X-ray and 3 times sputum and sometimes WBC/ESR.)

## **2. Cardiovascular Problems**

### **2.1 Heart Problems**

#### **Important symptoms:**

- Getting tired and exhausted very easily
- Getting short of breath when walking uphill
- Chest pain when walking
- Feet and legs swelling, especially in the evening
- Having to get up to pass water at night
- Not being able to sleep well when lying down flat
- In small children, parents may tell that child gets blue when crying or running

#### **Important signs:**

- Fast and/or irregular pulse
- Visible or easily palpable heartbeat
- May look thin and ill
- Oedema of the legs, when pressing on it, a depression remains
- When listening to the chest, there may be fine crepitations
- There may be heart murmur – whooshing sound in time with heart beat can be heard with stethoscope
- Look at hands: in chronic heart disease, often the ends of the fingers look thickened and curved
- In small children, lips and tongue may look blue

#### **Essential disease information:**

There are many different forms of heart disease. The four commonest that you may come across are:

1. **Congenital heart disease:** in the heart of a newborn child, sometimes there are extra holes, or the blood vessels are too narrow, or in the wrong place, and this can lead to the heart having to work a lot harder than in healthy people. According to the severity of the disease, this can lead to obvious, serious problems early in life (baby not feeding well, looking blue, not growing; child not growing well, unable to run with peers, always ill); or problems may only appear in later life (often around 30 years of age, but may be earlier or later), in the form of progressive tiredness, shortness of breath, and other signs as above. The only real treatment for congenital heart disease is surgery, although sometimes some relief may be obtained by medicines. (such as Frusemide, Spironolactone, Digoxin, Enalapril, and others)
2. **Rheumatic heart disease:** this is a consequence of rheumatic fever (see chapter 7.8.5. for R.F.), where the valves of the heart are thickened and not opening and closing well. Again, the heart has to work much harder

than it should, and the above signs of heart failure appear. Again, the only real treatment is surgery, but medicines (as above) may give some relief. – These patients all need to be on prophylactic Penicillin!

**Note:** These two forms of heart disease often get worse during a woman's first pregnancy, and may even lead to maternal death. For this reason, if you suspect heart disease in a young girl, make sure she goes to see a doctor before her marriage!

3. **Ischaemic heart disease:** this is when the blood vessels taking blood to the heart muscle (the coronary arteries) are narrowed, and cannot transport enough oxygen to the heart. Whenever the heart has to work harder, the blood supply is not enough, and this leads to chest pain (angina pectoris). A "heart attack" is a sudden worsening of ischaemic heart disease, where part of the heart muscle may be destroyed completely. This problem is the commonest heart disease in Western countries, and in Nepal is not often seen in the villages. However, it is becoming more common. Risk factors are smoking, overweight and high blood pressure. Treatment is with small dose aspirin and some other medicines (such as Nitrates, Beta-blockers) which work on the heart. Sometimes, "bypass" surgery is necessary.
4. **Heart failure for other reasons:** Especially in older people, or people with a chronic illness such as asthma, or people with long-term hypertension, the heart can get weakened even if there is no obvious damage. This leads to most of the above symptoms – usually, the "right" or "left" heart gets weak earlier, and according to this, breathlessness or oedema may be the main symptom in the beginning. This type of heart failure cannot be cured, but can be relieved to some extent by the appropriate medicines.

**Acute heart disease:** There are also cases of infectious or other acute illnesses affecting the heart (e.g. rheumatic fever, endocarditis, viral pancarditis, "silent" heart attack). In these cases a previously well grown-up or older child suddenly develops the above symptoms, often with fever and other signs of acute illness. **Refer!!**

### **Differential Diagnosis:**

Anaemia, lung disease, liver or kidney disease

### **Other diseases that may also be present:**

Chest infections, malnutrition

**Action:**

**Investigations:**

See signs above: look at hands, listen to chest, take a careful history. If you suspect heart disease, refer to the nearest place that can do X-rays and ECGs.

**Treatment:**

**In a very elderly patient with signs of heart failure, who refuses referral:**

You may give Frusemide 40mg o.d. (in the morning)

Best combined with Spironolactone 25mg o.d (in the morning)

These are so-called diuretics, they help the kidneys to remove more fluid from the body, and thereby make work a bit lighter for the heart.

**All other patients with suspected heart disease need to be referred for diagnosis!  
(You may then provide medicines according to a doctor's prescription)**

**Counselling:**

Types 1-3: explain that the diagnosis of heart disease, and assessment how severe it is, is not possible in a health post. Explain that usually medicines do not cure the problem, but sometimes may be beneficial, but this type of medicine has to be prescribed by a doctor. Explain that often, but not always, surgery is necessary

In all patients:

- advise rest – no activity that causes severe breathlessness or chest pain, but gentle exercise is not harmful, and may even be beneficial
- advise patient to restrict intake of salt: slowly reduce the amount of salt they use in cooking (most people find it difficult to reduce suddenly, as then food doesn't taste nice)
- stop smoking or chewing tobacco
- do not stop eating nutritious foods – but don't eat very big or very fatty meals – eat little and often
- try not to drink too much water

**Follow-Up:**

Follow up after referral, to see if any regular medicines have to be supplied, and to counsel patient re necessity of continuing these.

Follow up immediately if acute illness or sudden deterioration

**Referral situations:**

All cases. Acute heart disease needs to be referred as fast as possible, to avoid serious consequences.



## **2.2 Abnormal Blood Pressure:**

**This chapter has mainly been written, because there are many misconceptions about the significance of blood pressure measurements among patients in Nepal, but also among health workers. We would like to enable health workers to understand, and explain, when it is important to measure blood pressure, and when it is not, and what the measurement means.**

There are basically four forms of “abnormal” blood pressure:

1. Chronic low blood pressure
2. Acute low blood pressure associated with serious disease
3. High blood pressure
4. High blood pressure in pregnancy

### **Important symptoms:**

- **Chronic low BP:** patient may feel tired or dizzy, especially when getting up from a sitting or lying position;
- **Low BP due to serious circulatory failure (shock)** – dizziness, short of breath, clammy skin, panic, loss of consciousness (see chapter 10.3 shock)
- **High BP:** very often, there are no subjective symptoms with high BP (see essential disease information), possible symptoms of very high BP:
  - Headache or chest pain
  - Nose bleeds
  - Dizziness
  - Red face, hands trembling
- **High BP in pregnancy (pre-eclampsia):** this is always a danger sign and needs to be referred. Signs of progression of disease:
  - Headache, nausea
  - Upper abdominal pain
  - Seeing lights in front of eyes
  - Hands trembling

### **Important signs:**

Check blood pressure and pulse. In case of low BP, is there any history / indication of illness?

In case of high BP: very high values (>120 diastolic or >200 systolic) are always a danger sign

### **Essential disease information:**

Blood pressure is the pressure inside the arteries (the blood vessels leading away from the heart). Its value depends on the strength of the heart contraction, the volume of blood available, and – mainly – the tension of the artery muscle itself.

Normal values for blood pressure are 50 - 85 diastolic and 90 – 135 systolic. However, whether a BP value is “normal” or not, depends mainly on the previous blood pressure of the individual.

For example, if a young woman had a blood pressure of 90/60 in the first three month of her pregnancy, and the measurement at 34 weeks is 130/85 then that is definitely abnormal.

Conversely, if a young man, whose normal blood pressure you would expect to be about 120/80, has an accident and loses blood, and you then measure his BP as 95/60, then this also has to be regarded as abnormal.

**Low blood pressure** is ONLY significant if it is accompanied by symptoms of shock (see chapter 10.3)

The significance of **high blood pressure** is twofold:

In all patients but pregnant women:

1. High blood pressure due to underlying disease: Especially kidney disease and thyroid or other hormonal abnormalities can cause high blood pressure before any other symptoms or signs. (Suspect this in otherwise fit young patients, or those that are vaguely unwell without specific symptoms) If this is discovered early, often the underlying disease can be treated before there is permanent damage. Therefore, it is recommended in most countries for all individuals to have their BP measured about once every 2-5 years.
2. Chronic or “essential” high blood pressure. Typically a disease of the elderly, or overweight, or heavy smokers, this is a problem of the heart and arteries. If blood pressure is high over many years, the arteries can become damaged and complications develop: angina / heart attack, kidney disease, stroke, eye problems and others.

To prevent these problems, the high blood pressure has to be reduced, either by medicines, or other forms of treatment (see below at counselling)

**High blood pressure in pregnant women:**

Please see the appropriate safe motherhood guidelines for this: High blood pressure in pregnancy can be a sign of pre-eclampsia, a serious multi-system disease, which can lead to death of both fetus and mother. This can only be diagnosed and treated in a hospital, so all suspected cases have to be referred!

**Differential Diagnosis:**

See above under essential disease information; but if you have an unexpected abnormal value, also check your equipment!

**Note:** in patients with very thin arms, the normal BP set will usually give a reading that is lower than the actual pressure (by up to 20 mmHg); whereas in fat patients the reading is usually higher than the true value.

**Other diseases that may also be present:**

Heart disease, kidney disease, shock, thyroid disease, others

**Action:**

**Investigations:**

In low blood pressure, in sick patient, check for signs and causes of shock (see chapter 7.4)

In high blood pressure, all known cases have to be referred for investigation to exclude serious underlying disease (kidney function, thyroid function, chest X-ray etc)

## **Treatment:**

**Chronic Low-normal BP** without serious illness: this is NOT a disease, and consequently needs no treatment. See counselling

**Known Chronic High BP**, where underlying disease has been excluded: see counselling. Often needs continuous treatment with BP lowering medicines (diuretics, beta blockers, others). But these have to be prescribed by a doctor.

**Sudden drop in BP:** check for history and signs of shock (see guideline 10.3) and treat!! if not due to shock, need to refer! (This can sometimes be a sign of serious systemic disease such as adrenal disease or thyroid disease)

**New cases of high BP:** refer for investigation!

If BP is higher than 120 diastolic or 200 systolic, give **Nifedipine 20 mg** one capsule as an emergency treatment, and refer.

## **Counselling:**

**Chronic low-normal BP:** explain that this is NOT a disease. (Commonly, young women have low normal values) Some people experience dizziness and tiredness with low blood pressure. It may be beneficial to drink stronger tea, or coffee, especially with ginger.

### **Chronic High BP:**

- If overweight, lose weight
- If smoker, stop smoking
- Reduce amount of salt in diet: every day, use a little less salt in cooking dal and vegetables. (most people find it hard to reduce suddenly, as the food won't taste nice.) In areas where salt tea is popular: advise not to have more than two cups of salt tea a day – drink hot water or sugared tea instead
- If patient is already taking antihypertensives, advise that these need to be taken regularly. – The medicine is there to prevent complications later on, and only works if taken over many years
- Advise to have at least twice-yearly BP checks

**Other cases:** need referral

## **Follow-Up:**

Low BP – not needed; high BP – at least twice yearly

## **Referral situations:**

All cases except low-normal BP which is not associated with any signs of disease.

### **3. Gastrointestinal Tract**

#### **3.1 Acute Gastroenteritis/Viral Diarrhea**

##### **Important symptoms:**

- Often starts with colicky abdominal pain and nausea and vomiting
- Diarrhoea often starts on second day
- Can be very watery, yellow or greenish, usually not very smelly
- No blood or mucus
- Usually no more than 10-15 stools per day
- Often other signs of viral infection (fever, headache)

##### **Important signs:**

- Patient not very ill
- May be mildly dehydrated
- Bowel sounds increased on auscultation
- May have mild fever

##### **Essential disease information:**

This is a usually self-limiting disease that rarely lasts more than 4-5 days. Medicines do not help to clear it faster, but may have side effects (like increased nausea)

The main danger, especially in small children is dehydration

Viral diarrhoea is very contagious and also spreads through droplet infection, not just faecal-orally!

##### **Differential Diagnosis:**

URTI, Ear infections, UTI (in small babies), Other causes of diarrhoea: dysentery, enteric fever, chronic diarrhea

##### **Other diseases that may also be present:**

Worm infestation, malnutrition

##### **Action:**

##### **Investigations:**

Examine ears and urine in small children (less than 2 years)!

Look at urine, and if available, do dipstick test

If possible, send stool for culture to exclude treatable cause

## Assessment of Dehydration

Mild	Moderate	Severe
Irritable thirsty	Irritable, thirsty No tears when crying Some reduction in urine volume Eye balls sunken Fontanel depressed (in babies up to 18 months) Dry mouth and lips Skin fold returns slowly	Apathetic, lethargic, drowsy Peripheral circulatory failure: cold extremities, weak pulse, tachycardia (pulse >100/min.) Marked reduction in urine volume Eyeballs markedly sunken Fontanel markedly depressed (in babies up to 18 months) Mouth and lips very dry Skin fold returns very slowly (> 2 sec.) Fast breathing (resp. rate >30/min.) Refuse drinks, not able to drink

### **Treatment:**

- ↪ If mildly dehydrated: oral rehydration at home
- ↪ If moderately dehydrated: start oral rehydration in health centre, continue at home after improvement
- ↪ If severely dehydrated or unable to tolerate oral fluids (vomiting, or refusing drinks): start i.v. rehydration in health centre, refer to higher centre
- ↪ In children under five years, treat suspected vitamin A deficiency with Vit. A capsule 200,000 IU (>1 year) / 100,000 IU (6mths to 1 year) / 50,000 IU (<6 mths).
- ↪ Also give all children under 5 years Zinc supplements: up to 6 months of age: 10 mg daily for 10 days, 6 months to 5 years: 20 mg daily for 10 days. Tablets can be chewed or dissolved in water or ORS.

### **Oral Rehydration Therapy (Jiban Jal)**

Jiban Jal is slightly better at replacing lost body fluids than other fluids, but rice water or vegetable soup or if there is nothing else, clean water also work.

The basic principle is to replace lost fluid: give ½ - 1 glass of Jiban Jal or other fluid (less in very small children) every time watery stool is passed

If vomiting is also present, very small amounts (2-3 spoonfuls) have to be fed very often (every 5-10 minutes) as dehydration exacerbates the vomiting.

Make sure there is a urine output as sign for rehydration.

### **Counselling:**

- If there is no vomiting, advise about easily digestible foods: biscuits, rice, lito;
- avoid spicy food, pulses, eggs, meat and undiluted cow or buffalo milk while diarrhoea is present
- If there is also vomiting, advise only to give solid food (other than breastmilk and fluids) once there has been no vomiting for at least four hours.
- Basically, advise to feed according to appetite.

Advise about causes and prevention of diarrhea!

- Always use a toilet
- Wash hands with soap after using toilet and before handling food
- Drink boiled & filtered water, unless there is safe water supply
- Don't eat food that has been prepared more than 4 hours before without thoroughly reheating it
- Protect prepared food from flies

**Follow-Up:**

Advise to re-attend if signs of dehydration appear or symptoms do not improve within 2-3 days

**Referral situations:**

Very ill patient, severe dehydration, moderate dehydration when oral intake not possible, deterioration in spite of treatment

## 3.2 Cholera

### **Important symptoms:**

- Sudden onset of watery ("like rice water") diarrhoea
- May be more than 20 stools in 24 hrs
- Rapid onset of dehydration and weakness
- Rapid deterioration in general condition

### **Important signs:**

- Rapid onset of dehydration
- "rice-water" like stools
- very ill patient (usually unable to walk)

### **Essential disease information:**

Epidemic disease caused by a bacterium called *Vibrio cholerae*, usually transmitted through contaminated drinking water

Inform public health officer!!

### **Differential Diagnosis:**

Other causes of diarrhea

### **Other diseases that may also be present:**

Worm infestation, malnutrition

### **Action:**

#### **Investigations:**

Stool examination in a laboratory proves the diagnosis, usually done in hospital.

#### **Treatment:**

Cholera patients need rapid i.v. rehydration!! (usually need referral – but start i.v. rehydration immediately: it may be life-saving)

Give 20ml per kg body weight normal saline over 30mins, (then the same amount hourly for the first 6 hours – continuously re-assess hydration status, see chapter 3.1)

#### **Refer!!**

If a referral is not possible at once, start antibiotics: cotrimoxazole, erythromycin.

In adults: tetracycline or chloramphenicol

Please refer to the drug list for correct dose.

#### **Counselling:**

Usually appears in epidemics, so ask for other affected persons.

#### **Follow-Up:**

Usually needs to be hospitalised or treated in health centre. Advise to re-attend if signs of dehydration appear or symptoms do not improve within 2-3 days.

#### **Referral situations:**

In case of severe dehydration or if oral fluids not tolerated. Generally, all cases of cholera.

### **3.3. Dysentery**

Defined as loose stools containing pus, mucus or blood and accompanied by fever, tenesmus (pain when passing stool) and crampy abdominal pain.

The basic differences between bacillary and amoebic dysentery are:

<b>Bacillary dysentery</b>	<b>Amoebic dysentery</b>
May be epidemic Acute onset Prodromal fever and malaise Vomiting Patient too weak to walk far Watery stool, containing blood rather than mucus Stool does not smell very strongly Abdominal cramps (may be severe) Tenesmus common Spontaneous recovery with in a week no relapse	Seldom epidemic Gradual onset, starts slowly No prodromal symptoms No vomiting Patient able to walk Stool containing mucus Stool has fishy smell Rarely low abdominal cramps Tenesmus uncommon Illness lasts several weeks, relapses, infection lasts for several years. Feeling of bloating, vague abdominal pain, burping

**Note: if you find it difficult to decide whether a patient has amoebic or bacillary dysentery, it is OK to give treatment for both at the same time.**



### **3.3.1 Bacillary Dysentery**

#### **Important symptoms:**

- May have fever
- Also often starts with abdominal pain and vomiting
- After one or two days, stools mixed with blood
- Usually not very smelly stools
- Patient looks ill
- May have quite severe abdominal pain

#### **Important signs:**

- Tender abdomen on examination
- May have fever
- Looks ill

#### **Essential disease information:**

Common causative agents are enterotoxigenic E.coli, Shigella and Campylobacter. Often epidemic.

#### **Differential Diagnosis:**

Amoebic dysentery, intussusception (this is a condition where a small child's large bowel folds in on itself - it causes abdominal pain, small bloody stools with mucus and abdominal distension. – this is an emergency that needs referral to hospital!)

#### **Other diseases that may also be present:**

Worm infestation, malnutrition, respiratory infections

#### **Action:**

#### **Investigations:**

Stool for culture will confirm diagnosis – if epidemic inform public health officer!

#### **Treatment:**

Mild cases – treat like viral diarrhea, rehydration with ORS

Severe cases - give antibiotics (Cotrimoxazole or Amoxicillin, or in adults Ciprofloxacin) for five days following the Medication Dose Charts at the back of the book.

Rehydration with ORS, if moderate dehydration, start in Health Post.

#### **Counselling:**

As for viral diarrhoea,

Advise to take full course of antibiotics and report any new cases of disease

#### **Follow-Up:**

Advise to re-attend if no improvement after 48 hrs or if condition worsens

#### **Referral situations:**

If patient severely dehydrated or if oral fluids and antibiotics are not tolerated.

If not improving at second visit, refer to confirm the diagnosis or for admission.

### **3.3.2 Amoebic Dysentery**

#### **Important symptoms:**

- May be more than 10 large, smelly stools a day
- Blood and/or mucus in stool
- May have mild fever
- If acute, may be severely dehydrated
- If chronic, may present with malnutrition

#### **Important signs:**

- Usually less severely ill than with bacillary dysentery
- Mucus in stool more likely

#### **Essential disease information:**

Causative agent is *Entamoeba histolytica*; usually not epidemic (only one family member affected); main source of infection is unsafe drinking water

#### **Differential Diagnosis:**

Bacillary dysentery, giardiasis

#### **Other diseases that may also be present:**

Worm infestation, malnutrition

#### **Action:**

#### **Investigations:**

Stool for microscopy will confirm diagnosis (fresh stool)

#### **Treatment:**

Metronidazole for 7 days following the Medication Dose Charts.

#### **Counselling:**

As for viral diarrhea – stress importance of clean water and good nutrition

#### **Follow-Up:**

Review after 2-4 weeks if malnourished

#### **Referral situations:**

Usually none. In case of severe dehydration or malnutrition.

**note: if differential diagnosis between amoebic and bacillary dysentery case is not clear, both treatments may be given at once**

### 3.4 Worm Infestation

#### **Important symptoms:**

- Loss of appetite, nausea, irregular bowel motions (undigested stools), sometimes abdominal pain
- As some worms pass through the skin or through the lungs during their life cycle, skin itching and rash, and a dry cough with mild fever can also be signs of worm infestation
- Threadworms can cause itching in the anal region and vulva
- In small children: insufficient weight gain, poor development, distended abdomen, occasionally rectal prolapse
- Hookworm infestation can manifest as anaemia only
- Worms may be seen in stool or vomit

#### **Important signs:**

- Mildly tender and distended abdomen
- Anaemia
- Signs of malnutrition and developmental delay
- Often no clinical signs

#### **Essential disease information:**

- Most worms live inside the bowels on bowel contents; they cause local irritation, and – especially when large amounts of roundworms are present, can occasionally lead to intestinal obstruction.
- Most worms are transmitted faecal-orally (poor hygiene as risk factor)
- Hook worms can cause severe anaemia
- Hookworms and strongyloides enter the body through the skin, and can cause itching rashes, some worms pass through the lungs and can cause a dry cough and wheezing
- Pig tapeworm forms cysts in the brain and can also cause muscle pains

#### **Differential Diagnosis:**

- Other causes of malnutrition (chronic airway disease, HIV infection, protein-energy-malnutrition etc)
- Other causes of abdominal pain and diarrhoea (UTI, gastroenteritis, amoebic infection, giardia, irritable bowel syndrome, psychological problems, in adults dyspepsia and ulcer disease, gastritis, etc)
- Other causes of anaemia

#### **Other diseases that may also be present:**

- Protein-energy malnutrition
- Skin infections and infestations
- Respiratory tract infections, pneumonitis from migrating worms (Ascaris)
- In adults dyspepsia
- Neurocysticercosis with seizures

**Action:**

**Investigations:**

Stool for microscopy (needs to be fresh sample – not older than two hours)

**Treatment:**

1-2yrs: Albendazole 200mg as a single dose at bedtime

> 2yrs: Albendazole 400mg as a single dose at bedtime

or

Mebendazole 100 mg b.d. for 3 days (the single dose treatment with Albendazole probably has a much better compliance. )

This can be repeated after 2 weeks

**Tapeworm:** Niclosamide 1g on empty stomach followed by another 1g 1-2 hours, followed by a laxative after 1 hour (such as Senna or Bisacodyl)

or

Abendazole 400 mg daily for one week

**In pregnancy:** routinely give Albendazole 400 mg once after 16 weeks pregnancy (after 4 completed months). If there are symptoms, this may be repeated later.

DO NOT give worm medicines in first 12 weeks, as this may lead to malformations in the baby (but generally not to abortion; DO NOT give this as an abortifacient!!)

Advise to avoid meat and alcohol for 3 days after treatment

Treat anaemia and malnutrition

**Counselling:**

Prevention of worm re-infestation:

- Cook all meat thoroughly (also dried meat)
- Wash vegetables and fruit well before eating
- Protect prepared food from contact with flies
- Wash hands with soap after going to the toilet and before handling food
- Use the toilet every time for stool – also for small children!
- Wear shoes, and wash mud off legs and feet quickly
- Drink boiled or filtered water
- Keep nails short

**Follow-Up:**

Occasionally treatment needs to be repeated after 2-4 weeks (because not all stages of worms are susceptible to the drug)

Advise patient to re-attend if no improvement after 2 weeks

**Referral situations:**

In case of fever and signs of intestinal obstruction.

### **3.5 Gastritis**

#### **Important symptoms:**

- Loss of appetite
- Nausea, vomiting
- Abdominal (epigastric) pain or burning sensation, chest pain
- Often more pain on empty stomach or after very spicy meal
- Bad taste in the mouth
- Often sour reflux
- Burping

#### **Important signs:**

- Only mild pain on palpation of epigastric region
- No mass or guarding
- There may be mild anaemia

#### **Essential disease information:**

Inflammation of the mucosa of the stomach for various reasons: long periods of empty stomach (less than three meals a day), Drugs (aspirin, NSAIDs, steroids), alcohol, tobacco, tea, coffee, very hot (spicy) food, stress, bacterial infection with helicobacter pylori.

Gastritis can be acute or chronic. Acute Gastritis causes more severe symptoms, chronic gastritis can have no symptoms or light symptoms.

#### **Differential Diagnosis:**

Peptic Ulcer disease, gastric cancer, worms, gall bladder disease, liver disease, other causes of abdominal pain and vomiting like acute gastroenteritis, etc.

#### **Other diseases that may also be present:**

Gastric Ulcer, Anaemia, Worms, depression.

#### **Action:**

#### **Investigations:**

In the field clinical diagnosis, confirmed by the effect of the therapy.

In hospital, gastroscopy and laboratory test for helicobacter pylori can prove the diagnosis.

#### **Treatment:**

##### **Acute Gastritis:**

For acute gastritis, the cause (drugs, alcohol, stress) should be stopped. Sometimes an antacid can help the healing: e.g. Digene 1 Tab qds for 2 weeks

If there is no improvement with this: Ranitidine 150 mg or Famotidine 20mg b.d. for 10-14 days

Usually it is a good idea to give Albendazole as well

If this does not improve the symptoms, suspect an ulcer and refer. If referral is not possible, try the treatment as below :

**Chronic gastritis:**

As chronic gastritis is caused more often by infection with bacteria (helicobacter pylori), a combination of antacid and antibiotics is recommended:

Omeprazole 20mg bd for 10-14 days

**and**

Amoxicillin 500 mg t.i.d. (or Erythromycin 500mg bd) for 7 days

**and**

Metronidazole 400 mg t.i.d. for 7 days. (note: advise NOT to drink alcohol while taking Metronidazole)

**Counselling:**

Avoid alcohol and the drugs that lead to gastritis,

Reduce amount of tea

Stop smoking

Try to reduce stress.

Avoid very fatty, acidic or spicy foods,

Avoid leaving the stomach empty for long times (eat small and frequent meals)

**Follow-Up:**

Advise patient to re-attend if no improvement after 2 weeks

**Referral situations:**

If not improved by the therapy, refer for endoscopy to confirm the diagnosis.

If there is marked weight loss or marked anaemia

Refer ALL patients with first time symptoms over 45 years (could be cancer!)

If there is noticeable bleeding or signs of abdominal infection (peritonitis with hard abdomen), refer to hospital, may need surgery!

**Note: The symptoms of signs of gastritis can also be those of stomach cancer. the earlier cancer is diagnosed, the more likely it is that it can be treated. For this reason, it is safer to refer all patients to hospital for an endoscopy before treatment.**

### 3.6 Gastric and Duodenal Ulcer

#### **Important symptoms:**

- Abdominal (epigastric) pain, dependant on food: may hurt less or more after a meal, according to whether ulcer is duodenal or gastric
- May hurt more after very spicy meals
- Sometimes back pain, especially at night
- Feeling of fullness, burping
- Nausea, vomiting
- Sour reflux
- Loss of appetite
- There may be blood in the stool or stool may look black

#### **Important signs:**

- Pain on palpation of epigastric region, there may be guarding or the impression of a mass
- Weight loss
- Intestinal bleeding (vomiting of blood or black stools)
- Anaemia

#### **Essential disease information:**

Gastric and duodenal ulcer are caused by a bacteria called helicobacter pylori. They may be precipitated by all the causes mentioned for gastritis, and there can be family predisposition.

Ulcers very often happen more than once in the same patient.

Gastric ulcer causes pain after eating or independently from food. Duodenal ulcer causes pain during night time, without eating, and gets better after eating.

If the ulcer is deep, can cause bleeding from the gastric/duodenal blood vessels.

#### **Differential Diagnosis:**

Gastritis. Diseases of other organs of the upper abdomen (gall bladder, pancreas).

**Gastric cancer.**

#### **Other diseases that may also be present:**

Worms, Depression; Bleeding from ulcers

Perforation (formation of a hole) of the stomach with infection of the abdomen (peritonitis).

#### **Action:**

#### **Investigations:**

If at all possible, refer suspected cases of ulcer disease for endoscopy! Especially in patients over 45 years, or patients who have lost a lot of weight, there may be cancer of the stomach, which can only be cured if found very early.

**Treatment:**

- Omeprazol 20 mg b.i.d. for 10-14 days
- and Amoxicillin 500 mg t.i.d. . for 7 days. (In Penicillin allergy Erythromycin 500mg bd for 7 days)
- and Metronidazole 400 mg t.i.d. for 7 days. (note: do NOT drink alcohol while on Metronidazole)

Consider Albendazole, if anaemic, treat with iron supplementation

**Counselling:**

The same as for gastritis: Stop smoking, avoid alcohol (raksi) and the drugs that lead to ulcer.

Change lifestyle: less stress, frequent small meals.

**Follow-Up:**

Advise patient to re-attend if no improvement after 2 weeks, or if symptoms worsen during the treatment

**Referral situations:**

If possible, refer all patients for endoscopy to confirm diagnosis

If not improved by the therapy, refer for more investigations to confirm the diagnosis.

If there is marked weight loss or marked anaemia

Refer ALL patients with first time symptoms over 45 years (could be cancer!)

If there is noticeable bleeding or signs of abdominal infection (peritonitis with hard abdomen), refer to hospital, may need surgery!



### **3.7. Oesophagitis**

#### **Important symptoms:**

- Burning or pain behind the sternum (“chest pain”)
- Increased pain when stomach is empty
- Sour reflux
- Symptoms worse at night
- Sometimes night cough
- Antacids work very well, but symptoms return immediately when stopping medicine

#### **Important signs:**

- No pain on palpation of abdomen
- Chest examination is normal

#### **Essential disease information:**

Inflammation of food pipe, if untreated for a long time, can lead to cancer

#### **Differential diagnosis:**

Gastritis, ulcer, other diseases of food pipe

Oesophageal cancer: In this condition, the patient often reports difficulty swallowing solid food, but has no problems swallowing water. Such cases have to be referred immediately.

#### **Action**

##### **Investigation:**

if possible, refer for endoscopy

##### **Treatment:**

Omeprazole 20 mg od (at bed time) or Ranitidine 150mg bd or once at night, usually needs continuous or repeated treatment

##### **Counselling:**

- Same advice as for gastritis
- If possible, eat frequent small meals
- Don't lie down within two hours of a big meal
- Sleep with high pillow, or raise head end of bed

##### **Follow-up:**

If there is no improvement within 2 weeks, refer for endoscopy

### **3.8. Piles (Haemorrhoids)**

#### **Important symptoms:**

- Main symptom is bleeding from the anus, usually only when passing stool
- Blood is bright red and often follows after a bowel motion. It can be quite a lot at a time, and can be frightening to the patient
- Sometimes itching around the anus
- Occasionally, when blood clots in a haemorrhoid, this can cause acute pain and a pea sized swelling at the anus
- No abdominal pain, no weight loss, no change in the bowel habits

#### **Important signs:**

- Small swellings or skin tags around the anus
- Normal weight, no abdominal masses

#### **Essential disease information:**

Haemorrhoids are swollen blood vessels in and around the last part of the bowel, similar to varicose veins on the legs. They can sometimes burst and then cause bleeding and discomfort. Sometimes the blood can form a clot in the vein, which causes inflammation and pain.

Haemorrhoids are never dangerous. The main problem is to distinguish them from other causes of rectal bleeding, especially bowel cancer and inflammatory bowel disease.

#### **Differential Diagnosis:**

**Bowel Cancer:** Bleeding is often accompanied by a change in the bowel habit – usually looser motions. The blood is often mixed in with the stool and can look dark. In more advanced cases, the patient has lost weight, and there may be a mass in the abdomen, or abdominal pain.

**Inflammatory Bowel Disease:** This is an inflammation of the lining of the bowel. It is rare in Nepal. There is diarrhoea with blood mixed in over many days, which doesn't respond to antibiotic treatment. The patient loses weight and there is a lot of abdominal pain. This can lead to serious complications and needs referral to the hospital.

#### **Other diseases that may also be present:**

Malnutrition, worms, constipation

#### **Action:**

##### **Investigations:**

Examine back passage: In case of thrombosed haemorrhoids, there will be a hard lump the size of a pea or amala. In other cases often you can see small soft lumps around the anus or skin tags. Digital examination of the rectum does not reveal any hard or irregular mass. Also examine the abdomen to make sure there are no abdominal masses.

**Treatment:**

Advise that symptoms usually settle with treatment of constipation. Give Lactulose if needed. If there is a lot of discomfort, use antiseptic cream, such as Silverhexidine, or an analgesic gel such as diclofenac. If they are causing a lot of symptoms, haemorrhoids can be treated surgically. For this, usually you need to refer to a regional hospital.

**Counselling:**

Advise good hygiene and advise to drink a lot / take a lot of fluids to avoid constipation.

**Follow-Up:**

Usually not needed

**Referral situations:**

- if you suspect another cause for rectal bleeding
- if there is a lot of discomfort and simple treatment hasn't been successful
- if there is repeated bleeding / symptoms, and the patient wants an operation

### **3.9 Hernia**

#### **Important symptoms:**

- Pain, especially when lifting heavy objects
- A swelling in the abdominal area which comes and goes or varies in size, sometimes only appearing when the person bends, lifts, coughs etc
- Pain which doesn't improve with rest and lying down is an alarm sign!

#### **Important signs:**

- A palpable swelling, which usually feels soft and irregular, and can be painful
- Usually can be replaced when the patient lies supine and relaxes
- Usually in the groin or scrotum, may be in the midline or within operation scars
- If the swelling is around the testicle, it will not shine red (as a hydrocele) when a lit torch is held against it

#### **Essential disease information:**

Hernias are caused by a weakness in the abdominal wall. This can start at birth, or it can develop during life – spontaneously, or after surgery which leaves a scar, in women sometimes during pregnancy. It is more common in people who have a chronic cough (for example, COPD).

Hernias which come and go are not dangerous in themselves, but can cause pain. Scrotal hernias in a boy or young man can cause infertility, and should be treated soon.

Sometimes, the content of a hernia can get stuck outside the abdomen, which causes a lot of pain, swelling of the hernia, and eventually obstruction of the bowel and sepsis. This is an emergency and can only be treated in hospital!!

#### **Differential Diagnosis:**

Tumours, other abdominal pain. If in the scrotum, hydrocele (hydrocele is a collection of fluid in the scrotum which can be uncomfortable but is not dangerous. It can be diagnosed with the help of an electric torch: In a dark room, hold the torch against the swelling, and the whole scrotum will appear red – this is called transillumination)

#### **Other diseases that may also be present:**

Malnutrition, worms, COPD; Asthma

#### **Action:**

##### **Investigations:**

The typical finding is a swelling that can be pushed back into the abdomen. Ask the patient to cough. Check if swelling extends into the scrotum. No further tests are required.

##### **Treatment:**

If the hernia is causing pain at the time you see the patient: Ask the person to lie down flat on his/her back and relax. Gently try to push down the lump with the flat of your hand. Usually, it will slowly get smaller and suddenly disappear, leaving a palpable hollowing in the abdominal wall.

Treatment is an operation, which can be performed in most hospitals.

If a hernia is painful and not receding into the abdomen for more than 4 hours, and cannot be replaced easily, this is an emergency and usually requires surgery within 24 hours. Refer as soon as possible.

**Counselling:**

Advise to lie down and replace hernia whenever it is causing discomfort. Counsel that immediate help is required if the hernia has been painful and not replaceable for more than 4 hours.

**Follow-Up:**

Refer for surgery. Follow up is usually not required. – Ask patient to attend again if the symptoms get worse.

**Referral situations:**

All cases, to assess need for surgery. If the hernia is not very painful and easily replaceable, referral can be delayed until it is convenient for the patient.

If the hernia has been painful and “stuck” for more than 4 hours, this is an emergency and needs prompt referral!

Advise the patient not to eat anything on the way to the hospital, but only drink water. If the patient is very ill, set up an iv drip for the transport to hospital.

## **4. Urinary Tract Infection (U.T.I.)**

### **Important symptoms:**

- Dysuria (pain/burning feeling at micturation)
- loin pain/lower abdominal pain,
- Higher Frequency of micturition,
- Failure to thrive
- Stinking/foul-smelling urine,
- Especially in infant: Nausea with persistent vomiting, or jaundice.
- Secondary enuresis (child wetting himself after being clean)
- Fever with no other focus/reason

### **Important signs:**

- low abdominal tenderness (in bladder region or loin)
- Fever (often with rigor / shivering) and flank tenderness if pyelonephritis

### **Essential disease information:**

Big numbers of microorganisms invade the urinary tract, mostly bacteria (E. coli) from the bowel. It is usually an ascending infection, that is, the bacteria come up the urethra to the bladder and may continue to the kidney. Girls and women are more at risk, because their urethra is shorter. We can divide into:

Lower UTI: cystitis (bladder infection), usually without fever/flank pain

Upper UTI: pyelonephritis (kidney infection), with fever and flank pain

The risk of recurrent kidney infections is scar formation with damage to the kidney

### **Differential Diagnosis:**

Typhoid, malaria, PID, KUB stone, prostate disease, Urethritis, vaginal thrush.

### **Other diseases that may also be present:**

Diabetes, stones in bladder, ureter or kidney, prostate disease, abnormalities of urinary tract; STDs, hydronephrosis (urine accumulating in kidney)

### **Action:**

#### **Investigations:**

In the field, history and clinical examination with typical symptoms and signs and no other reason for fever make the diagnosis likely.

Urine dipstick, if available

In a clinic: Urine analysis: microscopy (normal urine has <5 pus cells), sugar, albumin (Note: children's genital area should be cleaned and sample should be mid stream to avoid contamination), Urine C/S

#### **Treatment:**

Adults and children >2 (3) years can usually be treated as outpatients

a) Males over 12 years:

Norfloxacin or Ciprofloxacin p.o. for 5-7 days

- b) Females over 12 years:  
Cotrimoxazole p.o. for 7 days  
or  
Norfloxacin or Ciprofloxacin p.o. for 5-7 days
- c) Pregnant females:  
Cefradine 500 mg qds 5-7 days
- d) Children up to 12 years:  
Cotrimoxazole p.o. for 7 days  
or  
Amoxicillin 5 to 7 days  
or  
Cefixime / Cefradine 5-7 days (see dose chart for doses)

Pay special attention to infants and small children. They may become very ill and may not be able to take oral antibiotic. Consider referral for i.v. treatment if child is in very bad condition or if not improving in 24-48 hours.

### **Counselling:**

Drink plenty of fluid, personal hygiene (girls: wash their bottom backwards after going to the toilet, avoid soap when washing genital region; boys: when old enough, pull back the foreskin and clean gently when washing themselves).

### **Follow-Up:**

If not improving after 48 hours.

### **Referral situations:**

Any very sick children, especially less than two years of age  
If not better after treatment (for urine C/S),  
if recurrent UTI for further investigations (radiologic investigations to find the reason for UTI), any child <5 years UTI with loin tenderness  
Pregnant women with pyelonephritis

## **5. Women's Health**

### **5.1 Principles of Safe Motherhood in Nepal**

#### **5.1.1. Antenatal Care:**

See every pregnant woman **at least** 4 times during pregnancy (but more often, if there are any problems) and do the following checks:

	Pregnancy stage	Check BP and weight	Check FH	Palpate abdomen	Give folic acid	Give iron	Give TT	Give Albendazole 400mg	Check HB	Check urine for protein*
1.	As soon as pregnancy is confirmed	√	√	√	√		√		√	
2.	At five to seven months	√	√	√		√	√	√	√	√
3.	At the beginning of ninth month	√	√	√		√			√	√
4.	In the last month, or about one week before the calculated date of delivery	√	√	√		√			√	√

BP – blood pressure; FH – fetal heartbeat; HB – Haemoglobin; TT - Tetanus Toxoid

\* urine protein: check if possible

#### **Antenatal care:**

- Check BP – first visit: as baseline, then to check for raised BP
- Check weight – if low, give nutrition advice, if high – consider twins, pre-eclampsia and others
- Check FH (after 20 weeks) – to confirm live fetus, sometimes to diagnose twins
- Palpate abdomen – to check if correlates with age of pregnancy, and growing adequately
- Check Hb and give iron: 70% of women in rural Nepal are anaemic; but don't give iron in 1<sup>st</sup> trimester, unless very anaemic: it increases nausea
- Give folic acid: give 1mg daily in first 12 weeks improves fetal health
- Give TT: all pregnant women, unless they have definitely had five vaccinations before, should have two injections of TT to prevent neonatal tetanus
- Give Albendazole 400mg – this is to treat anaemia caused by worm infestation; do NOT give before 16 weeks of pregnancy
- Check urine for protein: 1. – to exclude asymptomatic urine infection; 2. – to exclude proteinuria due to pre-eclampsia



### **5.1.2. Intrapartum Care (Delivery Care)**

- Cleanliness:
  - Clean hands
  - Clean room
  - Clean instruments
  - Clean bedclothes and clothes
  - Clean perineum
  - Clean water
- Regular observations of pulse, BP, FH (hourly) and maternal temperature (4-hourly)
- Observation of maternal urine output
- Evaluation of progress
- Perineal care during delivery
- Active management of third stage (CCT, i.m. Oxytocine after delivery of baby)
- Early breastfeeding (within one hour)
- Estimation of blood loss and maternal condition
- Timely referral in case of complications

### **5.1.3. Postpartum Care:**

time	Palpate mother's abdomen	Check mother's temperature	Give Vit A 200,000 IU to mother	Counsel about family planning	Check baby's respiration and temperature	Vaccinate baby
Within 24 hours of delivery	√	√	√ (or as soon as possible)		√	
Within 7 days of delivery	√	√			√	√ (BCG)
After 6 weeks (42 days)	√			√		√ (DPT, Polio, Hep B)

#### **Postpartum Care:**

- Palpate mother's abdomen – to check for pain (sign of infection) and good involution of uterus
- Check mother's temperature – to exclude puerperal sepsis
- Give Vit A to mother – to ensure good Vitamin A supply to baby
- Give iron to mother for a month (more if there was more than average blood loss)
- Counsel about family planning – to ensure good spacing of childbirth
- Check baby's respiration and temperature – also check general condition and counsel about breastfeeding
- Vaccinate baby against BCG, DPT, Polio, Hepatitis

## **5.2 Contraception**

Contraception or family planning are used to prevent unwanted pregnancies, delay first pregnancy or space the interval between children.

All women of reproductive age who are sexually active should be offered contraception. In a married woman, it is best to counsel the couple together, but women should have the right to make decisions about contraception freely. If there is any conflict within the family, always respect the woman's confidentiality.

All methods of contraception (including irreversible ones) can fail, even if used correctly. Failure rates are between 1 in 50 to 1 in 500 women years of use.

### **Methods of contraception:**

#### **Natural methods:**

Avoiding the fertile period of the cycle:

In women with a regular cycle only: Ovulation occurs 14 days before the next period, that is, on day 14 of a 28 day cycle, or on day 21 of a 35 day cycle. Avoiding intercourse 5 days before and after that is considered safe. However, this method is not very effective.

Lactational amenorrhoea method.

In breastfeeding women in the first 6 months after delivery: If the child is fully breastfed (no other feed) and the baby feeds at least 6 times in 24 hours, no more than 4 hours apart during the day and no more than 6 hours apart during the night. As long as the mother is amenorrhoeic in the first 6 months, she is unlikely to fall pregnant. The problem with this is that the first ovulation occurs before the first period, so it is possible to fall pregnant before the first period.

In general, the above methods should not be advocated, unless the woman does not want to use, or is not suitable for, any other form of contraception.

#### **Reversible methods of contraception:**

	Advantages	disadvantages	side effects	contraindications	comments
Condoms	Protects against STIs and HIV as well	Dependent on cooperation of male partner, not very safe	none	none	Should be used in any extramarital relationship to protect against infection

Pills (cocp)	Regulates cycle, very effective	Has to be remembered every day, can be ineffective with certain medicines	Initially nausea, headaches. Changes in weight and skin. Can cause BP to rise	Smokers over 35 High BP Migraine with aura Liver disease (stop for 3 months after better) On drugs for TB or epilepsy History of blood clots or breast cancer Unexplained vaginal bleeding	Start on first day of cycle, can be used for 2-3 months without break. Can be ineffective if woman has diarrhoea and vomiting or taking antibiotics
Depo injection	Often stops periods, very safe for contraception, no need to remember every day	Need to go to health post every three months, can continue to work for up to a year after stopping	Weight gain, rarely depression or psychotic symptoms, can cause heavy bleeding	History of severe depression Consider changing to another method in women who have been amenorrhoeic on depo for more than 5 years and who are over 35	Correct interval is 11-13 weeks, can be given earlier if irregular bleeding in first 6 months. (You also can use cocp for 2-3 cycles to stop bleeding)
Norplant	As in depo, but effective for up to 7 years	Can only be inserted/removed by trained health worker. Can sometimes be difficult to remove	As in depo, irregular bleeding more common	none	Removal
IUCD (Copper T)	Doesn't influence cycle, effective for up to 10 years. Can be used as emergency contraception	Can only be inserted/removed by trained health worker. Can make periods heavier	Abdominal cramps, heavy periods	History of ectopic pregnancy, history of STIs, history of heavy periods, anaemia	Give a dose of antibiotic (Erythromycin or Doxycyclin) at insertion

**Emergency contraception:**

In case where a woman has had sexual intercourse and was not using contraception, or the chosen method may have failed (for example, condom torn), emergency contraception can be offered:

Up to 72 hours after sexual intercourse: Levonorgestrel 1.5mg (2 tablets) as soon as possible. (If Levonorgestrel is not available, 4 tablets of cocp immediately, with antiemetic. Repeat after 12 hours.) If the woman vomits within 2 hours of taking the dose, repeat immediately.

Up to 5 days after sexual intercourse: If available, copper T can be inserted and can be used as contraception afterwards. Cover with antibiotics (erythromycin)

**Irreversible methods:**

Minipalarotomy (tubal ligation) for women or vasectomy for men can be used in clients who have already got children and are sure they do not want any more. These methods can rarely fail. Men can be fertile for up to 6 months after vasectomy (until all the sperm stored in the genital tract is used up)

## **5.3 Vaginal Discharge**

**Important: if vaginal discharge occurs together with abdominal pain see chapter 5.4. P.I.D.!**

### **5.3.1 Physiological discharge**

#### **Important symptoms:**

- Usually increased in the second half of the monthly cycle (in the two weeks before a menstrual period)
- Whitish or slightly yellowish thin discharge
- No vaginal itching or burning
- No abdominal pain
- No dysuria (e.g no pain on passing urine)
- This type of vaginal discharge can be sometimes worse or better according to the weather or in the course of the woman's life

This is not a sign of disease and no treatment is needed – counsel about personal hygiene and signs of infection

### **5.3.2 Bacterial Vaginosis**

#### **Important symptoms:**

- Yellow or greenish, sticky or frothy discharge
- Foul smelling (sometimes slightly fishy smelling)
- Often vaginal itching
- Occasional dysuria (pain on passing urine)

#### **Essential disease information:**

This is usually **not** a sexually transmitted disease, but can be related to poor hygiene (also poor hygiene of sexual partner).

It is a bacterial infection inside the vagina when the normally acid pH of the vagina is too high. Therefore, it is more common in prepubertal girls and postmenopausal women.

It can also be caused (or exacerbated) by worms and – in the case of small girls – a foreign body in the vagina

#### **Differential Diagnosis:**

Trichomonas Vaginalis, gonorrhoea and other STDs

Cervical, vaginal or endometrial cancer in the case of older women

#### **Other diseases that may also be present:**

Worm infestation, STDs

In prepubertal girls – think of sexual abuse (but do not jump to conclusions!)

**Action:**

**Investigations:**

Vaginal examination is usually indicated (but may not be on first presentation, especially in prepubertal girls)

If possible, microscopy and culture of vaginal discharge;

**Treatment:**

**Women of reproductive age:**

Metronidazole 400mg t.i.d. for 5 days or 2000mg as single dose or Tinidazole 2g as a single dose

and

Albendazole 400mg as single dose (**make sure the woman is not pregnant – if pregnant, only give after completed three months of pregnancy!**)

**Prepubertal girls (>2yrs, but <12 yrs of age):**

Metronidazole 7.5mg/kg t.i.d. for 5 days

and

Amoxicillin 250mg t.i.d for 5 days

and

Albendazole 400mg as a single dose

**Postmenopausal women**

Metronidazole 400mg t.i.d. for 5 days or 2g stat or Tinidazole 2g as a single dose

and

Amoxicillin 500mg t.i.d. for 5 days

and

Albendazole 400mg as a single dose

plus

Oestrogen if available (e.g. Ovestin cream applied vaginally b.d. for 2 weeks or Premarin or Evalon or Progynova tablets once daily for two weeks)

**In postmenopausal women, remember the possibility of cancer!**

**Counselling:**

Counsel re personal and (in sexually active women) sexual hygiene

A sometimes useful adjunct to treatment may be local application of mahi (buttermilk)

Reassure about non-communicable character of this problem, but advise that it may be recurrent

**Follow-Up:**

Advise to re-attend in the case of treatment failure

**Referral situations:**

If no improvement with treatment, if suspected STD, or suspected foreign body in vagina in child

### **5.3.3 Thrush**

#### **Important symptoms:**

- Very white or slightly yellow, curd-like appearance of discharge
- Often vaginal itching, burning or pain
- Usually no offensive smell
- Dyspareunia (pain on sexual intercourse)
- Sometimes dysuria (pain on passing urine)

#### **Important signs:**

- Curd-like appearance of vaginal discharge
- Often swelling and redness of vulva and vagina

#### **Essential disease information:**

This is not a sexually transmitted disease, but is caused by candida albicans, a yeast which is usually present in the gut.

Thrush is dependent on the presence of oestrogen, it is therefore a disease of the reproductive age

#### **Differential Diagnosis:**

Physiological discharge, other vaginal infections

#### **Other diseases that may also be present:**

STDs, bacterial vaginosis, PID

#### **Action:**

#### **Investigations:**

Usually clinical diagnosis, but can be confirmed by wet field microscopy of vaginal discharge (characteristic yeast shapes and hyphens)

Vaginal examination is often not indicated if the history is clear

#### **Treatment:**

Clotrimazole vaginal tablet(100mg) – insert two tablets each night for three nights (if a lot of vulval discomfort, combine with Clotrimazole cream b.d.) – this is safe in pregnancy

or

Fluconazole 150mg tablet as a single dose

**(note: do not use Fluconazole in pregnancy)**

#### **Counselling:**

Advice re non-communicable character of this disease

Advise re personal hygiene (but discourage from using a lot of soap – this can make the condition worse)

Eating a lot of curd (dahi), or applying curd or buttermilk locally (to the vulva / vagina) can also help

**Follow-Up:**

Usually none needed. Review if no better after 1 week.

**Recurrent thrush:**

Some women suffer from recurrent bouts of thrush, that will often recur each month, usually just after, or sometimes just before, menstruation, or occasionally triggered by sexual intercourse

**Treatment:**

Occasionally treatment of the sexual partner may work (give both partners Fluconazole 150mg as a single dose (provided the woman is not pregnant)

Otherwise, give Fluconazole 150mg regularly every month (just before or just after the period, according to the woman's symptoms) for 6 months

This usually works, but the problem may still recur...

**Referral situations:**

If no improvement with treatment, if suspected STD,



### **5.3.4 Trichomoniasis**

#### **Important symptoms:**

- Usually yellowish or greenish, foamy profuse discharge
- Fish-like smell
- Often vaginal itching or burning
- Often dysuria (pain on passing urine)
- Occasionally partner may have similar discharge from penis

#### **Important signs:**

- Characteristic frothy, smelly discharge
- On speculum examination, discharge may be seen coming from cervical os

#### **Essential disease information:**

This is a sexually transmitted disease, but often asymptomatic in the male partner

#### **Differential Diagnosis:**

Bacterial vaginosis, thrush, gonorrhoea, chlamydia, cancer

#### **Other diseases that may also be present:**

Other STDs, HIV, Hepatitis B/C

#### **Action:**

#### **Investigations:**

Ideally, culture of vaginal and endocervical swabs should be performed and the partner should also be examined for signs of STDs

Think about checking VDRL (for Syphilis) and HIV/Hepatitis

#### **Treatment:**

Note: if abdominal pain also present, go to P.I.D. guideline!

Otherwise:

Metronidazole 400mg t.i.d for 5 days or 2000mg as a single dose

(or Tinidazole 2000mg as a single dose)

and

Ciprofloxacin 500 mg once only

and

Doxycyclin 100mg bd (or Erythromycin 250mg qds or Tetracyclin 250mg qds) for 14 days

**do not give Ciprofloxacin, Doxycyclin or Tetracycline in pregnancy**

#### **Counselling:**

Sexual partner has to be treated as well! (give the same regime)

Counsel re personal and sexual hygiene and use of condoms

#### **Follow-Up:**

Advise to re-attend in case of treatment failure

Follow-up should include contact tracing (any other sexual partners who need to be treated?)

#### **Referral situations:**

Ideally all cases, but definitely if no improvement with treatment

## **5.4. P.I.D. (Pelvic Inflammatory Disease)**

### **Infection of Uterus, Ovaries or Fallopian Tubes**

#### **Important symptoms:**

- Lower abdominal and/or lower back pain
- Often fever (usually not very high), may be absent in chronic P.I.D.
- Vaginal discharge
- Dyspareunia (pain on sexual intercourse)

#### **Important signs:**

- Tenderness and guarding (but no peritonitis) on examination of lower abdomen
- Often smelly vaginal/cervical discharge
- On bimanual examination tenderness of uterus and adnexae, and pain on moving the cervix (this is called "cervical excitation")

#### **Essential disease information:**

This is a sexually transmitted disease – it does not occur in virgins or sexually inactive women; common causative agents are chlamydia trachomatis, gonococci (Neisseria Gonorrhoea) and others

Acute complications include peritonitis and pelvic abscess, long term sequelae chronic pelvic pain and infertility

#### **Differential Diagnosis:**

Appendicitis, cystitis, ovarian cyst torsion or rupture, ectopic pregnancy

#### **Other diseases that may also be present:**

Syphilis, HIV, Hepatitis B/C

#### **Action:**

#### **Investigations:**

Always perform a pregnancy test if there is any doubt! (acute lower abdominal pain in pregnancy may be an ectopic pregnancy which needs immediate referral for surgery!!)

If possible, perform a vaginal examination

If possible, send vaginal and cervical swabs for culture (or advise patient to attend hospital for this)

## **Treatment (National Treatment Protocol MoH/Government of Nepal):**

- Ciprofloxacin 500mg as a single dose  
and
- Doxycyclin 100mg b.d. for 14 days  
or  
Tetracycline 250mg q.i.d. for 14 days  
or  
Erythromycin 250mg q.i.d. for 14 days  
and
- Metronidazole 400mg t.i.d. for 14 days

Remember, Ciprofloxacin, Doxycyclin and Tetracycline are contraindicated in pregnancy.

### **Counselling:**

This is a sexually transmitted disease! Counsel about prevention of STDs (condom use, not changing partners), counsel about risk of HIV/AIDS.

Advise condom use until both partners treated

Strongly advise treatment of sexual partner!

### **Follow-Up:**

Contact tracing (partner should be treated)

### **Referral situations:**

Ideally all cases, but definitely refer if:

- there is no improvement within 48 hours
- very high fever or ill patient
- pregnant woman (this might also be ectopic pregnancy!)
- very sudden onset (may be ectopic pregnancy or twisted ovary or other cause that needs surgery)

## **5.5. Uterine Prolapse**

### **Important symptoms:**

- Lower back ache
- Lower abdominal pain
- Postmenopausal bleeding
- Vaginal discharge
- Sensation of soft lump in vaginal opening (often this only appears when walking, or lifting, and disappears by itself when lying down at night)
- Difficulty walking and sitting
- Difficulty passing urine or stool

**Note: many women feel embarrassed about this and will only tell the symptoms after direct questioning by the health worker. Also, they will usually not tell them when other people are listening. Therefore, all women always need to be examined in a separate room!**

### **Important signs:**

- When examining the vaginal area, the vaginal wall or cervix is visible
- Sometimes this is only visible when the woman is coughing (ask her to do so)
- There may be an ulcer on the cervical surface
- Usually there is no abnormality on examining the abdomen

### **Essential disease information:**

- This is usually a problem of women over 40, but sometimes is seen in young women also
- The reasons may be – having children at a young age, or many children in quick succession, or very big babies; prolonged labour; heavy work in pregnancy or after delivery; malnutrition and others
- There are three stages:
  - 1<sup>st</sup> stage: prolapse only descends when patient is walking, lifting or carrying heavy loads, or coughing
  - 2<sup>nd</sup> stage: the vaginal wall, or cervix are always prolapsed
  - 3<sup>rd</sup> stage: the whole uterus has prolapsed outside the vaginal entrance
- Often, in the 3<sup>rd</sup> stage ring pessaries don't work, but it is worth trying at least once
- Occasional uterine prolapse can happen secondary to disease of the intraabdominal organs (such as ovaries). Therefore never put a ring pessary without feeling for abdominal masses first!

### **Differential Diagnosis:**

Very rarely, a vulval or vaginal tumor may give symptoms like a prolapse.

### **Other diseases that may also be present:**

Anaemia, malnutrition, chronic cough

### **Action:**

#### **Investigations:**

Always examine the patients abdomen, and if you cannot see the cervix properly, do a speculum examination as well (to exclude ulcers or cancer)

## **Treatment:**

Definitive treatment for uterine prolapse is surgery (often removal of the uterus), but often this is not an option:

- because the woman still wants further children
- because she does not want to have surgery
- because she can't afford surgery
- because she is too old and unwell for surgery

in these cases, insertion of a ring pessary is very effective and easy treatment for most patients.

## **Procedure for ring pessary insertion:**

- always wash the rubber pessaries with soap and water and sterilize once before use and keep in a clean container
- make sure you have examined the abdomen and seen the cervix
- make the women lie down comfortably on her back
- explain what you are doing
- wearing latex gloves (need not be sterile), measure the width of the vaginal opening, and the space inside the vagina
- chose a pessary that is bigger than the opening, but will fit into the space
- if there is a lot of discharge, or a large ulcer on the cervix, clean the vagina with Normal Saline
- apply a little Siversulfadiazine or antibiotic or Povidone cream (or, ideally, oestrogen cream) to one side of the pessary to make it slippery
- squeezing the pessary together with the right hand, and holing the labia apart with the left, gently but quickly insert it into the vagina
- now examine vaginally and make sure the space is not too tight, and the pessary is well placed with the anterior part behind the pubic bone, and the posterior part below the cervix
- if there is a large ulcer, or a lot of discharge, give a course of Metronidazole for 7 days

## **Counselling:**

- ask the women to sit up for a while and go to pass urine before she leaves the health centre.
- Ask her to tell you immediately if she has any discomfort, or difficulty passing urine, or the pessary falls out
- If there was an ulcer on the cervix, ask the woman to come for a check in about one month
- In all other cases, see after three month for first pessary change
- Most women will need six-monthly changes
- If the women is able and willing to do so, explain that she can remove the pessary herself at night, wash it with soap and water, and re-insert herself in the morning
- In sexually active women, explain that usually this does not cause any problem with intercourse, but it is possible to remove the pessary beforehand, wash it with soap and water, and re-insert in the morning
- In pregnant women advise to go to hospital for delivery (to avoid long labour), but advise that if not, the pessary needs to be removed during labour, before the baby's head comes too low

**Follow-Up:**

- See immediately if any discomfort, difficulty passing urine, or increased discharge
- Advise to re-attend if pessary falls out, as the next-bigger size will usually work
- If there was an ulcer on the cervix, ask the woman to come for a check in about one month
- In all other cases, see after three month for first pessary change
- Most women will need six-monthly changes

**Referral Situations:**

If you find an abdominal mass on examination

If an ulcer on cervix is not healed after 1 month (could be cancer!)

If pessary keeps falling out, or patient cannot tolerate it (treatment failure – needs surgery)

If patient wishes surgery

## 5.6. Vaginal Bleeding

### **Important symptoms:**

- Check if bleeding is painful or painless, also ask for pain with sexual intercourse
- Ask for possibility of pregnancy
- Ask if bleeding is still within rhythm of periods or completely unpredictable
- Ask if bleeding starts after sexual intercourse
- Check if there is any abnormal vaginal discharge

### **Important signs:**

- Signs of anaemia (see chapter 16)
- If bleeding is related to pregnancy or a tumor, there may be a palpable abdominal swelling
- If bleeding is related to cervical cancer or uterine prolapse, the cervix will look and feel abnormal
- In serious causes, the patient may look ill or have lost weight

### **Essential disease information:**

Main important causes of abnormal vaginal bleeding:

- **Early pregnancy related:** history of missed period, positive pregnancy test. This can either be harmless and slight, or can be related to a miscarriage. The most serious cause is an ectopic pregnancy (where the pregnancy grows in the abdomen outside the uterus). Signs are: abdominal pain, especially to one side, bleeding can be slight.
- **Antenatal haemorrhage:** This is defined as bleeding after 20 weeks of pregnancy: It can be painful or painless. Unless it is very slight and only related to sexual intercourse, it is always a danger sign for both mother and child
- **Period-related:** Very young or aging women can often have irregular periods for one or two years, before they become regular or finally stop. The pattern of the periods may be very irregular, and often they can be very heavy and prolonged, sometimes also painful. There is no bleeding in between periods or after intercourse, and the woman feels well in between periods. Bleeding can be painless or accompanied by period pain. Endometriosis (a non-cancerous condition of the womb and ovaries) can also be classified in this type of bleeding, but it cannot be diagnosed in a health post.
- **Infection-related:** Chronic infections of the cervix or uterus can also cause increased bleeding, sometimes just heavier and more painful periods, sometimes bleeding in between periods. Usually the woman will also have abdominal pain and pain with intercourse, and sometimes an abnormal vaginal discharge
- **Bleeding related to cancer:** this is very rare in women under the age of 35. It can be cancer of the body of the womb, or of the cervix. The bleeding is usually not very heavy, but can be heavier than a period. It is completely unpredictable, or in the case of cervical cancer often starts after sexual intercourse. The bleeding, unless very heavy, is usually painless
- **Other causes:** benign (non-cancerous) tumors of the womb or cervix can also cause heavy periods or bleeding between periods. This type of bleeding is similar to that of cancer related bleeding, and cannot safely be distinguished without an ultrasound and further tests.

- **Heavy bleeding related to other illness:** Some other illnesses, such as thyroid disease, can also cause irregular or heavy periods. In this case, the woman will also be generally not well, often have lost a lot of weight, or she may have put on weight. This can only be diagnosed by a blood test.

### **Differential Diagnosis:**

See above. Also consider that sometimes the patient may have misinterpreted her symptoms, and that the bleeding could actually be from the bladder, the bowel, or even the skin around the perineal area

### **Other diseases that may also be present:**

Iron deficiency anaemia. In case of infection, also consider HIV and Hepatitis B

### **Action:**

#### **Investigations:**

If there is any possibility that the patient may be pregnant, do a pregnancy test.

Check for anaemia, check blood pressure.

Palpate abdomen and check vagina – if possible, look at the cervix with a speculum.

Look at the skin around the vagina as well.

#### **Treatment:**

Further action will depend on the situation and likely diagnosis:

- **Early pregnancy related:** If the last period is less than 12 weeks ago, and there is no pain or only period like cramping lower abdominal pain, but the woman is otherwise well, and her abdomen is soft and not painful, it may be safe to see what happens, without intervention. If possible, examine vaginally to make sure that there is no pain on moving the cervix.  
Ectopic pregnancy: if there is severe abdominal pain, a rigid or swollen abdomen, and slight to heavy bleeding, especially if there is pain on moving the cervix on examination, consider ectopic pregnancy and refer as quickly as possible! Consider setting up an Iv drip before sending the patient off to hospital, as there is danger of shock.
- **Antenatal haemorrhage:** This can be a severe emergency. If there is period like bleeding, especially after 24 weeks, refer to hospital to exclude a serious cause. Strongly advise against sexual intercourse.
- **Period-related:** Heavy or irregular periods, with no bleeding in between, in an otherwise well woman, can be treated with Norethisterone (Primolut) 5 - 10mg tds. If they are also painful (common in young women) try Ibuprofen, or Mefenamic Acid 500 mg tds.
- **Infection-related:** treat with Doxycycline 100 mg bd for 14 days. If there is also an abnormal discharge, add Metronidazole 400 mg tds for 7 days, and Ciprofloxacin 500 mg once only. Give the same treatment to the sexual partner, and advise to use condoms for the time they are taking antibiotics. Review after treatment to ensure there is no other cause
- **Bleeding related to cancer:** If there is any suspicion of cancer, refer. If bleeding is heavy, Norethisterone 5-10 mg tds may reduce the bleeding until the patient reaches the hospital



- **Other causes:** refer
- **Heavy bleeding related to other illness:** treat with Norethisterone 5-10 mg tds and refer

**Counselling:**

In case of simple irregular and heavy periods, advise that this will often settle with time. In all other cases, advise that investigations are important to exclude any serious cause.

**Follow-Up:**

If treating in the community, review after 1-3 months to check improvement.

**Referral situations:**

As above, and if there is no improvement after 1-2 months treatment

## **5.7. Other Period Problems**

### **Important symptoms:**

- Irregular periods
- Missing periods
- Very painful periods
- Bleeding in between periods

### **Important signs:**

- Very thin or unusually fat
- Palpable swelling of abdomen
- Visible goiter
- Generally unwell

### **Essential disease information:**

Most missed or irregular periods are not a sign of disease, but can be a sign of sudden changes in weight or of stress and malnutrition.

Important exceptions are:      painful periods due to infection (see also chapters on vaginal bleeding and PID)

   Missed periods due to thyroid disease

   Painful periods due to gynaecological disease (such as endometriosis)

### **Differential Diagnosis:**

- Primary (normal) painful periods: a lot of women experience period pain which starts on the day of the bleeding or sometimes one day before, and lasts for 2-5 days during the period. Usually the periods start to be painful soon after the girl starts to have them – within a few years, anyway, and the pain can change a bit from month to month. There is no pain in between, and no other sign of illness
- Secondary (abnormal) painful periods: if a woman has usually had easy periods and later in life starts to experience severe pain, this is classed as abnormal. It may still not be a sign of disease – It could, for example, be related to a copper T (IUD). But there is a suspicion that it may be caused by infection – see chapter for PID. There are also some diseases of the reproductive tract that can cause painful periods. Consider referral.
- Missed periods: Very few women have an absolutely regular cycle. Periods can be missed or delayed after illness, because of major stress or because the woman has lost a lot of weight (or gained weight). Sometimes when several women live together, their periods synchronise after a while. Remember that the commonest cause for a missed period is pregnancy! However, there are a few rare causes of periods stopping without pregnancy, and if this persists for more than 3 months, further investigations are advisable.
- Thyroid disease: be suspicious if a woman complains of a change in her cycle (more frequent or fewer periods or heavier bleeding, and has also experienced a major change in weight (up or down) for no obvious explanation. She may have thyroid disease or other serious illness and needs investigation!

**Other diseases that may also be present:**

Malnutrition, worms, malaria, thyroid disease, heart disease, any serious disease.

**Action:****Investigations:**

In case of missed or delayed periods, do a pregnancy test. Abdominal and vaginal examination to exclude any masses or local abnormalities.

Check haemoglobin to exclude anaemia. Check blood pressure. (If raised, this may indicate an underlying illness.)

**Treatment:**

In simple (primary) painful periods, reassure the girl / woman, that no disease is present. Treat pain with Paracetamol, Ibuprofen or, if this is not effective, try Mefenamic Acid 500 mg tds.

**Counselling:**

Advise about personal hygiene during periods. In simple (primary) painful periods, reassure that this is likely to improve with time.

If there is a suspicion of infection, treat for PID as described in chapter

In all other cases, explain that no firm diagnosis can be made in the health post and advise to visit a hospital which has a gynaecologist.

**Follow-Up:**

Review any woman with periods problems after treatment, or advise to come again if the problems become worse

**Referral situations:**

Refer in case of any abnormal findings during examination, or if symptoms don't improve with treatment.

## 5.8. Mastitis

### Important Symptoms:

- pain in one or both breasts
- often fever
- pain when breastfeeding
- sometimes reduced milk flow

### Important Signs:

- swelling and redness of part or whole breast, usually just one, but can be both
- fever
- pain on palpation of red part
- sometimes spontaneous discharge of pus

### Important Information:

Mastitis is a condition that usually affects breastfeeding women. It starts by a blockage or infection in one of the milk vessels, and can spread through the whole breast, or can develop into an abscess (see chapter 11.3.3. abscess)

If not treated early and correctly, or if the woman stops breastfeeding from the affected breast, mastitis can lead to the breast drying up.

In an older woman who is not breastfeeding, the signs and symptoms of mastitis could be those of cancer.

### Differential Diagnosis:

breast abscess (see chapter 11.3.3.)

breast cancer (in women over the age of 35)

superficial infection of the skin (see chapter 11.3.1.)

blocked breast duct

### Other diseases to consider:

anaemia, malnutrition

### Action:

#### Investigations:

It is usually good to check for anaemia (Hb). In non-breastfeeding women, consider referral to exclude cancer.

#### Treatment:

give antibiotic: Flucloxacillin OR Erythromycin OR Cefradine

give adequate pain relief: Paracetamol AND Ibuprofen

It is very important to counsel the woman regarding continued breastfeeding / expressing (see below)

**Counselling:**

- advise the woman that it is very important to continue to breastfeed from both breasts, as otherwise the milk might dry out
- when breastfeeding, it is best to turn the baby in such a way that its chin is pointing towards the inflamed part (because it will express more milk from that area)
- if it is too painful to breastfeed from the affected breast, advise to express milk at least 4 times daily until the pain is better
- remember to discuss contraception
- consider Vitamin A supplementation if less than 6 months after delivery
- also remember to check the baby's nutrition and vaccination state and general health

**Follow Up:**

Review after 1-2 days if no improvement

**Referral Situations:**

- If the woman is systemically ill, and worsening
- If there is no improvement after 5 days
- If there seems to be a big abscess
- If you suspect cancer

## **6. Male Reproductive Tract Problems**

### **6.1. Scrotal or Testicular Swelling**

#### **6.1.2. Hydrocele**

##### **Important symptoms:**

- A swelling in the scrotum (the skin that contains the testicles) which can cause discomfort, though usually no severe pain
- The swelling may be slowly increasing in size

##### **Important signs:**

- A visible and palpable soft swelling, which can be just on one side or both, and is not usually painful
- It can be difficult to feel the testicle clearly
- The swelling can go up towards the abdominal wall
- When a lit torch is held against the swelling in a darkened room, the whole swelling shines red, as it contains a water like fluid (this is called Transilluminating)

##### **Essential disease information:**

A hydrocele is a collection of fluid in the bag that contains the testicle (the scrotum). It can be present at birth or develop later in life.

It is not in itself dangerous, and never causes serious illness, but it can cause infertility. It can also make it a little bit more likely for the testicle to twist on itself. When the hydrocele is very large, it can cause considerable discomfort.

##### **Differential Diagnosis:**

Tumours, Hernia, Varicocele, Orchitis, testicular torsion.

##### **Other diseases that may also be present:**

Hernia

##### **Action:**

##### **Investigations:**

This problem can be diagnosed by the typical signs described above

##### **Treatment:**

There are no medicines that help with hydroceles. If they cause discomfort, sometimes simple painkillers may help. Treatment is an operation which can be performed in most hospitals.

##### **Counselling:**

Advise that this is not a dangerous illness, but may get slowly bigger, and surgery is the only treatment.

In young boys, advise parents to arrange surgery, as this can otherwise lead to infertility in later life.

##### **Follow-Up:**

Refer for surgery. Follow up is usually not required. – Ask patient to attend again if the symptoms get worse.

##### **Referral situations:**

All cases, if it causes discomfort.

### 6.1.3. Other testicular swellings

#### Important symptoms

<b>varicocele</b>	<b>tumors</b>	<b>orchitis</b>	<b>Torsion</b>
<ul style="list-style-type: none"> <li>➤ Soft, non painful swelling of scrotum</li> <li>➤ Often on left side</li> <li>➤ Sometimes bigger when standing, or in warm weather</li> <li>➤ Grows very slowly or not at all</li> </ul>	<ul style="list-style-type: none"> <li>➤ Hard, usually not painful swelling on one testicle</li> <li>➤ Grows slowly over days and weeks</li> </ul>	<ul style="list-style-type: none"> <li>➤ Painful swelling of one or both testicles</li> <li>➤ Often scrotums seems red</li> <li>➤ Can also cause general illness, such as fever, vomiting</li> <li>➤ There may be a discharge from urethra, or pain on urinating</li> </ul>	<ul style="list-style-type: none"> <li>➤ Sudden onset of severe pain in testicle</li> <li>➤ Often after physical activity</li> <li>➤ Affected side may be swollen</li> <li>➤ More common in boys or young men</li> </ul>

#### Importants signs

<b>varicocele</b>	<b>tumors</b>	<b>orchitis</b>	<b>Torsion</b>
Sometimes the blood vessels (varicose veins) can be felt	Hard, usually not painful swelling on one testicle	Often scrotums seems red	Very tender testicle
Similar to hydrocele, but doesn't transilluminate (shine red)	Grows slowly over days and weeks	Very tender on palpation	Testicle appears to lie very high up

#### Essential disease Information

<b>varicocele</b>	<b>tumors</b>	<b>orchitis</b>	<b>Torsion</b>
This is caused by large dilated veins (like varicose veins) filling the scrotum. It is not harmful, but can sometimes cause problems with fertility	Cancer of the testicle is rare, but when it happens, it usually affects relatively young men. Treatment is by operation and Xray treatment, and if treated quickly enough, many men can be cured completely	This is an infection of the testicle, which can be caused by viruses (such as Mumps) or bacteria. It can be, but is not always a sexually transmitted disease	The testicle is suspended from the abdomen on the spermatic cord, which contains the blood vessels and the vessel that contains the sperm. Sometimes the testicle can twist round this cord, and then the blood supply gets cut off. If the blood supply is cut off completely for many hours, the testicle can become infertile.

## **Differential diagnosis**

Hernia, hydrocele

## **Diseases that could also be present**

In case of orchitis: STI, HIV

## **Action**

### **Investigations**

If there is any suspicion of tumor or torsion, refer immediately for investigation at a hospital. If orchitis is suspected, check for signs of urine infection or signs of STI

### **Treatment**

<b>varicocele</b>	<b>tumors</b>	<b>orchitis</b>	<b>Torsion</b>
No treatment is usually needed, unless there is a lot of discomfort, or sometimes if the man is having trouble fathering a child. In these cases, surgery is the only treatment, but simple painkillers may help the discomfort	Treatment can only be given in a cancer hospital, and it is very important that it starts as soon as possible – refer!!!	Ciprofloxacin 500 mg once and Doxycyclin 100mg bd for a week. Check if partner has any signs of STI. Consider treating as STI (see chapter STI) If also swelling of parotid glands (in front of ears), see chapter Mumps	Treatment is an operation. This is an emergency, if the testicle is to be saved. Refer!! Give painkillers before referral.

### **Counselling**

<b>varicocele</b>	<b>tumors</b>	<b>orchitis</b>	<b>Torsion</b>
This is not usually a serious problem, and you can usually reassure the patient that no treatment is necessary. An ultrasound examination in a big hospital would confirm the diagnosis	it is very important that treatment starts as soon as possible – refer!!!	Advise patient to return if no improvement with treatment. If there is any suspicion of STI, the partner also needs to be treated	Explain treatment is only possible in hospital

### **Follow-Up:**

Orchitis – in case no improvement with treatment

### **Referral situations:**

All cases of suspected torsion or tumor



## **6.2 Phimosis**

### **Important symptoms:**

- The foreskin of the penis cannot be pulled back over the glans
- Sometimes the foreskin may balloon out when passing urine
- There may be a smelly discharge

### **Important signs:**

- In most normal cases the tip of the foreskin is narrow and long when trying to pull back
- If it is secondary to infection, there may be visible scarring of the skin

### **Essential disease information:**

Phimosis just means narrowing of the foreskin. In most male babies the foreskin is narrow and cannot be pulled back at birth, and only later becomes wider. Usually by the age of 6 years, it will have widened. In some boys, the foreskin never gets wide enough to be pulled back, but this doesn't in itself cause a problem

Occasionally, repeated infections can cause a narrowing of the foreskin, and this can sometimes lead to more serious problems

### **Differential Diagnosis:**

You need to distinguish between normal (physiological) or secondary (due to infection) phimosis.

### **Other diseases that may also be present:**

STI

### **Action:**

#### **Investigations:**

This problem can be diagnosed by the typical signs described above

#### **Treatment:**

There are no medicines that help with phimosis. If there is a problem with repeated infections or difficulty passing water, a small operation (circumcision) is the only treatment

#### **Counselling:**

Advise that usually no treatment is necessary, but advise to keep the penis as clean as possible, as phimosis can cause infections

#### **Follow-Up:**

Not usually required

#### **Referral situations:**

If it causes repeated infections or difficulty passing water  
In secondary phimosis (due to scarring)

**Paraphimosis:** Sometimes the tightened foreskin can be pulled back behind the glans, and cause constriction and reduced blood circulation. This leads to swelling of the glans and the foreskin cannot be pulled back over the glans. In such cases, apply some glycerine and a few drops of lignocaine solution and gently press on the glans to reduce the swelling and bring the foreskin back forward. If this is not successful, refer.

### **6.3. Sexually Transmitted Infections in Men**

#### **Important symptoms:**

- Discharge from penis
- Burning when urinating
- Small wounds or ulcers around penis and anus
- Sometimes also swelling and pain in testicles

#### **Important signs:**

- Discharged from urethra
- Ulcers or sores around penis or anus or in groins
- Swollen lymph nodes in groins

#### **Essential disease information:**

The commonest causes for urethral discharge in men are Gonorrhoea and Chlamydia infection and Trichomonas. All of these are sexually transmitted, so mainly men with more than one sexual partner are at risk, especially if they have been traveling and had contact with commercial sex workers.

It is important to remember that sexually transmitted infections can be present without symptoms, too. In the presence of one infection, often others are present, too.

If there are any ulcers around genitalia, syphilis or chancroid need to be considered.

In any sexually transmitted disease, all sexual partners also have to be treated, whether they have symptoms or not. Also remember that Hepatitis B and C and HIV are also sexually transmitted diseases, and any person with an STI is therefore at risk of these, too.

#### **Differential Diagnosis:**

Balanitis (infection of the tip of the penis), UTI, Prostate problems (in men over 50, sometimes a swelling of the prostate gland below the bladder can cause urinary frequency and pain on urination), phimosis

#### **Other diseases that may also be present:**

HIV, Hepatitis B or C, syphilis

#### **Action:**

##### **Investigations:**

Examine the penis and anus for discharge and ulcers and the testicles for swelling. If possible, refer to hospital for a definite diagnosis to be made and counsel for testing for HIV and Hepatitis.

##### **Treatment:**

##### **In urethral discharge (with or without testicular swelling/pain):**

Ciprofloxacin 500mg once

and

Doxycycline 100 mg bd for 7 days

and

Metronidazole 400 mg tds for 7 days

**In genital / perianal ulcers (with or without urethral discharge or testicular swelling/pain):**

Refer, if possible. If referral is not possible:

Ciprofloxacin 500mg for 3 days

and

Tetracycline 500 mg 4 times daily for 15 days (or Erythromycin 500 mg 4 times daily for 15 days, or Benzathine Penicilline 2.4 mio IU stat - 1.2 mio IU in each buttock - followed by 1.2 mio IU daily for 10 days)

and

Metronidazole 400 mg tds for 7 days

**Counselling:**

4C:

Compliance is important – need to complete full course of antibiotics

Counselling about STI, and HIV and Hepatitis

Contact Tracing – all sexual partners need to be treated

Condoms – encourage and promote condom use. Remind to use condoms until treatment of both partners is completed to avoid re-infection

**Follow-Up:**

Review after one week if symptoms not fully resolved

**Referral situations:**

If possible, encourage all patients to be tested for HIV and Hepatitis

All cases with genital ulcers

If symptoms haven't resolved after treatment

If you suspect HIV infection

## **7. Bones, Joints and Injuries**

### **7.1 Burns**

**If a patient comes with a burn that happened in the last 30 minutes, cool with cold and clean water for at least 10 minutes !**

#### **Important symptoms:**

- Patient or parent reports burn
- Pain !!!

#### **Important signs:**

- Affected area of burn
- Redness, blistering, whiteness, charring
- Skin sensation (pain in Grade I and II burns, no pain in Grade III burns)
- Signs of shock (fainting, fast pulse, paleness) due to fluid loss or pain

#### **Essential disease information:**

Burns are divided in 4 grades

Grade I: superficial burn; red, swollen, skin intact, pain sensation

Grade II: partial thickness burn; blister, open blister, pain sensation

Grade III: full thickness burn; skin is white and has little or no feeling

Grade IV: skin is fully burned, black and dry, lower tissues are visible

Burns can be caused by hot liquids, fire, electricity or chemicals. Electrical burns are worse than they appear because of internal damage.

The body loses fluids and protein through the burn site.

Burns in adults (>30%) and children (>15%) will have a serious prognosis. Burns grade III and IV have a big risk for scar formation. This is particularly dangerous if joints are involved.

#### **Other diseases that may also be present:**

Depression, psychosis, suicidal attempt, child physical abuse, epilepsy

#### **Action:**

##### **Investigations:**

Estimate the areas of Grade I, II, III and IV burns using the Lund-Bowder chart of body surface area for estimation of involvement in % (see following page)

##### **A simplified system is the “Rule of 9”:**

1 arm 9%, upper leg 9%, lower leg 9%, anterior trunk 18%, posterior trunk 18%, head 9% (genitals 1%); the palm of the hand corresponds to 1% of body surface. This system works on adults and bigger children, babies have a much bigger head, see table below.

**Lund – Bowder Chart to determine % of body surface area**

Age in years	0	1	5	10	15	adult
Head	19	17	13	11	9	7
Neck	2	2	2	2	2	2
Trunk (front or back)	13	13	13	13	13	13
Buttock (R/L)	2.5	2.5	2.5	2.5	2.5	2.5
Genitalia	1	1	1	1	1	1
Upper arm(R/L)	4	4	4	4	4	4
Lower arm(R/L)	3	3	3	3	3	3
HAND(R/L)	2.5	2.5	2.5	2.5	2.5	2.5
Thigh(R/L)	5.5	6.5	8	8.5	9	9.5
Leg(R/L)	5	5	5.5	6	6.5	7
Foot(R/L)	3.5	3.5	3.5	3.5	3.5	3.5

**Treatment:**

- 1) If the burn happened in the last 30 minutes, cool with cold and clean water for 10-20 minutes.
- 2) Give pain medication: Paracetamol 15 mg/kg, Ibuprofen
- 3) Clean the wound with N/S and apply Silver Sulphadiazine cream and Vaseline gauze to avoid that the gauze piece sticks to the wound.
- 4) If joints are involved, dress in neutral position (usually not fully bent, not fully straight), and counsel to start moving the joint as soon as the pain allows – within first 3 days
- 5) Refer if burn grade III (unless very small) or >10% grade II in children, >15% in adults.
- 6) Give lots of oral fluids.
- 7) If available at your health post, and patient arrives within 24 hours of injury, give iv fluids in burns >10 % (>15% in adults) body area total burn or >10% (>15% in adults) 3<sup>rd</sup> degree burn:  
**0.5ml (max 1ml) fluid per kg body weight x % of burn:** fluid required = kg x % x 0.5 (e.g a 15 kg child with 20% burn would need 150ml, whereas a 50kg adult with 30% burn would need 750 ml) every 4 hours for the first 12 hours, then every 6 hours for the next 12 hours, and then the same amount again over 12 hours. (Use Normal saline, and Dextrose saline alternatingly, if you have, but which fluid is less important than the amount.)
- 8) Prescribe pain medication (Paracetamol, Ibuprofen) and antibiotics (Ampiclox)
- 9) Dressing changes every 2-3 days, remove dead skin and apply new dressing

**Counselling:**

Nutritious diet. Discuss safety issues and prevention.

**Follow-Up:**

Alternate day dressing for none admitted patients. Treat all burn case unless small and superficial, all electric burns even if small. Refer if complicated, e.g. involving a joint.

**Referral situations:**

All burns grade III and IV, unless very small, burns grade II >15% and all complications, most burns that involve joints, and circumferential burns of extremities.

## 7.2 Fractures

### **Important symptoms:**

- Patient or parent reports injury – usually significant fall or force
- Pain !!!
- Unable to use affected limb

### **Important signs:**

- Often marked swelling and / or bruising over affected area
- VERY painful to touch or move, trying to move neighbouring joints hurts
- Cannot use affected limb
- Limb may look “deformed” – abnormal bends or angles
- Signs of shock (fainting, fast pulse, paleness) due to fluid loss or pain in fractures of large bones

### **Essential disease information:**

Fractures can be “closed” (no visible injury to the skin) or “open” (either in case of severe trauma from outside that also broke the bone – like gunshot wounds – or in case of the end of broken bones piercing the skin.) **All open fractures have a very high risk of infection in the bone and HAVE to be referred as quickly as possible!!!**

Broken bones will usually heal by themselves, if they are completely immobilized (for 3 to 6 weeks). However, if this is not done well, they may heal together at the wrong angle, or end up shorter, or even not join at all, and the affected limb may not be fully functional for the rest of that person’s life.

In the first days after a fracture, if it is not well aligned, or moved in an unprofessional way, there is also danger of injuries to nerves or blood vessels, which may ultimately cause the loss of the limb.

In the case of fracture of large bones (upper arm, leg bones), there is also an immediate danger of major blood loss into the tissues.

### **Differential diagnosis:**

Sometimes it is hard to tell a fracture from a sprain or ligament injury – especially in the case of finger, wrist or ankle injuries. If you are not sure the limb is broken:

In case of **finger injuries**: Usually, if there is no fracture, moving the finger gently will not hurt very much. If in doubt, immobilize as below. If sprain, will also need strapping for 2 weeks minimum, as this also is quite painful.

In case of **wrist injuries**: if there is not a lot of swelling, and no deformity, it can be hard to decide, especially in small children. If in doubt, refer for Xray. Treat any injury that still hurts after two days immobilization as a fracture, and refer.

In case of **ankle injuries**: if the patient cannot put ANY weight on the injured foot (not even the heel), suspect a fracture. Also, press on the ankle bone without touching the ligaments around the joint. – If this hurts, a fracture is likely. Ankle sprains can also show a lot of swelling, but if the patient is still able to put some weight on the foot, it is usually not broken. Treat sprained ankles with elastic bandage, painkillers, cool compresses, and gentle exercise early on.

## Other diseases that may also be present:

Internal blood loss, shock

### Action:

#### **Investigations:**

- Check general condition of the patient: - pulse, BP, skin: signs of shock?
- Assess injured limb: is there swelling / bruising , loss of function, pain on moving adjoining joints? If so, even in the absence of visible deformity, a fracture is likely.
- Assess severity of injury:
  - The bigger the affected bone, the more risk of blood loss
  - The more the limb is deformed / bent at an unusual angle the higher the risk of nerve damage
  - Open fractures are always more serious than closed
  - Check the sensation and circulation in the part of the limb away from the body / i.e., if the lower arm is injured, make sure the hand looks pink and feels warm, and the patient can feel touch and can move his fingers (just a little bit) – if there is no feeling, or the limb looks blue/ mottled or feels cold, get the patient to hospital as fast as possible – he might lose that limb!!

#### **Treatment:**

- If there is a lot of pain: give the strongest painkiller you have as soon as possible! (best before examining the injury)
- In injuries to large bones (upper arm, leg, thigh), assess for signs of shock: give i.v. fluids (see guideline 7.4 shock)
- In all open fractures: clean visible wound gently with iodine, apply sterile dressing, and give one dose of Cotrimoxazole or Amoxicillin before referring.
- In fractures with very bad deformity: try GENTLY if you can improve the situation a little by pulling the outer part of the injured limb in the direction it is pointing
- In fractures of arms or legs: Immobilize the limb (including both joints next to the injury) with two sticks and a bandage, or plaster, if you have; set it in the position that seems most comfortable for the injured person
- When referring, give enough painkillers to last up to the hospital

#### **Special cases that usually do not need referral:**

- **Broken toes (closed fractures):** although painful, broken toes usually heal quite quickly (within two weeks). To make them more comfortable, strap the injured toe with a few layers of strong elastic tape, pulling it up slightly. Make sure the tape is not too tight
- **Broken fingers:** unless open fracture or bad deformity, broken fingers can be strapped to the next finger and immobilized with a piece of bent wire molded to the hand and lower arm. The finger should be in a half-bent position, and kept strapped for 3 weeks. Make sure the bandage is not too tight
- **Broken ribs:** rib fractures are very painful, and the main danger is that the patient may not breathe properly because of the pain, and develop pneumonia as a complication. Also, very rarely, a broken rib can pierce the lung and cause serious breathing difficulties. Give enough painkillers (Ibuprofen is best) to make patient



comfortable, and warn to come back / go to hospital immediately, if he becomes short of breath. Usually rib fractures heal by themselves over the course of 3-6 weeks.

- **Broken clavicle:** the typical history of injury is a fall on the outstretched arm. The bone can be felt along its whole length, and it is usually easy to see / feel the bump and swelling at the fracture sight (compare with the uninjured side!). Trying to move the arm on the injured side is very painful. The clavicle will heal within 3-4 weeks, but often treatment is only necessary for two weeks: strap the arm on the injured side tightly to the body with a bandage or triangular bandage (take clothes off first and put them back on top!) Give Ibuprofen regularly for 3-5 days, and then as required.

### **Counselling:**

In referral cases: make sure patient does go to hospital: untreated fractures have a high risk of complications!

In minor fractures: advise to come back if pain gets worse, or limb looks pale/ blue/ cold. Discuss safety issues and prevention.

### **Follow-Up:**

Even if referred, advise patient to come back if at any stage pain gets worse again. (sometimes, even after plastering in hospital, the plaster can get too tight, or other problems can cause nerve damage.)

### **Referral situations:**

All suspected fractures except straightforward toe/finger, clavicle or rib fractures (but refer those as well, if the patient wishes!)

### **7.3. Snake Bites (and Other Bite Injuries)**

#### **Important symptoms:**

- History of being bitten by a snake
- Often while walking / working in high grass or undergrowth
- There may be severe pain / burning or numbness in injured area
- Patient may feel short of breath, chest pain, tingling all over, dizzy, drowsy, confusion (these may all be signs of panic reaction)
- There may be fever, excessive sweating and thirst
- Patient may be difficult to rouse, have double vision or difficulty opening eyes, slurred speech,
- Headache (an important symptom), irritability, photophobia, nausea, vomiting, diarrhoea,
- occasionally sudden loss of consciousness or convulsions

#### **Important signs:**

- Bite mark – two distinct tooth marks (may be poisonous snake) or several smaller marks (often not poisonous)
- Swelling or discolouration of injured area
- Swelling of local lymphnodes
- Signs of shock (see chapter 7.4.)
- Signs of neurological effects of poison: eyes not moving normally, patient's speech slurring, difficulty swallowing, difficulty lifting head(1-3 hrs)
- Haemoglobinuria, haemorrhage
- hypertension, tachycardia, fever
- Signs of previous treatments: cut injury, signs of infection (if several days after injury)
- Signs of hyperventilation: breathing fast and deep, hands in spasm, tick of mouth when tapped on cheek

#### **Essential disease information:**

There are very few seriously poisonous snakes in Nepal's hills, though more in the Terai. The hill snakes' poison is usually not strong enough to kill a healthy person over the age of 12 years.

In countries like Nepal, many people die every year from non – poisonous snake bites, either from sheer panic, or from the after-effects of harmful treatment practices.

Most snake bites are from non-poisonous snakes. Even when someone is bitten by a poisonous snake, in 9 cases out of 10, the snake won't release its venom. (A snake's venom is produced to kill small animals for food – when it bites to defend itself it knows that it cannot eat the human, and so usually saves its precious venom.)

**Therefore, the most important treatment for snakebite is: 1. Do no harm!! and 2. Reassure the patient!**

In case a snake has actually injected its poison, even after 10-20 seconds it has disappeared into the blood stream, and any strategies to remove the poison (like cutting and sucking, or putting a chicken's anus over the wound) or prevent it from spreading

(like tourniquets) or to counteract the poison (like giving the patient plant poisons or herbal medicines) **DO NOT WORK** and cause more harm than good.

Effects of snake poison can be two different types: 1. local effects: swelling of the tissues around the bite, continued bleeding from the bite marks, discoloration (blue / black), severe pain /burning / numbness, inability to move the bitten part.

2. systemic effects: nerve effects: progressive paralysis, first of small muscles of eyes and mouth, then also of hands, feet and chest muscles – patient may suffocate due to not being able to breathe; effects on the heart: tachycardia, arrhythmia, chest pain, can cause sudden death; effects on blood coagulation – delayed effect of bleeding of gums, into stomach, into brain

### **Differential diagnosis:**

Bites by other small animals, bites by non-poisonous snakes

### **Other diseases that may also be present:**

Secondary infection; injury through harmful treatment

### **Action:**

#### **Investigations:**

- Check pulse, BP, respiratory rate and temperature
- Assess neurological status of patient: can he move eyes normally, is his speech normal?
- Check for bite marks and local effects of poison
- Check for signs of secondary infection
- Check for swollen lymph nodes
- If possible, check urine with dipstick for blood
- Ask about / look for signs of previous treatment
- Try to find out if patient saw the snake, and what it looked like

#### **Treatment:**

- Be reassuring and calm. Stay with the patient – **try to reassure him that there is no immediate danger**
- If there are signs of shock, treat as in chapter 7.4. Give Adrenaline: adult dose ½ mg (0.5ml 1:1000) im, child: up to 6 months: 0.05ml, 6 months to 6 years: 0.12 ml, 6 to 12 years: 0.25 ml im.)
- Consider giving steroids (4mg Dexamethasone) / Pheniramine i.m. or i.v.
- Put on firm bandage in place of bite, covering the whole arm or leg
- Immobilize the bitten limb with bandage or sling
- **DO NOT** cut the wound, apply suction, apply tourniquets, apply any unhygienic substances to wound or give patient herbal medicines!!!
- Arrange for patient to have T.T. injection / course
- If there are signs of infection, give antibiotic (Cotrimoxazole, Ciprofloxacin, Amoxicillin plus Metronidazole, Doxycyclin)

- If there are definite signs of local or systemic poisoning – refer to nearest regional centre as quickly as possible! Only treatment with antivenom will help

### **Counselling:**

Explain the above facts to the patient – very few snake bites in the hills of Nepal are fatal! Try to put patient's mind at rest.

If snake bite is more than 2 hours ago and no serious symptoms have appeared, it is unlikely that patient will die.

But local effects of poison can still appear many hours later.

Even in immediately not so serious cases, advise patient to come back immediately if there are new symptoms

### **Follow-Up:**

As required, whenever new symptoms appear. If started on antibiotic treatment – daily for 2-3 days.

### **Referral situations:**

All systemically ill patients and all those with serious swelling / discoloration of the bite site

### **Notes on other bite injuries:**

To all form of bite injuries (dog / cat / other animal bite and also bites by humans) the general rules of wound treatment and hygiene apply, but as the risk of infection of these wounds is much higher, remember these 2 principles:

1. except in very small injuries, always give **prophylactic antibiotics** (Cotrimoxazole, or Amoxicillin and Metronidazole)
2. **NEVER suture** deep bite wounds: clean thoroughly and treat with daily dressing changes (except in long injuries like cut injuries – you may try to suture these loosely, to help with healing)

### **Rabies:**

Especially bites by dogs, foxes and jackals, but also bats and other smaller animals, carry the risk of infecting the person with rabies. This is especially true if the animal was looking sick and behaved in an unusual / unexpected manner

In such a situation, advise the person to attend the nearest regional hospital, for immunization against rabies. – If this is not done in time, and the patient does develop symptoms of rabies, the disease is almost always fatal.

## **7.4. Shock**

### **Important symptoms:**

- History of blood loss, diarrhoea, serious burn or other injury, high fever, snake bite, allergy or other serious disease
- Patient may feel very anxious and cold
- Patient may be confused or drowsy and hard to rouse
- Shortness of breath / fast breathing

### **Important signs:**

- Pulse fast and weak (>110 beats per minute)
- Raised respiratory rate
- Skin pale or grey and clammy (sweaty, cold to touch)
- Blood pressure low (< 90 systolic or < 60 diastolic)
- Anxiousness, confusion or loss of consciousness
- Urine output also decreases to less than 30 ml per hour

### **Essential disease information:**

Shock is the failure of the circulatory system to carry blood and oxygen to the heart, brain and other vital organs. It is life threatening and requires immediate and intensive treatment by fluid replacement.

Reasons may be blood loss (this may also be invisible, in case of internal haemorrhage), or fluid loss (e.g. vomiting, burns, diarrhea), dehydration,

Reasons that are not related to fluid loss are: sepsis, allergy, snake bite, heart failure and others

### **Differential diagnosis:**

Reduced consciousness for other reasons, chest injuries, heart attack, heart failure for other reason

### **Other diseases that may also be present:**

Injury, infection, heart disease

### **Action:**

#### **Investigations:**

- Check pulse, BP and respiratory rate
- Check urine output, if possible
- Assess cause for shock

#### **Treatment:**

- Stay with the patient
- Send for more help / people to take patient to hospital
- Monitor vital signs

- If unconscious, turn patient on his side, to prevent aspiration in case of vomiting
- Elevate the legs to increase blood return to heart
- Start treatment of the cause of shock, e.g. stop bleeding, start antibiotics or antiallergic medicines
- in case of sepsis, snake bite or allergic shock – give adrenaline : adult dose ½ mg im  
Child: <6m 50mcg (0,05ml of 1:1000 solution) 6m – 6y 120mcg or 0.12 ml, 6y-12y 250mcg or 0.25ml. dose can be repeated every 5 minutes according to response)
- Start an i.v. infusion (preferably normal saline, but any fluid is better than none), 20ml per kg body weight (adult: 1 liter) fast (over 15-20 minutes)
- Check pulse and BP after that, and repeat same amount over 30 – 60 minutes if not recovered, up to three times.
- Keep patient warm
- Unless patient is conscious do not give fluids or medicines per mouth
- Keep monitoring consciousness and vital signs and urine output
- Prepare for transport to higher center

### **Counselling:**

This is a clinical emergency and needs immediate treatment. Even if patient recovers seemingly with i.v. fluids, in the large majority of cases referral to hospital is safest, as there is a risk of later complications (for example, kidney failure), and patient very likely needs further treatment (e.g blood transfusion)

### **Follow-Up:**

Stay with patient until recovered, or until you have reached hospital

### **Referral situations:**

**All cases, except in dehydration, where the cause has already stopped, and if the patient recovers rapidly and fully.**

## **7.5. Suturing of Wounds**

### **Important signs:**

Assess any wound immediately, to check whether it presents an emergency:

- Continuing bleeding in a fresh wound – apply direct pressure until bleeding stops
- Signs of fracture (see chapter 7.2.)
- Signs of shock (see chapter 7.4.)

Before treating a wound, check also for signs of infection which requires antibiotic treatment:

- Redness and swelling, or pus, in an older wound
- Redness spreading around the wound, or along the lymph vessels towards the body
- Fever, generally being unwell

Also check if the wound needs immediate referral to hospital for other reasons:

- Signs of injury to nerves, major blood vessels or tendons
- Very large or deep wounds which cannot safely be sutured under local anaesthetic
- If there is any suspicion of injury of the abdominal or chest cavity
- If a body part has been completely or partially detached from the body.
- If the wound is on or very near a large joint and there is a possibility that the joint may be involved.

### **Essential disease information:**

Only relatively fresh wound heal well if sutured, the general rule is that they should be sutured within 6 hours of the injury, but if the wound is clean and not infected, later suturing may also be successful.

Healing usually takes place within a week if the edges of the wound are brought close together and held together – usually this means that the injured area should not be moved for at least 5 days.

### **Action:**

#### **Investigations:**

Check for signs of injury to nerves, major blood vessels or tendons:

- If the blood vessels to the limb (such as hand, finger, foot) are severed, the part away from the heart will look grey – blue and be cold to the touch
- If a tendon is severed, the patient will be unable to move the limb at all. (to check this, for example in a finger, grasp the finger and ask the patient to try and put pressure on your hand by attempting to bend or straighten the finger)
- If a nerve is injured, the patient won't be able to feel touch on the part of the limb that is away from the body

If you suspect injury to any of these important structures, refer the patient to a hospital, if at all possible.

#### **Treatment:**

## **Follow the following steps:**

1. exploration
2. cleaning
3. anaesthesia
4. approximation
5. immobilization
6. infection prevention
7. follow up

### **1. exploration**

after the examination explained above, regarding the age and severity of the wound, make sure there is no visible dirt or particles in the wound. In older wounds, also check for pockets of pus or eschar inside the wound

### **2. cleaning**

clean the wound with clean water or Normal Saline if it is dirty, gently remove particles of dirt with clean gauze. Wash the whole limb or a large area (at least 20 cms surrounding the wound) around the wound with soap and water.

After this, clean the wound and the washed area with Povidone Iodine solution

### **3. anaesthesia**

starting at the corners, infiltrate the whole wound edge with 1% or 2% lignocaine solution, using a syringe and needle, making sure you can see the skin slightly bulging when you inject the solution. Do not infiltrate the inside of the wound. Do not use lignocaine with adrenaline except for wounds that are well away from small body parts (such as fingers or toes, ears or nose).

The maximum dose of lignocaine is 10 ml of 2% solution or 20 ml of 1% solution in an adult. In a child, use no more than 0.2ml per kg of 2% solution or 0.4 ml per kg of 1% solution

### **4. approximation**

**Suturing:** plan where you are going to put your sutures: It is often better to start with the middle of the wound, placing a “placer suture”, even if you can’t approximate the edges completely, so that you can get the right parts together. The first suture is often not tight enough, but you can remove and re-place it at the end.

The sutures should not be closer together than 1 cm, and if it is a bit difficult to get the edges together, use “mattress” sutures. (see picture). You can also move the limb into a position which makes it easier to suture, but remember to keep it in this position afterwards!

**Steristrips:** some small wounds, especially on the head or in places which don’t move much, can be approximated with adhesive tape.

This does not need local anaesthetic. Clean the wound as described above, but make sure that the edges are well dried. Then cut small strips of adhesive tape, with a narrow waist (see picture) and bring the wound edges together. Again, often the first applied strip will not be tight enough, you can usually just put another on top and leave the first one.



There are also commercially available dressing strips like this, which are sterile, but usually normal adhesive tape will work.

### **5. immobilization**

If the sutured wound is anywhere near a body part that moves, you should bandage it in such a way that it cannot be moved until the wound has started healing: For example, if it is in the palm of a hand, use a splint, or a loose gauze ball to keep the fingers slightly bent in.

On hands or face, usually the wound will start healing within 3-4 days, 6-7 days in case of legs or back.

### **6. infection prevention**

review the risk of infection and give prophylactic antibiotics if you are worried.

Keeping the wound covered until it has started healing will also prevent infection (especially on hands and feet)

### **7. follow up**

In any but the most minor wounds, ask the patient to return 2 days later to check healing and change the covering dressing.

### **Counselling:**

If local anaesthetic has been used, warn the patient that the wound will start hurting more an hour or two after the suturing. Advise to keep the injured part raised if possible, as this will reduce the pain. Advise to keep dressing clean and don't move injured part more than necessary, and to attend for follow up.

Advise to return at any time if wound seems to become more painful. (This could be a sign of infection)

### **Follow-Up:**

After 2 days to check for signs of infection and change dressing.

At any time if the wound starts hurting more or the dressing needs replacing.

After 7 days to remove sutures. (can be a bit earlier on hands or face, or later if healing doesn't seem complete)

### **Referral situations:**

See above:

In all large or deep wounds you cannot safely suture under local anaesthetic (clean and dress and refer)

When important structures have been injured

In amputation cases (partial or complete)

In large wounds near big joints, especially in children

## 7.6. Head and Neck Injuries :

### **Important symptoms:**

- History of fall, or being hit on the head
- Headache or neck pain
- Nausea or vomiting
- Unconscious, or history of loss of consciousness
- May complain of weakness or pins and needles in arms
- May have convulsions

### **Important signs:**

- Signs of injury on head (bruise, bump, palpable step on scalp or swelling, tenderness on cervical spine)
- Reduced / changed level of consciousness

### **Important danger signs:**

- Unconsciousness / confusion which persists for more than 10 min after initial injury
- size of pupils of eyes being different
- weakness of hands
- slow pulse, raised BP
- irregular breathing

**these are signs of serious injury and need immediate, safe referral**

### **Essential disease information:**

Serious injury to the head or neck can affect the brain or the cervical cord, and can lead to failure of breathing and eventually, death. In most cases, these injuries can be treated in hospital if they are referred promptly after correct first aid treatment.

The main challenge at the health post is to distinguish between minor and major injuries: Minor injuries can be treated at the health post, all major ones need referral.

### **Head injury:**

<p><b>Minor Head Injury:</b></p> <p>May have history of short unconsciousness after injury</p> <p>May have headache and nausea</p> <p>May vomit once or twice, but not repeatedly</p> <p>Otherwise fully conscious, eyes and ears normal, can walk on a straight line</p>	<p><b>Major Head Injury:</b></p> <p><b>(any of the following)</b></p> <p>Prolonged unconsciousness, or reduced consciousness after initial period of normal consciousness</p> <p>Irregular breathing</p> <p>Severe headache, repeated vomiting</p> <p>Difference in size of pupils</p> <p>Blood from ear canal</p> <p>Palpable step in bones of scalp</p>
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<b>Cervical injury:</b>	
<b>Minor Cervical injury:</b> Usually no major trauma Neck hurting, but patient fully conscious and can move neck No signs of nerve damage to the arms	<b>Major Cervical injury (any of the following)</b> History of major trauma (e.g. fall from tree) Reduced consciousness or unconscious Irregular breathing Patient unable to move neck spontaneously Feeling of pins and needles or weakness in arms

### **Differential diagnosis:**

Reduced consciousness for other reasons

### **Other diseases that may also be present:**

Other injuries

### **Action:**

### **Investigations:**

- DO NOT move the head of an injured person, unless you are fairly sure that the cervical spine is not injured!
- Assess state of consciousness
- Examine head and neck for signs of injury
- Check pulse, BP and respiratory rate
- Look at pupils and check for size and reaction to light
- Check inside ears for signs of blood (may be sign of serious injury)
- Check for signs of weakness in arms (make patient squeeze your hands and push / pull on your hands)

### **Treatment:**

#### **Major head / Neck injury:**

- Treat bleeding wounds
- Immobilize the neck (the best way is a piece of thick foam and a bandage, but carton cut into shape and cushioned by bandages also works)
- If patient is unconscious, protect the airway (position safely)
- Transport to hospital as quickly and gently as possible – stay with the patient

#### **Minor neck injury:**

- Advise patient to wear thick warm scarf around neck until pain is better
- Give simple analgesics (paracetamol / ibuprofen)
- Advise patient not to carry any loads / do heavy work until completely well
- Advise re danger signs – weakness / tingling in hands or arms

**Minor head injury:**

- Treat any wounds
- Give paracetamol
- Advise to rest until completely well
- Advise attendant person to watch state of consciousness and bring to hospital immediately if consciousness deteriorates

**Counselling:**

Reinforce above messages about danger signs. In case of major injuries, explain to patient's relatives that often these can be treated if referred in time. Reassure patient and family as much as possible, and try to stay calm yourself!

**Follow-Up:**

In minor cases, make sure you explain to patients when to come back immediately and follow up at 48 hours. In referrals, try to find out what happened in the hospital

**Referral situations:**

**All major cases, and minor injuries, if any doubt.**

## 7.7. Back Pain

### **Essential disease information:**

Most back pain is caused by spasms in the big muscles of the back (musculoskeletal back pain), which may follow acute injury (like a fall) or exertion (like heavy lifting) or inflammation in the joints between the vertebrae.

Musculoskeletal back pain is common in people with a sitting occupation, especially office workers, and less common in physically active people; but it may be caused by bad posture, or wrong technique in lifting. This form of back pain will usually get better with analgesic treatment and back exercises alone, and is not dangerous.

However, there are some causes of back pain that need to be referred for further investigation or treatment, as they can be a sign of serious illness!

These are: back pain caused by nerve compression, back pain caused by a fracture of a vertebra, back pain caused by TB or a tumour in the back or by blood vessel problems, or by a duodenal ulcer, or flank pain that is due to a kidney problem.

### **Important symptoms:**

Muscular back pain often presents with fairly sudden onset, is usually in the lower back and often to one side.

Pain is often worse with certain movements (i.e. trying to get up or sit down), but generally improves slightly when the patient is moving about.

There are no signs of illness (like fever, weight loss, headache, nausea etc) and no weakness in the legs (there may be mild numbness or pain down one or both legs)

### **Important danger symptoms:**

- Slow onset or duration > 3 weeks
- First onset in child <14 yrs or in elderly person
- Pain getting progressively worse
- History of significant trauma (like fall from a tree; kicked in the back by mule/yak/buffalo)
- Signs of systemic illness, especially fever, night sweats or weight loss
- Pain in the upper back
- Pain worse at night
- Pain getting worse when walking
- Weakness in one or both legs
- Pain or weakness in both legs, or in the seat area
- Problems with urine or stool (especially retention/constipation or incontinence)

### **Important signs:**

In musculoskeletal back pain there are no abnormal findings on examination, except for pain on palpation to one or both sides of the spinal column, sometimes also in the joints between the spine and the pelvis (sacro-iliac joints). The patient may find it difficult to bend forward.

### **Important danger signs:**

- Weakness in one or both legs (cannot stand on toes or heels)
- Loss of sensation in the skin of legs or peri-anal area
- Severe pain on raising leg up when lying on the back
- Fever, obvious weight loss, patient looks ill
- Marked difference in leg reflexes
- Numbness of skin on one side
- Visible or palpable, painful irregularity in the back
- Pain on knocking on the spinal column (pain within the bones, or kidney pain)
- Pain on palpating abdomen

### **Differential Diagnosis:**

See under essential disease information

### **Action:**

#### **Investigations:**

**In all patients examine the back, ask patient to bend forward, raise the legs straight while patient is lying down on his back, palpate back and abdomen.**

If musculoskeletal back pain is the most likely cause, no investigations are necessary

In suspected kidney disease, test urine and refer for ultrasound

In suspected TB refer for sputum test and investigations

All other suspected severe disease refer! (at least for Xray)

#### **Treatment:**

In back pain secondary to kidney infection, give high dose antibiotics (Cotrimoxazole or Amoxicillin or Ciprofloxacin)

Musculoskeletal back pain:

Analgesic treatment: Paracetamol 1000mg up to four times daily

If no stomach problems, can be combined with

Ibuprofen 400 mg up to three times daily (after food)

or: Diclofenac 50 mg three times daily (or 75 mg b.d)

if spasms are very severe, for a short time only, Diazepam can be helpful:

give 2-5mg three times daily for **up to five days (no longer – can cause addiction!!)**

advise patient to start with smaller dose and increase to up to 5 mg tds if not too much drowsiness

#### **Counselling:**

Advise that painkiller treatment helps to relax painful muscles, but does not treat the cause. To treat cause and prevent recurrence, give advice about back care:

Advise to keep moving, but not to do any heavy work until pain is better

Advise about correct posture when lifting, getting up etc

Advise about back stretching and strengthening exercises

**Follow-Up:**

Pain should be markedly better within a few days, if not reassess and consider referral. Musculoskeletal pack pain can be chronic in some people, or may last up to six weeks in a single episode, but it is always better to refer if there is no improvement within 2 weeks.

**Referral Situations:**

All patients with the above danger symptoms or danger signs

## **7.8. Joint Pain**

### **7.8.1. Osteoarthritis**

(chronic pain and occasional mild swelling in one or more joints)

### **7.8.2. Rheumatoid arthritis**

(progressive inflammation and stiffness in usually more than one joint)

### **7.8.3. Septic arthritis or other infection-related arthritis**

(severe pain redness and swelling, but usually only one joint)

### **7.8.4. Gout**

(acute attacks of pain and swelling, usually in thumb or big toe)

### **7.8.5. Rheumatic Fever**

(severe joint pain in varying joints in a child between 5 – 15 years, usually 2-3 weeks after URTI)

## **7.8.1. Osteoarthritis**

### **Important symptoms:**

- Onset usually after 40 years of age, very rarely before age 30
- First onset often in knee, hip, thumb or big toe, often asymmetric distribution
- Pain worse after exercise, better after rest
- Pain coming and going over many months/years
- Initially no significant stiffness in joints
- Occasionally joints may be mildly swollen

### **Important signs:**

- Affected joint may be painful on movement
- Usually no significant swelling
- Small joints of fingers (but usually not those at base of fingers) may be swollen or show knots

### **Essential disease information:**

This is essentially a disease of the aging joint, often through hard wear. There is lack of joint fluid, irregularity of the cartilage, and consequently inflammation in the joint

The pain may get better in time, but the disease itself is not reversible

Often there is slow worsening of the disease over the years

### **Differential Diagnosis:**

Injury, rheumatoid arthritis, septic arthritis, rheumatic fever

### **Other diseases that may also be present:**

In patients who consult about one painful joint, there is often a history of other joints also hurting from time to time



## **Action:**

### **Investigations:**

Xray will usually show narrowing of joint space or irregularity of bone surfaces (in advanced stage)

### **Treatment:**

Often, reassurance and advice about exercises is sufficient

Many patients find analgesic creams or gels helpful, e.g:

Diclofenac or Ibuprofen gel, apply locally once or twice daily

If pain is severe, give analgesics:

Paracetamol 1000mg up to four times daily

If no stomach problems, can be combined with

Ibuprofen 400 mg up to three times daily

or: Diclofenac 50 mg three times daily (or 75 mg b.d)

sometimes intra-articular injection of steroids is helpful for some time: in severe cases, consider referral for this

### **Counselling:**

- Advise to exercise painful joints without putting strain on them (e.g. with knee pain bend and stretch legs for five minutes morning and night, but don't walk long distances)
- Sometimes elastic bandages will help
- Advise to use analgesics as little as possible, but as much as necessary
- Advise that disease usually progresses, but pain will sometimes improve by itself

### **Follow-Up:**

Advise to consult again if pain gets much worse

### **Referral Situations:**

If no improvement with treatment (mainly to confirm diagnosis).

## 7.8.2. Rheumatoid arthritis

### **Important symptoms:**

- Onset usually between 30 and 50 years of age, but can also occasionally be young person (juvenile arthritis)
- Usually joints at base of fingers are affected first, sometimes also wrists or ankles
- Distribution usually symmetrical
- **Pain is worst in the morning, joints are very stiff in the morning**
- Usually gets slightly better after one or two hours
- When pain is worse, joints are usually swollen and hot

### **Important signs:**

- During painful episode, joints are swollen and red/ hot
- There may be deformity of joints, especially those at base of fingers and distal finger joints (ulnar deviation and swan-neck deformity)

### **Essential disease information:**

This is a disease with some genetic factors – it is not a consequence of joint wear. Inflammation of the joint is the first stage, and cartilage damage and deformity follow. The disease is usually progressive and may lead to major disability, if severe. However, there are many patients with a milder form.

### **Differential Diagnosis:**

Septic arthritis, osteoarthritis

### **Other diseases that may also be present:**

Arthritis may be part of a syndrome that can include skin problems, lung disease, gut disease or heart disease – ask for other symptoms of illness!

### **Action:**

#### **Investigations:**

**Refer all but very mild cases for confirmation of diagnosis and advice regarding treatment**

#### **Treatment:**

**Mild cases:** advise Ibuprofen or Diclofenac, to be taken immediately after waking, in order to shorten morning stiffness  
add Paracetamol, if necessary: 1000 mg up to four times daily

severe cases may need steroid treatment – refer!

Rheumatoid arthritis can sometimes be slowed down by treatment with quite toxic medication which needs specialist supervision; therefore, refer all but mild cases early!

**Counselling:**

- Advise to take analgesics immediately after wakening; as little as possible, as much as necessary
- If joints are hot and swollen, advise rest and cold water application

**Follow-Up:**

See after referral to specialist to check compliance with medication and any side effects

**Referral Situations:**

All cases.

### **7.8.3. Septic arthritis**

#### **Important symptoms:**

- Usually only one joint affected
- Often disease of young or elderly
- Very painful, red and swollen
- Onset over one or two days
- Often also fever and general illness
- Sometimes history of injury, or injection

#### **Important signs:**

- Very painful, red and swollen
- There may be additional swelling around the joint
- Usually temperature is high

#### **Essential disease information:**

Bacterial infection of joint space – if untreated may lead to serious damage

#### **Differential Diagnosis:**

Osteoarthritis, rheumatoid arthritis

#### **Action:**

#### **Investigations:**

If available, FBC; if possible, joint aspiration (will reveal pus)

#### **Treatment:**

Immobilise joint with splint or bandage

Try high dose Penicillin i.m. (don't forget skin test to exclude allergy) **and** Cloxacillin p.o.

If no marked improvement within 48 hours, refer!

#### **Counselling:**

Advise strict rest of affected joint, cold water application

#### **Follow-Up:**

See daily

#### **Referral situations:**

Ill patients, all patients, if no improvement after 48 hours (if not treated, the joint may remain stiff for the rest of patient's life)

#### **7.8.4. Gout**

##### **Important symptoms:**

- Onset usually after 30 years of age
- Recurrent disease, if untreated usually resolves by itself within a few days
- Usually joints at base of thumb, or base of big toe are affected, sometimes also knees
- Usually only one joint affected at the time
- Usually fairly sudden onset (over night)
- Joint is VERY painful to touch or move

##### **Important signs:**

- Joint is red, swollen and hot
- Very painful to touch or move

##### **Essential disease information:**

This is a disease which is caused by the accumulation of harmful substances (uric acid) in the joint space. This causes acute inflammation, but usually no immediate damage to the joint. Some people only get one episode in their whole life, but usually it is a recurrent problem. Between “attacks” the joint appears normal.

“Attacks” are often triggered by alcohol, or a large protein-rich meal (meat), but in some people the disease is entirely genetic.

##### **Differential Diagnosis:**

Septic arthritis, osteoarthritis

##### **Other diseases that may also be present:**

Occasionally, uric acid can also cause kidney damage. Also, the patient may also have diabetes or hypertension.

##### **Action:**

##### **Investigations:**

Diagnosis is often clinical, but can only be confirmed by a laboratory test (blood level of uric acid)

##### **Treatment:**

Give Ibuprofen or Diclofenac, add Paracetamol, if necessary: 1000 mg up to four times daily

There is also the possibility of taking regular medicine (Allopurinol), but this needs to be prescribed by a doctor

##### **Counselling:**

- During episode, cooling the affected joint with water can relieve the pain a bit
- Advise regarding possible dietary triggers: meat, milk products, alcohol

##### **Follow-Up:**

See after referral to specialist to check compliance with medication and any side effects

##### **Referral situations:**

- If not improving after 48 hours
- Frequently recurrent cases

### 7.8.5. Rheumatic fever

#### **Important symptoms:**

- typically a disease of 5 – 15 year old children
- Usually there is a history of URTI, tonsillitis or scarlet fever in the last 2-3 weeks
- Often history of previous episode of rheumatic fever

#### **The main symptoms are:**

- Fever
- **Joint involvement:** all big joints can be painful, but the typical picture is a very painful, inflamed and swollen joint, which can be better within a day or two, only for another joint to start hurting
- **Heart involvement:** child may complain of chest pain, may have some leg oedema; pulse very fast, child gets exhausted at the smallest exercise
- Sometimes **skin involvement:** this can appear as round, red marks on the skin or painful hard nodules under the skin, especially on the legs
- Sometimes **neurological involvement:** child may be irritable and behave strangely, and may show strange involuntary movements (suddenly moving a hand or leg without any intent)

#### **Important signs:**

- Affected joints are swollen and red/ hot
- There may be skin signs as above
- Child may look very pale
- Very fast pulse

#### **Essential disease information:**

This is a late complication of infection with a bacterium called Streptococcus (particularly tonsillitis, pharyngitis, scarlet fever). Its main danger is that it can affect the heart, and in particular the valves, and can lead to serious heart disease in later life.

(Rheumatic Heart Disease is the main cause for young people dying of heart disease in Nepal, as in many poor countries)

Prompt treatment with antibiotics and NSAIDs and prophylactic antibiotics thereafter can prevent serious complications.

#### **Differential Diagnosis:**

Septic arthritis, viral influenza, rheumatoid arthritis of childhood

#### **Other diseases that may also be present:**

Malnutrition

#### **Action:**

#### **Investigations:**

In every child with acute joint pain, think of rheumatic fever: examine the skin, check the pulse, ask for history of URTI / tonsillitis / scarlet fever

If at all possible, refer to hospital for investigation and treatment

**Treatment:**

All cases should be referred, because of the possible serious complications. If a family refuses referral, or it is not possible for any reason, start the following treatment:

**Antibiotics:** 1<sup>st</sup> choice is Penicillin in high dose for 2 weeks  
If Penicillin not available, give Amoxicillin or Erythromycin

**NSAIDs:** Ibuprofen 30mg/kg body weight in three divided doses until symptoms are better

**Prophylactic treatment:** continue oral penicillin in low dose b.d. for at least five years, may need life-long. Doctors usually recommend 3-weekly injections.

Refer all cases to hospital, even after improvement, to check for heart damage and decide if Penicillin treatment is necessary.

**Counselling:**

- Advise parents to allow the child complete rest until it is fully recovered
- Advise about possibility of heart disease and explain symptoms (shortness of breath on exertion, weight loss, poor growth)
- Explain that risk of recurrence is high and re-inforce importance of prophylactic treatment and prompt treatment in case of recurrence

**Follow-Up:**

See after return from hospital, to check whether they need further treatment, and explain anything not understood.

If referral to hospital is not possible, see daily initially (if patient's house is far away, try to keep them at the health center for 2-3 days.)

**Referral Situations:**

All cases, but start treatment before referral, if possible.

## **8 Nerve Problems (Neurology)**

### **8.1 Convulsions**

#### **Important symptoms:**

- Patient is unconscious and cannot remember anything afterwards
- Occasionally there may be a prodrome of feeling dizzy or seeing an aura
- The patient may bite his/her tongue and pass urine and/or stool while unconscious

#### **Important signs:**

- all the muscles in the patient's body are rigid, or contracting rhythmically
- Often there is only the history from attendant persons to help with diagnosis, as usually the convulsions will have stopped spontaneously by the time of presentation
- Often patient will present in post – convulsion state of drowsiness (often lasts up to 2 hrs)
- Look for signs of external injury, injury of the tongue

#### **Essential disease information:**

Convulsions (also called seizures or fits) are a malfunction of the brain, which causes a transient state of loss of consciousness with involuntary, usually trembling or rhythmic, movements of all muscles in the body

Causes may be:

- lack of oxygen in the brain (lung disease or others)
  - Low glucose levels in the brain (especially in newborns or in diabetics on insulin)
  - Head injury
  - Tumours or abscess within the skull
  - Cysticercosis (infection with pig tape worm)
  - Meningitis or encephalitis
  - Malaria
  - Post-diarrheal (or other cause of electrolyte imbalance)
  - Hypertension
  - High fever of other cause (febrile convulsions) – see next chapter
  - Epilepsy – none of the above causes apply, and seizures are recurrent (80-90% of children who have a single seizure before the age of 6 will never have another one again)
- Convulsions are usually self-limiting and rarely last for more than 5 minutes; unless there is a serious physical cause like hypoxia or hypoglycemia
  - The main acute danger is suffocation, or aspiration of vomit, as the unconscious patient is not able to protect his/her airways
  - Often attendant persons make the situation worse by trying to wake the patient and putting him/her in an upright position
  - Other complications may be physical injury, if the sudden loss of consciousness occurs at a dangerous place (epilepsy patients often suffer burn injuries from kitchen fires, or head injuries if falling on hard ground)



## Differential Diagnosis:

Other causes of loss of consciousness (see chapter 8.2.), mental illness

### Action:

**All first-time, repeated, or long-lasting convulsions (except definite febrile convulsions), need to be referred for investigations! (may need CT scan of head and other investigations)**

### Investigations:

- If convulsions continue at time of presentation, quickly check temperature and, if possible, blood sugar
- If convulsions have stopped by the time of presentations, examine patient for signs of Meningitis (see guideline 12.1), and other serious illness, if seizure was prolonged or recurrent – refer for investigation

### Treatment:

- If convulsions have stopped spontaneously by the time of presentation, try to come to a diagnosis by history, and treat underlying disease (e.g. viral infection, meningitis,)
- **If convulsions are continuing at time of presentation, remember ABC rule:**
  - first make sure that the patient's Airways are clear and he/she is *B*reathing adequately (e.g regularly and skin and mucus membranes are pink, not grey or blue)
  - an unconscious patient should always be positioned so that the mouth is slightly lower than the wind pipe, to protect the airway in case of vomiting
  - check blood *C*irculation (pulse and BP)
- next quickly check history, temperature and – if possible – blood glucose, while you prepare to give diazepam to stop the convulsions
- If there is a high fever (> 39degree Centigrade or > 104 degree Fahrenheit), use physical means to reduce temperature: bathe face, neck, back and legs with cold water, use a fan
- If there is a possibility of low blood glucose (small or premature neonate, diabetic on insulin), give 5% glucose solution 4ml per kg body weight (or 20% glucose, 1 ml per kg , if available)
- If these two reasons are excluded, give diazepam to stop convulsions – **only if they are ongoing and have definitely lasted more than 15 minutes!**

Dose of diazepam: Give 2 mg per year of age rectally (using a syringe without needle) – adult dose 20-30mg  
i.v. injection is also an alternative, but much more difficult: dose is 1mg / kg body weight (adult dose 10 mg, occasionally up to 20mg needed), to be given over 2-3 mins (check your watch!!)

**After giving diazepam make sure that you observe the patient closely, as diazepam may depress spontaneous breathing and patient may need artificial respiration (mouth-to-mouth or by mask) – this will usually only last for 20-30 min**

## **Counselling:**

### ➤ **If known epilepsy patient:**

- Check compliance with ongoing treatment:
- Reinforce the message that this is preventive treatment and only works while being taken regularly in the right dose
- Counsel about dangers of leaving patient alone (e.g. injury by fall or fire, suffocation)

### ➤ **In case of febrile convulsions - see next chapter 8.1.1.**

### ➤ **All other cases:**

- Explain that there are many possible causes, and that most are treatable
- Explain necessity of referral for investigation

## **Follow-Up:**

In case of epilepsy ( if diagnosis has been confirmed and treatment started), arrange to see patient at least monthly initially to check compliance with medication and reinforce safety messages, later see at least once yearly

In case of referral for investigation, it is useful to see the patient with results, as often the explanations given in the hospital may be quite inadequate

## **Referral situations:**

All first-time convulsions except definite simple febrile convulsions

All prolonged convulsions

All recurrent convulsions except in known epileptic with poor compliance (try to enforce compliance)

Known epileptic patients who are taking medicine regularly and still getting convulsions – need reassessment by doctor for possible dose-adjustment

Simple febrile convulsions in an otherwise well child need not be referred always, even if they recur once or twice. – but refer any complex seizures, or if parents are worried

### **8.1.1 Febrile Convulsions**

#### **Important symptoms:**

- Typically problem of age group 9 mth to 5 years
- First age of presentation usually 1-2 ½ years
- One in 25 children may have at least one febrile seizure in their life
- Convulsions occur with fast rising temperature (typically over 39°C – 104° F)
- Generalized seizure which usually last 10 seconds to 10 min

#### **Important signs:**

- Often there is only the history from attendant persons to help with diagnosis, as usually the convulsions will have stopped spontaneously by the time of presentation
- High fever
- No focal signs
- Child was not unwell before onset of fever

#### **Important danger signs:**

- Child seems unwell
- Signs of meningitis
- Repeated seizures during the same illness
- Seizures that only affect part of the child's body
- Seizures lasting more than 15 minutes

#### **Essential disease information:**

Febrile convulsions are essentially a reaction of the young brain to very high fever. But, they can also be a sign of serious underlying disease.

#### **Differential Diagnosis:**

Meningitis, typhoid fever, Other causes of loss of consciousness

#### **Action:**

##### **Investigations:**

- If convulsions continue at time of presentation, quickly check temperature and, if possible, blood sugar
- If convulsions have stopped by the time of presentation, examine patient for signs of Meningitis (see guideline 12.1), and other serious illness, if seizure was prolonged or recurrent – refer for investigation

##### **Treatment:**

- **If convulsions are continuing at time of presentation, remember ABC rule:**
  - first make sure that the patient's Airways are clear and
  - he/she is **B**reathing adequately (e.g regularly and skin and mucus membranes are pink, not grey or blue). An unconscious patient should always be positioned so that the mouth is slightly lower than the wind pipe, to protect the airway in case of vomiting.
  - check blood **C**irculation (pulse and BP)
- next quickly check history, temperature and – if possible – blood glucose

- If there is a high fever (> 39degree Centigrade or > 104 degree Fahrenheit), give antipyretic and use physical means to reduce temperature: bathe face, neck, back and legs with cold water, use a fan
- If in spite of those measures convulsions continue, see above protocol for convulsions (chapter 8.1.)

### **Counselling:**

If simple convulsion, and child is well after treatment of fever:

- Reassure parents that this is a benign condition that usually does not recur much after the age of five
- But: 50% of children will probably have another febrile convulsion
- Advise about temperature control measures in case of febrile illness (Paracetamol, cold water, fan, light clothing)
- Advise about safe positioning of unconscious child and airway protection
- Explain about possibility of prolonged convulsions and advise to seek help if seizures last for more than 5 minutes

### **Follow-Up:**

See immediately if convulsions recur during the same episode of illness.

### **Referral situations:**

Simple febrile convulsions in an otherwise well child need not be referred always, even if they recur once or twice at a later date. – but refer any complex seizures (see above danger signs), or if parents are worried

## **8.2 Unconsciousness, Loss of Consciousness**

### **Important symptoms:**

- Unconsciousness means that a patient does not respond to his environment
- There are different levels of unconsciousness:
  1. Drowsiness – patient apparently asleep, but can be roused by loud shouting or pinching his skin
  2. Complete loss of consciousness – patient doesn't even respond to pain, and has no spontaneous movements, but is still breathing regularly
  3. Deep unconsciousness – patient may stop breathing, or breathe irregularly and insufficiently
- May be of gradual or sudden onset
- May be without any previous illness, or after severe illness
- Patient may have had psychological problems

### **Important signs:**

Depending on cause for loss of consciousness (see disease information)

- First check vital signs! Pulse slow or fast? Breathing rate? Fever? BP high or low?
- Signs of injuries
- Skin pale, or blueish?
- Signs of serious disease: dehydration, oedema, jaundice, very thin patient?
- Heart and lungs? Breathing and heart sounds regular?
- Abdomen: swollen, masses?
- Any signs of infections? (abscesses, ear discharge, in women, vaginal discharge?)

### **Essential disease information/ Differential Diagnosis:**

There are many causes for loss of consciousness, and in the health post environment it is not always possible to find the reason. The most important ones are:

- Sudden onset: - head or neck injury (ask for history!)  
- shock (history of injury or blood loss, or other fluid loss)  
- Stroke (usually in elderly patients, often one-sided weakness of limbs)  
- poisoning / alcohol (history!!)  
- epileptic seizure ( may be unwitnessed seizure, or a type with no convulsions)

Medium onset (over hours or 1-2 days):

- some forms of head injuries (slow bleeding) (history!)
- hypothermia (think of this in winter!!)
- diabetes (known diabetic? First presentation usually in young people, and may have started with weight loss and being very thirsty. Often breath smells sour.)
- severe LRTI or COPD
- meningitis, encephalitis, typhoid, rabies, malaria
- other infection (severe middle ear, kidney infection...)
- heart failure (usually very weak, fast pulse, may have oedema)

Slow onset: (getting worse and worse over many days)

- liver, heart or kidney disease
- brain tumour
- thyroid disease

sometimes, especially in young women, apparent loss of consciousness can also be a sign of mental illness / psychological problems. In an otherwise healthy appearing young woman, enquire about mental / psychological state before the onset of the illness.

### **Action:**

#### **Investigations:**

- **First ask for history of neck injury! (see guideline about head / neck injuries) do not move patient's head until you are sure there is no neck injury!!!**
- **In any unconscious patient, remember ABC rule:**
  - first make sure that the patient's Airways are clear and he/she is **B**reathing adequately (e.g regularly and skin and mucus membranes are pink, not grey or blue)
  - an unconscious patient should always be positioned so that the mouth is slightly lower than the wind pipe, to protect the airway in case of vomiting
  - check blood **C**irculation (pulse and BP)
- check temperature and – if possible – blood glucose
- next ask attendant people for history: slow, medium or sudden onset? History of alcohol, diabetes, convulsions? Any other illnesses? Preceding symptoms? History of fall? (also ask for injuries that may have occurred a few days ago!)
- next examine for signs of disease: (see above under signs)
- signs of injury? Skin? Breath smelling sour or of urine? (diabetes / kidney disease?)

#### **Treatment:**

##### **Causes that should be managed in the health post before referral:**

- Sudden onset:-**
- injury - see guideline head / neck injury
  - shock – see guideline 7.4. shock
  - Stroke – advise re positioning (mouth lower than windpipe), if more than 12 hours since last food intake, give 500 ml of fluid slowly iv before referral
  - poisoning – give ground charcoal in water, if patient can swallow, then refer
  - alcohol – observe until becoming conscious again (there may also be head injury!!) – if no other problems, does not need referral
  - epileptic seizure see guideline 8.1. convulsions

##### **Medium onset (over hours or 1-2 days):**

- some forms of head injuries (slow bleeding) see guideline 7.6. head injury
- hypothermia check temperature: warm up very slowly (wrap in blankets, use other person's body heat), mat not need referral if good progress in 2-4 hours

- diabetes: give 10-20ml N/Saline per body weight (500 – 1000ml in adults) before referring
- severe LRTI or COPD – see guidelines 1.3 and 1.4.: if this severe, needs referral!
- Meningitis see guideline 12.1.: start treatment before referring immediately!!
- other infection (typhoid fever, severe middle ear, kidney infection...) start antibiotics and refer

**In case of the following diagnoses, no treatment is possible in the health centre, except for some i.v. fluid replacement. – refer all cases immediately!**

Medium onset:

- encephalitis typhoid, rabies, malaria
- heart failure

Slow onset: (getting worse and worse over many days)

- liver, heart or kidney disease
- brain tumour
- thyroid disease

### **Counselling:**

depends on cause, usually patient needs referral anyway

### **Follow-Up:**

Ask patient's attendants to come back after they have been to referral centre, to let you know the outcome

### **Referral situations:**

The only cases that **may possibly** not need referral are: mild head injuries, hypothermia, drowsiness after febrile convulsions, alcoholic coma: **If the patient is stable, and recovers within 1-2 hours enough to speak and drink water, you may observe for another 2 hours, and if well, need not refer.**

## **8.3. Headaches**

### **Differential Diagnosis:**

- **8.3.1. Headaches caused by serious underlying disease (meningitis, malaria, arteriitis, tumours, pre-eclampsia, etc)**
- **8.3.2. Tension headache**
- **8.3.3. Migraine**
- **8.3.4. Headaches caused by eye problems**

### **8.3.1. Headaches caused by serious underlying disease (meningitis, malaria, arteriitis, tumours, pre-eclampsia, bleeding in the brain, etc)**

#### **Important symptoms:**

- Any headache that does not fit in the other three categories
- Especially in very young or elderly, or if the person does not usually suffer from headaches
- Very sudden, unexplained onset, or progressively worse over days
- Headache that wakes patient up at night, or doesn't allow going to sleep
- Double vision, loss of vision, very painful eye
- poor balance or weakness in one limb or in face
- weight loss or fever
- headache in pregnancy with high blood pressure

#### **Important danger signs: (any of the following)**

- person appears ill
- high fever
- very high blood pressure (>190 systolic or > 120 diastolic); if pregnant woman, >90 diastolic or >140 systolic
- neurological abnormalities (weakness in limb, difficulty talking, drowsiness, strange behaviour)
- neck stiffness (bending head forward or pulling knees up towards chest is painful - patient resists)
- loss of vision or double vision
- pain on palpation of temporal region
- recurrent vomiting

#### **Action: Refer!!**

- **If meningitis is suspected give antibiotics before referral (see protocol meningitis 12.1.)**
- **If BP is very high ( diastolic > 120 or systolic >200), give Nifedipine 20 mg or a Nitrate (e.g. Glycerol Trinitrate 5mg, Isosorbide Mononitrate 5mg) before referral**



### **8.3.2. Tension headache**

#### **Important symptoms:**

- Often recurrent, may last one day to three weeks
- Usually worse during course of the day, better after rest
- Usually symmetrical, front, top or back of head
- May feel like head is being squeezed, or like a hammer within the head
- Person is still able to work
- No nausea or other systemic illness

#### **Important signs:**

- No abnormality on examination
- Often tense and tender neck muscles
- Sometimes tender scalp

#### **Essential disease information:**

This type of headache is caused by tensing up of the muscles in the neck, back and scalp. Underlying causes may be depression, stress, sleep deprivation or excessive worry. Physical causes can be poor posture or monotonous work.

#### **Action:**

#### **Investigations:**

Usually none required, but check eyesight!

#### **Treatment:**

Often, no medication is required – rest and relaxation are often enough

Analgesia: Paracetamol, 500-1000mg, two to four times daily (max 4000 mg daily)  
or  
Ibuprofen 400 mg two to three times daily

#### **Counselling:**

- Counsel about causes
- Reassure that this is not sign of dangerous disease
- Advise rest
- Advise gently massage of neck and back, if possible

#### **Follow-Up:**

Usually not required, but refer if gets worse, or no improvement with treatment

### 8.3.3. Migraine

#### **Important symptoms:**

- Often warning signs like zigzag-lines or white / coloured lights in field of vision
- Headache usually to one side
- May be started off by sleep deprivation, dehydration, stress
- Often similar attacks several times a month, last 1-4 days
- Often with nausea and vomiting
- Patient feels unable to continue normal activities, just wants to lie down in a dark room
- Sometimes numbness or weakness in one arm

#### **Important signs:**

- No abnormal signs on examination
- Rarely, weakness in one arm or leg or both

#### **Essential disease information:**

This is a disease that tends to recur in susceptible persons. It is thought to be caused by spasms in the blood vessels of the brain. It is not a sign of serious disease and often gets better itself after a few years.

#### **Action:**

**Investigations:** usually not required, but refer if any doubt

#### **Treatment:**

**At first sign of onset:** take Aspirin 1000 - 1200 mg  
or Paracetamol 1000mg

May be repeated after 2-4 hours, max four doses in 24 hours. Give Metoclopramide or Promethazine for nausea, if needed.

#### **Preventive Treatment:**

If attacks recur very often, Propranolol 40 mg bd taken continuously will often prevent attacks, but you should refer at least once for this treatment. **(do not give this to people who also have asthma or diabetes, or to pregnant women)**

#### **Counselling:**

- Advise to rest, avoid alcohol, dehydration and getting over-tired
- Advise to try strong coffee or strong black tea during attack

#### **Follow-Up:**

usually not required, but advise to come back if no improvement

#### **Referral situations:**

If there are other signs of neurological disease – numbness or weakness in limbs, unsteady gait, problems talking, double vision etc; if there is no treatment response

### **8.3.4. Headaches caused by eye problems**

#### **Essential disease information:**

May be caused by simple short-sightedness, or by more serious eye disease. If simple short-sightedness, usually no eye pain, and usually worse during course of the day, especially when trying to read or do delicate work (may present as tension headache).

#### **Important danger symptoms:**

- Sudden onset
- eye pain
- loss of vision or blurred vision or double vision

#### **Important danger signs:**

- Eye looking red
- Pupil smaller or bigger than other side
- Eye tearing
- Loss of vision

#### **Differential Diagnosis:**

Glaucoma, arteriitis, iritis

**Action: refer!!**

### **7.3.5. Sinusitis Headaches**

#### **Essential disease information:**

The sinuses are air-filled spaces in the skull bone, both sides of the nose, and above the nasal bridge. They are connected to the inside of the nose through very fine openings. They can get blocked, and filled with fluid, and also can get infected. Usually this is a self-limiting disease, but in the case of serious bacterial infection, there is a possibility of this spreading to the bones of the skull.

#### **Important symptoms:**

- Slow onset, usually after URTI
- Pain above bridge of nose, or on either side of the nose
- Often history of repeated episodes

#### **Important signs:**

- Pain on tapping on bone above sinus
- Pain worse when patient bends forward
- May have mild fever

#### **Differential Diagnosis:**

Tooth problem, tension headache, trigeminal neuralgia, beginning herpes zoster

**Action:**

#### **Treatment:**

- Advise steam inhalation, drink plenty of hot fluids
- Simple analgesia (Paracetamol, Ibuprofen)

If fever, and very painful / patient appears ill: Antibiotics (Doxycycline / Tetracycline – in children under 12 years Amoxicillin / Erythromycin)

**counselling** – see under treatment; **Follow up** – if no better in 3-4 days **referral situations**: when severe and recurring or not responding to above treatment

## **9. Ear Nose and Throat Problems (ENT)**

### **9.1 Ear Problems**

causes of earache or discharge from ears:

- 9.1.1. Ear wax
- 9.1.2. Otitis externa
- 9.1.3. Eustachian Tube Dysfunction and Glue ear
- 9.1.4. Otitis media
- 9.1.5 Chronic Otitis media

#### **9.1.1 Ear wax**

##### **Important symptoms:**

- Usually only mild pain or itching

##### **Important signs:**

- Ear wax can be seen when checking with otoscope
- No sign of infection seen during examination (no redness or pus)

##### **Action:**

- Advise to apply 1-2 drops of warm cooking oil (such as mustard oil) or salt water 2-3 times daily for one week
- Often, this will clear the problem
- If not, after one week syringing with warm water

#### **9.1.2 Otitis externa (infection of the ear canal)**

##### **Important symptoms:**

- Itching and/or pain in one or both ears
- Often watery or purulent discharge from affected ear

##### **Important signs:**

- On examination with otoscope, tympanic membrane appears normal, but the skin of the ear canal may be red or there may be pus visible

##### **Essential disease information:**

This is not an infection of the middle ear, only outside the tympanic membrane. Therefore, if it is not progressing to an otitis media, no oral antibiotic treatment is needed.

##### **Differential Diagnosis:**

Ear wax, Otitis media

##### **Other diseases that may also be present:**

Skin infections at other parts of the body

**Action:**

**Investigations:**

Clinical examination with otoscope

**Treatment:**

Gentamicin or Chloramphenicol ear drops, apply 3-4 times daily for 5 days

**Counselling:**

- Often this is a self-inflicted problem: strongly advise against "cleaning" the ears with small sticks, pins etc
- Advise to apply warm cooking oil once or twice a week regularly, if recurrent otitis externa is a problem

**Follow-Up:**

Recommend to review if not improving

**Referral situations:**

If even after repeated treatment there is too much pus to examine the ear, refer to exclude more serious disease

### **9.1.3 Eustachian Tube Dysfunction and Glue Ear (non-infectious middle ear problems)**

#### **Important symptoms:**

- Usually ear pain starts at or a few days after the onset of a cold or URTI
- Pain tends to be intermittent – sometimes worse, then much better again
- Often the child seems well in between (playing, happy), and then again distressed with pain
- Usually this is a recurrent problem

#### **Important signs:**

- On examination with otoscope, the tympanic membranes triangular light reflex is lost, but the tympanic membrane is not very red or inflamed
- Usually no or only mild fever
- Child does not seem unwell

#### **Essential disease information:**

- The Eustachian tube is a small tube from the back of the nose into the middle ear
- The Eustachian Tube can be blocked through the swelling of the mucus membranes in the nose at the time of URTI
- If this tube is blocked, the pressure within the middle ear becomes higher or lower than outside, and the ear hurts
- When the child cries or swallows, the tube can open again and the pain is relieved for some time
- Occasionally, the condition can become chronic, with fluid accumulating in the middle ear ("glue ear")
- This can affect the child's hearing and (rarely) may need referral for surgery

#### **Differential Diagnosis:**

Otitis media, otitis externa, simple cold

#### **Other diseases that may also be present:**

Lower respiratory tract infections, malnutrition;

#### **Action:**

#### **Investigations:**

Examine ears with otoscope, check for hearing loss!

#### **Treatment:**

Pain usually responds to Paracetamol

**Counselling:**

- Usually self limiting disease;
- In very small children, advise to drip small amounts of salty water into the nose a few times daily
- In children over the age of six, steam inhalation may be safe
- Teach child not to pull up nasal discharge
- Advise to use above measures every time the child has a cold
- Advise to consult with a doctor if there is any sign of hearing loss after the acute episode has resolved

**Follow-Up:**

Advise to re-attend if condition worsens or child seems ill; advise re risk of hearing loss (which can affect speech development)

**Referral situations:**

If hearing loss found (for ENT examination and if necessary, surgery)

## 9.1.4 Otitis Media (infection of the middle ear)

### **Important symptoms:**

- Initially symptoms like Eustachian tube dysfunction
- Then continuous ear ache
- Often high fever
- Child seems unwell (does not play, not eating well), touches the painful ear often
- In very small children, there may be diarrhoea/vomiting
- Hearing loss
- After a few days, there may be a purulent discharge from the ear – usually the pain decreases at this time (this is a sign of tympanic membrane perforation)

### **Important signs:**

- On examination with otoscope, tympanic membrane appears red
- Light reflex is usually lost and membrane may be bulging
- If perforation has occurred, there may be pus in the ear canal obscuring the tympanic membrane, or the hole in the membrane may be visible

### **Essential disease information:**

Otitis media is often a self-limiting disease

However, there are two significant possible complications:

**1. Meningitis:** if the infection spreads locally, it may spread into the skull and cause meningitis or encephalitis (infection of the brain, or the membranes covering it) warning signs may be tenderness over the bones behind the ear (mastoiditis). Signs of meningitis are high fever, severe illness, drowsiness or convulsions

**Give antibiotics and refer!!!**

**2. Deafness:** in cases of recurrent otitis media the child's hearing may become impaired this may affect the child's speech development for this reason it is important to treat otitis media early

### **Differential Diagnosis:**

Eustachian tube dysfunction, otitis externa, other causes of fever and diarrhoea in small children

### **Other diseases that may also be present:**

Malnutrition, worms, LRTI

### **Action:**

### **Investigations:**

Usually none needed. Otitis media is a clinical diagnosis based on history and otoscopy.



**Treatment:**

1. Treat all cases of definite acute otitis media with a 5 – 7 day course of Antibiotics:  
Amoxicillin or Cotrimoxazole or Erythromycin/Azithromycin
2. If no improvement after 7 days treatment: **Refer!!**  
Only if referral is impossible, consider Cefixime or Cefradine, if available

**Counselling:**

Advise re risk of hearing loss

**Follow-Up:**

Review if no better after 2 days antibiotic treatment, or if child becomes more ill

**Referral situations:**

- **Hearing loss after acute illness has resolved**
- **Continuing high fever after 2 days antibiotic treatment**
- **Pain on palpation of bone behind the ear (sign of mastoiditis)**
- **Drowsiness or convulsions**
- **Clinical signs of meningitis**
- **Any chronic cases (see next chapter)**

### **9.1.5. Recurrent (chronic) otitis media**

#### **Important symptoms:**

- Same as for acute otitis media
- Symptoms restart soon after treatment is finished

#### **Important signs:**

- Same as for acute otitis media
- 4 episodes in 6 months or 6 episodes in 1 year are called “recurrent”

#### **Essential disease information:**

Most of the time, the first step for Otitis media is the blocked Eustachian tube. If the child has a very small Eustachian tube, it can be easily blocked by mucus or swelling during an URTI. This problem usually resolves when the child grows bigger.

The problem is that the child is sick many times and that permanent damage can be done to the ears (hearing loss), and the growth and development of the child can be affected.

#### **Differential Diagnosis:**

Acute otitis media, Otitis externa, Eustachian tube dysfunction

#### **Other diseases that may also be present:**

Recurrent URTI

#### **Action:**

#### **Investigations:**

Check if the otitis is really so frequent. It is quite normal for small children to have one or more otitis media episodes. Only a high number is a reason for further investigations.

#### **Treatment:**

Treat the otitis media as described in 9.1.4.

#### **Counselling:**

- Reassure the parents that it is normal that an otitis that has been successfully treated (this means, the child was completely healthy again!), can come again. Tell them that when the child becomes bigger, it will happen less and less.
- Advise the parents that smoking in the house or heavy smoke from the stove increases the risk of URTI and recurrent acute otitis media.

#### **Follow-Up:**

Advise the parents to come again with new symptoms of otitis media, as it has to be treated, to prevent hearing loss.

#### **Referral situations:**

If the patient has 4 episodes/ 6 months or 6 episodes/ 1 year, consider referring for further investigations (blocked Eustachian tubes, immune system) and treatment (propylactic antibiotic therapy for the cold season, ventilating tubes).

## 9.2. Pharyngitis/Tonsillitis and Scarlet Fever

### **Important symptoms:**

- Throat hurting, especially when swallowing
- There may be fever and signs of URTI
- In case of pharyngitis, voice may be hoarse

### **Important signs:**

- Fever
- Often tender palpable lymph nodes under jaw
- On examining throat, redness can be seen (pharyngitis), or the tonsils may be large and red, often with yellow pus (tonsillitis)

### **Essential disease information:**

**Pharyngitis:** is usually a viral infection of the throat and usually self-limiting. It can affect the vocal cords, and therefore the voice, but usually has no serious consequences

**Tonsillitis:** may also be viral, but often also bacterial infection (usually streptococcus) of the tonsils. If untreated, there is a risk of spread of the infection, or post-infectious complications like scarlet fever, rheumatic fever, kidney problems

**Scarlet fever:** Scarlet fever is also an infection with the same bacteria that cause tonsillitis, and responds to the same treatment. In this condition, together with the throat pain and swollen glands in the neck, there is high fever, often abdominal pain, and a rash which starts in neck, axilla and groin area, and spreads all over the body. The rash is red, with fine palpable spots (feels like sandpaper, or like the surface of a rough tree bark), and starts scaling after about a week. The child's tongue may be very red and painful, and also feel rough.

### **Differential Diagnosis:**

URTI,

Diphtheria (in cases of diphtheria, the patient often can't speak and can't swallow their own saliva, and is seriously ill – give one dose of antibiotics and refer!!),

Paratonsillar abscess (large swelling can be seen on one side of the neck – very painful, and patient finds it very hard to swallow – refer!!, may need surgery)

Glandular fever (this is a viral infection which affects the tonsils – often they are large, with white spots, the lymph glands, and often the liver and spleen as well are enlarged. It does not improve with antibiotics, and usually resolves within 2-3 weeks. If the patient is given Amoxicillin, an allergic rash develops.)

### **Other diseases that may also be present:**

Scarlet fever (see above), URTI, LRTI

### **Action:**

#### **Investigations:**

Make sure that you have seen the tonsils when you examine somebody's throat: sometimes you have to press the tongue down with a tongue depressor (if this is not available, use a turned-around spoon)

#### **Treatment:**

- **Simple pharyngitis:** no antibiotics needed, give paracetamol or ibuprofen for 2-3 days, advise as below
- **Tonsillitis and scarlet fever:** The best treatment is full dose Penicillin for 10 days. If this is not available at all, use Erythromycin/ Azithromycin.
- Try to avoid Amoxicillin, as there is a risk of the patient developing drug reaction, especially if the diagnosis is glandular fever

#### **Counselling:**

- Take painkillers only if necessary
- Drink plenty of fluid (not too hot), and gargle with salt water
- In case of pharyngitis, avoid talking too much, as this makes hoarseness worse
- In case of tonsillitis, advise that this may recur, and that treatment is necessary at each episode

#### **Follow-Up:**

All cases, if no improvement after 48 hours

#### **Referral situations:**

Any suspicion of diphtheria or para-tonsillar abscess (see above), in severe and recurring cases

### **9.3. Oral thrush**

#### **Important symptoms:**

- Usually problem of very small babies and infants
- Small white spots, or white plaques on tongue and inside of cheeks
- Baby not breastfeeding well
- Baby may also have a rash in genital / perineal area
- Often, mother also complains of sore nipples

#### **Important signs:**

- Small white plaques on tongue and inside of cheeks (looks like milk or yoghurt)
- Inside of mouth may look red and inflamed
- Baby otherwise well, but may have red rash with small blisters or scales in perineal area
- Mother's nipples may look inflamed, cracked, and sore

#### **Essential disease information:**

This is an infection caused by a yeast (similar to fungus) called candida albicans, which also lives in most people's gut without causing problems (but can also cause vaginal discharge, see chapter 5.3.3.)

In some infants, thrush can be present without causing any problems; in that case, it does not need treatment

#### **Differential Diagnosis:**

The picture is usually quite typical – possibly may be confused with **herpes simplex infection** (this occurs only in children over 3 months. It is a viral infection, where small painful blisters form inside the mouth and on the lips, which get better within a week. The child may have a fever as well. – Treatment is supportive: feed only soft, cool food, apply anaesthetic mouth gel, give paracetamol for fever.)

#### **Other diseases that may also be present:**

Malnutrition, genital / perineal thrush. In adults: HIV/AIDS, diabetes

#### **Action:**

##### **Investigations:**

Usually none needed; possible confirmation through microscopy

##### **Treatment:**

Best treatment is topical Clotrimazole:

Candid mouth paint – apply 10-20 drops gently to all affected parts in mouth, 3-4 times per day until mouth looks normal (usually 5-10 days)

If this is not available: you can try G.V. in a very dilute solution (0.1% solution, apply with cotton bud), but not as effective; best is to refer, or to arrange for someone to bring medicine (Candid mouth paint) from nearest medical outlet – DO NOT use other Candid preparations!

**In case of rash in perineal / genital area:**

Give Clotrimazole cream, to be applied b.d. (remind to re-apply if baby passes stool and needs to be washed within two hours of cream being applied) until rash has cleared (usually 5-10 days)

**For mother, if sore nipples are a problem:**

give Clotrimazole cream, to be applied 4 times a day AFTER breast feed, - but needs to wash breast BEFORE every feed with soap and water: baby should not be eating the cream!

Continue treatment for 2 weeks, even if better. If no improvement after two weeks, refer. If breasts are very sore, teach to hand-express and spoon-feed. (this may also be helpful in babies who are not suckling due to painful mouth lesions)

**Counselling:**

Advise that this is a basically harmless condition, but may recur; main serious consequence can be insufficient food intake

**Follow-Up:**

If no improvement within 3 days

**Referral situations:**

If very marked or recurring very often (there may be underlying disease)

If child appears ill

## 9.4. Oral Health

### 9.4.1. Gingivitis

#### **Important symptoms:**

- Gingiva (gums) red and painful
- Bleeding from gums
- Halitosis (bad smelling breath)

#### **Important signs:**

- Loss of the superficial layer of the gums, gums look red and shiny
- Gums look irregular and loose
- Contact bleeding and pain on examination

#### **Essential disease information:**

This is a disease of the gums (gingiva). Dental plaque can become hardened (calculus) and can't be removed by brushing alone and eventually affects the gingiva. Gingivitis can affect only one area in some patients, or the whole of the gums in another, and sometimes only the area where the gums and the teeth are connected.

#### **Causes:**

- The main cause is dental plaque
- Some long term medication (For epilepsy or High Blood Pressure)
- Diseases like leukaemia and diabetes
- Vitamin C deficiency
- Hormonal changes such as in pregnancy
- Badly fitting fillings or artificial teeth
- Ectopic or crooked teeth
- Mouth breathing
- Teeth grinding

#### **Differential Diagnosis:**

Pericoronitis: When the wisdom teeth are emerging, if food remains are not removed carefully, this can lead to localized infection.

#### **Other diseases that may also be present:**

Gingival abscess. Periodontitis (if the inflammation affects the structures that hold the tooth in the socket, eventually this can lead to the tooth getting loose and falling out.

Periodontal abscess: if the gingiva retracts and the ligaments holding the tooth in place become loose, there is a risk of infection in the resulting pocket. This causes pain on chewing and the tooth will move.

#### **Prevention / Advice:**

- Brush the teeth twice daily with fluoride containing tooth paste
- Stop use of alcohol or nicotine (smoking / chewing tobacco)
- Treat diabetes or other chronic disease
- If there is a lot of tartar (hardened plaque) especially underneath the gums, advise to visit a dental clinic for scaling

**Treatment:**

Simple gingivitis does not require medical treatment. Advise to use salt water as a mouth rinse and clean the teeth with a soft brush.

In severe gingivitis or gingival abscess:

Metronidazole 400 mg TDS 5 days  
and Amoxicillin 500 mg TDS 5 days

Paracetamol 500 mg for pain

or

Tab Ibuprofen 400 mg TDS (don't give in people with symptoms of gastritis)

**Follow-Up:**

Usually not necessary, but advise to return if pain is not improving.



## 9.4.2. Karies

### Important symptoms:

- A. if dentin is affected
  - Pain on contact with cold
- B. if the nerve is also affected
  - Pain on contact with sugar
  - Worse pain at night
  - Unpleasant taste in mouth

### Important signs:

- If examining the dried teeth, cariotic teeth look paler / whiter than healthy teeth
- In the next stage, there are black or dark brown marks on the teeth
- Examining with the explorer, the enamel is rough, and the explorer catches
- If the dentin is affected and softened, a proper hole will be found

### Causes of caries:

- If dental plaque is not removed
- Malnutrition
- Too much sugar in the diet
- Eating a lot of ready made foods containing sugar and sweeteners
- Lack of fluoride in water and non fluoridated tooth paste
- Wiring teeth for a long time (for orthodontic treatment)
- Severe physical health problems
- In children: if the child is breastfed for a long time at night, or given a bottle with sweet drinks at night, this can also cause caries
- Regularly taking sugar containing medication over a long period
- Eating too many biscuits or other sticky sweets

### Risk of caries affecting different teeth:

1. molars
2. premolars
3. front teeth and canines

### Risk of caries affecting different surfaces of teeth:

1. chewing surface
2. surface between two teeth
3. dental neck (where tooth and gingiva meet)

### Advice and methods of caries prevention:

- strengthen teeth by use of fluoride, so they are less affected by acid
- Remove dental plaque twice daily carefully by brushing with fluoride tooth paste, but especially before going to bed. (At night because the mouth is drier, bacteria can flourish in this environment and affect the teeth more. For this reason, it is important to completely remove all food remains in the evening.)
- Eat healthy food with not too much sugar

- Stop using betel and tobacco, if possible, or at least don't leave these substances too long in the mouth and rinse the mouth regularly.
- If you have to bottle feed small children, don't give them sweet drinks
- If a child won't go to sleep without a bottle, take this away after it has fallen asleep and gently clean its teeth and gums with a wet cloth, and give it a bottle with clean (boiled and cooled) water for the night.
- Generally try to keep the child's playthings as clean as possible

**Treatment:**

1. If there is only very early caries, and the oral environment can be changed (by brushing twice daily with fluoride tooth paste), this alone can arrest the process
2. Filling: If the caries hasn't reached the nerve, then the tooth can be filled after removing the soft part of the dentin. This technique, Atraumatic Restorative Treatment (ART) can be done painlessly by a trained health worker who has access to the appropriate equipment. This will restore the tooth.
3. Where there are no facilities for ART, caries can be arrested by using Silver fluoride (SF) or Silver diamine fluoride(SDF). This method will not restore the tooth. It is particularly used in children. This is called Arrest of Caries Technique(ACT)
4. Root Canal Treatment: If the caries has reached the nerve, there is the possibility of treating it in a hospital with access to the appropriate equipment. This is fairly expensive, and usually it is necessary to attend several times for treatment.
5. Tooth extraction. – very cariotic or broken teeth can sometimes not be saved, these teeth need to be extracted.

### 9.4.3. Oral Cancer

#### **Important symptoms:**

- Painless ulcer for more than 2-3 weeks
- Difficulty opening mouth
- Previously painless ulcer that becomes painful
- Pain in parts surrounding mouth
- Pain or burning when eating

#### **Important signs:**

- Irregular swelling of tissues
- Red, white or mixed colour patches
- Pus or chronic infections
- Swollen cervical lymph nodes
- Hardened and thickened swelling which may feel attached to facial bones

#### **Essential disease information:**

Oral cancer means malignant growths of lips, tongue or other oral tissues. This causes difficult eating and speaking, disfigurement and if no treatment is available, eventually death.

#### **Causes:**

The causes of oral cancer are easiest to remember as the “6 Ss”:

1. Smoking
2. Spirits / Alcohol
3. Spices
4. Sharp Teeth
5. Syphilis
6. Sunlight (for lips cancer)

Other causes:

- Lack of nutritious food
- Lack of oral hygiene
- Poorly fitting artificial teeth
- Chewing tobacco, betel etc

#### **Differential Diagnosis:**

Pericoronitis (painful ulcers), herpetic infections (blisters in the mouth, which develop into yellowish or red wounds after they burst)

Chemical burns: medications which are used for tooth pain (such as clove oil, aspirin), can cause damage to the gums which causes white marks

Hairy leukoplakia: white and thickened patches on the lateral aspects of the tongue.

#### **Action:**

**Refer all suspect cases!**

## **9.5. Nose Bleed (Epistaxis)**

### **Important symptoms:**

- Bleeding from one or two nostrils
- Often several bleeds over a period of a few days.
- Often related to URTI
- Usually bleeding stops within 20-30 minutes, but often re-starts within a few hours
- Usually no other symptoms

### **Important signs:**

- Usually no signs except bleeding from nostril – note whether it is from just one or both
- Danger signs: bleeding from any other site (such as, gingiva, anus, bruising of skin), signs of anaemia, very high blood pressure, bleeding which doesn't stop within 30-40 minutes after simple measures

### **Essential disease information:**

Most nose bleeds are due to small blood vessels bursting inside the nose. This is often due to simple inflammation or dryness of the mucous membrane inside the nose, and often there is no other health problem.

The anxiety that often accompanies a significant nose bleed can cause high blood pressure, it is actually rare for high blood pressure to cause nose bleeds.

Rarely, nosebleeds can be caused by other diseases, such as very high blood pressure, bleeding disorders or leukaemia.

### **Other diseases that may also be present:**

Anaemia, malnutrition, worms, URTI, high blood pressure

### **Action:**

#### **Investigations:**

If nose is still bleeding when you see the patient, go to management first, and then do examination when bleeding has stopped.

Check whether bleeding is from one or both nostrils.

Measure blood pressure. (If the reading is high, always check again a few days later when the patient is well) Check for signs of anaemia, and if any doubt, measure Hb.

#### **Treatment:**

The first and simplest treatment is to ask the patient to pinch his / her nose just below the part where the bones can be felt, and continue for at least 10 minutes.

Ask the patient to sit with the head bent forwards and not to swallow any blood that runs down his throat (this can cause nausea and vomiting). It is better to spit out the blood. It sometimes helps to put a cold wet towel on the patient's forehead above the bridge of the nose.

If after 10-15 minutes of pressure, the bleeding hasn't stopped, consider packing:

- a. identify which nostril is bleeding
- b. use a narrow strip of gauze (a 2" bandage will work)
- c. soak the gauze in Lidocaine with Adrenaline

- d. very carefully, using a tweezer type forceps without teeth, insert the end of the gauze strip as far up into the nostril as possible, without scraping the mucous membrane
- e. continue to pack gauze strip into nostril until you have to use a bit of pressure to feed more in.
- f. leave gauze in place at least 24 hours. Remove very carefully!

Worst Case emergency procedure: In case of very severe bleeding, which doesn't settle with packing (Usually in a patient with bleeding disorder), you can try to use a Foleys catheter (the type that has a balloon near the end) :

- g. feed the catheter up the bleeding nostril and into the throat of the patient.
- h. Fill the balloon partially with 2-3 mls of air.
- i. Pull back very gently until you feel resistance. Now put more air into the balloon, using a little pressure on the syringe.
- j. This should stop the flow of the nose bleed.
- k. Leave catheter in place and refer patient to hospital. A bleed this severe will always need hospital follow up

#### **Additional treatments:**

- If the blood pressure is very high (> 220 systolic or > 120 diastolic), give Nifedipine 20mg.
- In case of suspected malnutrition, give Albendazole and nutrition advice.
- In case of anaemia, give iron, but also consider referral.
- If you suspect inflammation or dryness of the mucous membranes, give Neomycin / Neosporin Ointment or Silverhexidine cream to use inside nostrils.

#### **Counselling:**

- Advise not to blow nose for at least 48 hours after a nosebleed. If the patient is prone to nosebleeds, regular steam inhalation can sometimes help a bit.
- If there are no other signs of illness, reassure patient that nosebleeds in themselves are not dangerous.
- Advise to eat a lot of dark green vegetables, (such as banda, leaves from Cauli, saag) as these contain Vitamin K, which improves blood clotting.
- Explain that nose bleeds themselves are not dangerous, but that a very small procedure (cautery of the concerned blood vessel) by an ENT surgeon often can stop bleeds recurring.

#### **Follow-Up:**

- If BP was raised, arrange for a review.
- In normal cases, review if any further problems.

#### **Referral situations:**

- In all cases of very heavy and repeated nose bleeds which don't settle with simple treatment
- If BP measurements are repeatedly high
- If Hb is less than 10.
- If there is any sign of bleeding at any other sites, such as bleeding from gingiva, rectal bleeding, bruising, or swelling and pain in joints.
- In repeated simple nose bleeds, if the patient wants surgery.

## **10. Eye Problems (Ophthalmology)**

### **Conditions that must be referred:**

- **Eye injuries that are severe, or where there is a possibility of a foreign body within the eye, or when the lids cannot close**
- **Acute red eyes:  
any two out of the following three signs:**
  - **Severe pain**
  - **Reduced vision in the painful eye**
  - **Marked photophobia****or:**
  - **If one pupil is smaller or larger than the other**
  - **If there is a visible defect on the surface of the cornea**
  - **If there is no improvement in symptoms after 2-3 days treatment**
- **Sudden loss of vision in one eye**

### **10.1. Lid problems**

#### **10.1.1 Blepharitis**

##### **Important symptoms:**

- **Eyelids are red and swollen**
- **Eyes itch**
- **Often recurring problem**

##### **Important signs:**

- **On closer examination, there are yellow or white scales on the eye lashes**
- **Whites of eyes look normal**
- **Often signs of eczema elsewhere**
- **Often generally greasy skin**

##### **Essential disease information:**

This is a recurrent bacterial infection of the eyelashes; the condition is related to seborrhoeic eczema

##### **Differential Diagnosis:**

Conjunctivitis, Stye, Chalazion, allergic conditions

##### **Other diseases that may also be present:**

Eczema, allergy

**Action:**

**Investigations:**

Usually none needed

**Treatment:**

In acute phase (when eyes are very red and itching):

antibiotic eye drops (Sulfacetamide, Chloramphenicol, Gentamycin), applied three times daily

or

antibiotic eye ointment (Neosporin, Tetracycline) applied twice daily for five days

**Counselling:**

- To prevent frequent recurrence, advise eye hygiene:
  - Wash eyelids thoroughly twice daily with soap and boiled water
  - Dilute baby shampoo works even better (because it does not sting in the eyes), but is not always available
- Try not to rub eyes – this makes itching worse

**Follow-Up:**

If not improving, advise to re-attend

**Referral situations:**

Usually none

### **10.1.2. Stye / Hordeolum (anno)**

#### **Important symptoms:**

- Small, painful swelling on lid margin

#### **Important signs:**

- Swelling red and tender, and often small point of pus can be seen at lash follicle

#### **Essential disease information:**

- Bacterial infection of the hair follicle of eye lashes
- Usually self limiting disease
- Often recurrent

#### **Differential Diagnosis:**

Chalazion, tumours,

#### **Other diseases that may also be present:**

No typical associated disease.

#### **Action:**

#### **Investigations:**

Usually none needed.

#### **Treatment:**

- In acute phase apply antibiotic eye drops or ointments (see blepharitis)
- Apply hot compresses
- If there is a point of pus to be seen, pulling out the affected eye lash will help to resolve the problem
- If recurrent very often, try long-term (1 month) treatment with antibiotic eye ointment

#### **Counselling:**

Reassure patient that this is a harmless – if unpleasant – condition and will not cause damage to the eyes

#### **Follow-Up:**

Usually not needed.

#### **Referral situations:**

Usually none.



### **10.1.3. Chalazion**

#### **Important symptoms:**

- Painless swelling within eye lid

#### **Important signs:**

- Not very red or tender, not directly related to eye lash
- Swelling often easier to see from inside of eye lid

#### **Essential disease information:**

This is a swelling of the glands within the eye lid; often it is self-resolving, but can sometimes become infected

#### **Differential Diagnosis:**

Stye, Tumours

#### **Other diseases that may also be present:**

No typical associated disease

#### **Action:**

#### **Investigations:**

Usually none needed.

#### **Treatment:**

- If infected (red and painful), apply antibiotic eye drops:  
Chloramphenicol or Gentamycin 5 times daily
- If no improvement within 3-4 days: give systemic antibiotics (Cotrimoxazole or Ampicillin/Cloxacillin) – dose see guideline cellulitis
- If swelling growing or not resolving within 2-3 months, refer to eye hospital for surgery

#### **Counselling:**

Advise that this is often self-resolving condition, but that medical treatment does not help – only definitive treatment is surgery

#### **Follow-Up:**

Advise to reattend if not resolving within 2-3 months

#### **Referral situations:**

Refer to eye hospital if growing or not resolving - for surgical therapy.

#### **10.1.4. Entropion/Ectropion (eyelids being turned in or out)**

##### **Important symptoms:**

- Eyes constantly tearing
- In case of entropion (lashes rubbing on the eye ball) recurrent conjunctivitis, eyes hurting, may cause impaired/reduced vision

##### **Important signs:**

- On examination, the eyelids are either turned in with the lashes rubbing on the eyeball (entropion) or
- the eyelid is very loose so that it doesn't close well, and the tears cannot drain through the tear duct, but spill over (ectropion)

##### **Essential disease information:**

- Entropion is sometimes congenital, but usually a result of recurrent eye infections – the most important being Trachoma (infection with chlamydia trachomatis)
- Entropion can lead to blindness through constant and recurrent irritation of the surface of the cornea, which will eventually cause scars on the cornea
- Entropion caused by trachoma is one of the leading causes of blindness in low income hot climate countries
- Ectropion (the eyelids not closing well) can be the result of eye lid injuries, but is more often a condition of elderly people
- If the eye lids don't close well, the eye can become very dry, which can lead to recurrent infections and, ultimately, impaired vision or even blindness

##### **Differential Diagnosis:**

Conjunctivitis of other reasons, blocked tear ducts

##### **Other diseases that may also be present:**

Vitamin A deficiency, eye infections

##### **Action:**

##### **Investigations:**

None apart from clinical examination

##### **Treatment:**

##### **Refer to eye hospital:**

Definitive treatment for both conditions is surgery to re-shape the eye lids

##### **Provisional treatment:**

**Entropion** try sticking tape on the loose skin below the eye, so that the eyelashes are pulled away from the eye  
Alternatively, pull out all the lashes on the affected lid – this will significantly reduce the irritation

**Procedure:** clean eyes with boiled water, apply two drops of 2% Lignocaine like eye drops; pull out lashes with fine forceps; advise patient to protect eyes from dust and injuries for two hours, as eyes will be numbed by Lignocaine

**Ectropion** if severe – eye very dry – apply bandage to close the eye (sometimes this is only necessary at night), if available, use artificial tears to keep the eye moist (these are available in most city pharmacies)

If irritation/infection is present: apply Chloramphenicol or Gentamycin eye drops 4-5 times daily for 5 days

**Counselling:**

Advise patient about the importance of surgery to save vision in the affected eye  
Explain that treatment with medicines does not cure this condition

**Follow-Up:**

If patient cannot immediately go to hospital, follow up frequently to assess degree of conjunctivitis; in case of entropion, lashes will re-grow within 3-6 weeks, and procedure will have to be repeated

**Referral situations:**

All patients

### 10.1.5. Eye lid tumors

#### **Important symptoms:**

- Suspect a malignant tumour in any lesion on the eye lid that is present for more than six weeks and has a tendency to grow!

#### **Important signs:**

- Particularly common are basal cell carcinomas, which have a slightly shiny appearance, and are characterised by loss of lashes and visible small blood vessels

#### **Essential disease information:**

This is a form of cancer that can only be treated by surgery. Early diagnosis and treatment are the most important factors for the success of therapy.

#### **Differential Diagnosis:**

Other tumours or infections of the eye.

#### **Action:**

**Refer for assessment and surgery!!**

## **10.2. Conjunctivitis**

### **Important symptoms:**

- Itching, pain and redness in one or both eyes
- Sometimes purulent or watery, sticky discharge

### **Important signs:**

- On examination, whites of eyes look very red
- Inside of eye lids also looks red, may be swollen or irregular
- Whites of eyes may be swollen, there may be pus or membrane-like discharge
- Cornea looks normal
- Pupil looks normal, light reflex is normal
- Vision is not affected

### **Essential disease information:**

- Conjunctivitis is an infection or inflammation of the conjunctiva, the thin layer that covers the white of the eye and the inside of the eye lids
- It may be caused by physical irritation, allergy, or infection with viral or bacterial agents
- Many forms of conjunctivitis are self resolving and do not affect the eye sight, but bacterial conjunctivitis, especially if chronic or recurrent, can lead to blindness through development of entropion and corneal irritation
- The most important form of chronic bacterial conjunctivitis (and one of the leading causes of blindness) in low-income, hot climate countries is trachoma (an infection caused by chlamydia trachomatis)

### **Differential Diagnosis:**

**Conjunctival Haemorrhage:** occasionally a patient will present with a painless haemorrhage of the conjunctiva: part of the eye appears blood red – this usually appears overnight or after coughing/sneezing etc

This is a harmless condition, caused by the rupture of a very small blood vessel in the conjunctiva. It disappears slowly by itself over the course of 2-3 weeks and does not need any treatment

### **Physical irritation:**

usually patient will give a history of foreign body, dust or smoke having affected the eyes – usually gritty feeling and pain are predominant, on examination eye is tearing and looks quite red, conjunctiva may be slightly swollen (from rubbing), but no discharge

**Allergic conjunctivitis:** usually itching predominant symptom, usually both eyes affected, often also runny nose and sneezing; on examination no pus, inside of eyelids may be swollen and irregular

**Viral conjunctivitis:** usually accompanies URTI, measles or other systemic viral infection; eyes hurt and itch, usually both eyes affected, some watery, sticky discharge, but no pus

**Bacterial conjunctivitis:** one or both eyes may be affected, eyes itch and hurt (often more "gritty" feeling or foreign body sensation); on examination conjunctiva may be very red and swollen, purulent discharge may be present, and inside of eye lids is swollen and irregular

**Neonatal conjunctivitis:** in the first four weeks of life, conjunctivitis is often caused by bacteria from the mother's vaginal passage, i.e. gonorrhoea or chlamydia  
This is a serious condition and will need long-term antibiotic treatment

**Note:** do not confuse conjunctivitis with uveitis (inflammation of the anterior part of the eye) or acute glaucoma! – In these conditions often vision is affected, and the pupil appears larger or smaller than in the other eye; the light reflex of the pupil may be slow or missing  
These are acute emergencies that need urgent referral!

### **Other diseases that may also be present:**

Vitamin A deficiency, malnutrition, worm infestation, measles,

### **Action:**

### **Investigations:**

In case of suspected bacterial conjunctivitis, it may be useful to send a swab for culture, if possible, especially to check for chlamydia

### **Treatment:**

Physical irritation: wash eyes with plenty of clean, preferably boiled water, advise patient about avoiding dust and smoke if possible; regular eye hygiene: wash twice daily with plenty of boiled, clean water

Allergic conjunctivitis: give antihistamine (Pheniramine 25 mg 2-3 times daily, or Chlorpheniramine 6-12 yrs 2mg t.d.s, adult 4mg 3-4 times daily)

- Viral conjunctivitis: usually self resolving, but due to risk of bacterial superinfection give antibiotic eye drops (Chloramphenicol or Gentamycin) 1 drop 4-5 times daily
- Bacterial conjunctivitis: treat with antibiotic eye drops: Chloramphenicol, Gentamicin or Ciprofloxacin, 2 hrly, and Tetracycline or Ciprofloxacin eye ointment at night.  
(if mild, only Sulfacetamide or Tetracycline ointment twice daily)  
continue treatment for at least 48 hrs after symptoms have resolved
- Suspected trachoma: Azithromycin 1 g as a single dose (adults and children over 12). Alternatively, give chloramphenicol eye drops 4 times daily for 1 week, then Tetracycline eye ointment twice daily for four weeks
- Neonatal conjunctivitis: use local treatment for trachoma as above, but if persistent, needs systemic antibiotics
- Prevention of neonatal conjunctivitis: clean the newborn's eyes with boiled water immediately after birth and apply a dose of Tetracycline eye ointment to both eyes

**Note: NEVER use topical steroid eye drops !!! (They can make infection much worse and lead to long term damage to the eye.)**

### **Counselling:**

- Depending on cause of conjunctivitis, advise regarding prevention of recurrence
- Advise about eye hygiene:
  - wash eyes twice daily with clean, preferably boiled water;
  - protect eyes from dust, smoke and flies
  - don't rub eyes when they are itching

### **Follow-Up:**

In suspected bacterial conjunctivitis or trachoma, arrange follow-up after 1-2 weeks, or earlier, if treatment fails

In all other cases advise re-attendance if no improvement of condition within 1 week

### **Referral situations:**

Refer if treatment fails!

Refer in case of suspected complications like scar formation, impaired vision etc to eye clinic for further investigation.

### **10.3. Pterygium**

#### **Important symptoms:**

- dry feeling and grittiness of affected eye
- tearing
- feeling of foreign body
- difficulty closing eye lid
- difficulty turning eye and therefore double vision
- may cause no symptoms at all

#### **Important signs:**

- triangular fleshy sometimes white growth starting from inner angle of eye
- in progressed cases, cornea may look dull
- eyelid may not close fully
- there may be astigmatism (squint) when looking sideways or up and down

#### **Essential disease information:**

this is a basically benign growth of the conjunctiva, which is more common in sunny countries and may be caused by physical irritation (dust, flies) or infection. It is only threatening to the eye if it progresses to cover the cornea.

#### **Differential Diagnosis:**

other tumours of conjunctiva, scars, conjunctivitis

#### **Other diseases that may also be present:**

trachoma, conjunctivitis

#### **Action:**

#### **Investigations:**

usually none needed

#### **Treatment:**

there is no effective medical treatment; if treatment is necessary, it involves excision of the growth.

#### **Counselling:**

advise about eye hygiene, and to come back if growth starts to cover the pupil

#### **Follow-Up:**

keep reviewing to make sure the cornea is not involved

#### **Referral situations:**

refer for surgery if more than a third of the iris / pupil is covered



## 10.4. Eye Injuries

### **Important symptoms:**

- Usually patient will give clear history of foreign body in eye or of blunt injury
- In small children, this may be more difficult to assess
- Typically only one eye is affected
- Pain, excessive tearing and reluctance (or inability) to open affected eye

### **Important signs:**

- If visible, eye appears red, and injury may be apparent
- Most common eye injuries are small corneal abrasions due to foreign body like flies, branches etc
- These can often be seen by shining a good light obliquely onto the eye (an easier method is to instill a drop of fluoresceine, but this is difficult to get in Nepal)
- In blunt injuries, the eye may appear red, the pupil may be large or deformed, and blood may be seen in front of the iris
- In perforating injuries, the foreign body or its entry wound may be difficult to see – carefully assess the history

### **Essential disease information:**

The main danger in eye injuries is secondary infection, which may lead to corneal or uveal scars and ultimately to blindness

If the eye lids are affected there is a danger of the eye drying out which again may lead to scars and blindness

**If one eye is severely injured and not treated, sometimes the other eye can also go blind over the next 2-3 weeks (“sympathetic blindness”); therefore refer even if you think the eye cannot be saved!**

**Note:** a special form of corneal injury is "welder's flash", which is an injury to the eyes by welding torches (and can be prevented by adequate protective screens or goggles)

This is a very painful condition and often causes transient loss of vision, but usually resolves after 2 –3 days

### **Differential Diagnosis:**

Acute glaucoma, conjunctivitis, uveitis, conjunctival haemorrhage

### **Other diseases that may also be present:**

None particular.

### **Action:**

### **Investigations:**

If there is any doubt about foreign body remaining within the eye, refer!

**Treatment:**

**Refer any serious eye injuries, any injuries affecting the eye lids, and severe blunt injuries**

Small corneal injuries: apply Tetracycline or Ciprofloxacin eye ointment twice daily for 3-5 days, if eye hurts or tears a lot, apply bandage to keep it closed  
Welder's flash: same antibiotic treatment as for corneal injury, but apply eye bandage for 2 days

**Counselling:**

Advise to re-attend if no improvement after 1-2 days;  
Advise about eye protection in occupational injuries

**Follow-Up:**

Follow-up after 1-2 days if not improved  
Arrange for follow-up in any serious injuries

**Referral situations:**

As above for suspected foreign bodies, serious injury, and injury affecting the eye lids

## 10.5. Cataract (motibindu)

### **Important symptoms:**

- Gradual loss of both near and far vision
- May initially just complain of light fragmentation at night
- May describe cloudy vision
- No pain or tearing or other symptoms

### **Important signs:**

- Usually eye appears normal on external examination
- In advanced cases the pupil may appear cloudy
- On examination with an ophthalmoscope, black spots can be seen within the lens

### **Essential disease information:**

- This is usually a disease of elderly people (over 45 yrs)
- Cataract is the clouding of the clear lens behind the pupil
- If not treated reasonably in time, (while patient can still see a little), the eye may remain blind even after surgery
- During surgery, the opaque lens is removed, and usually an artificial lens is implanted (if the lens is not replaced, the patient then has to wear very thick glasses for the rest of his/her life)
- **Cataract can also be congenital (inborn), and this is an important cause of blindness! It can only be detected by examining the eyes of the newborn baby. Referral for surgery should be arranged within the first five years (maximum seven years) of life!**

### **Differential Diagnosis:**

Other causes of loss of vision in later life: glaucoma, retinal diseases, chronic trachoma, presbyopia (the stiffening of the lens in advanced age, which leads to loss of near vision)

### **Other diseases that may also be present:**

Vitamin A deficiency; in children: deafness, heart defects (may be part of congenital rubella syndrome)

### **Action:**

**Refer to eye hospital for advice and treatment**

### **Counselling:**

- Advise that this is a slowly progressing disease, and the decision to perform surgery depends on the degree of handicap the patient is experiencing in daily life
- Advise that treatment with medicines does not help this condition
- In neonates/small babies explain the urgency of treatment before permanent damage to the inner eye structures occurs!

## **10.6. Glaucoma (Jalbindu)**

### **Important symptoms:**

- Headache especially if one sided and behind the eye
- Red, painful eye
- Reduced vision
- In chronic glaucoma, there may be no symptoms until a late stage
- At a late stage of the illness, loss of parts of the visual field or complete blindness

### **Important signs:**

- Red, painful eye
- Reduced vision
- Loss of visual field
- Eye may look larger than the other
- Pupil may be wide
- When palpating the eye through closed lids, it may feel very hard
- In mild glaucoma, no abnormal signs

### **Essential disease information:**

Glaucoma is caused by raised pressure of the liquid inside of the eye ball. The raised pressure slowly causes damage to the background of the eye, which leads to progressive loss of vision. The difficulty in diagnosing chronic glaucoma is that often affected people do not notice the symptoms initially, as it first causes loss of vision on the periphery of the visual field. Only later, when it is too late for treatment, do people notice that their vision is getting worse.

Acute glaucoma, on the other hand, is a sudden increase of pressure in the eye, which causes acute pain and damage to the eye if not treated.

Glaucoma can be primary (no obvious reason) or secondary (after an injury or severe infection of the eye).

### **Differential Diagnosis:**

Other causes of one sided headache: migraine, others – see chapter 8.3. headache

Other causes of red eye: conjunctivitis, other infections, foreign body

Other causes of loss of vision: cataract, short-or far-sightedness

### **Other diseases that may also be present:**

Injury or infection of affected eye

### **Action:**

#### **Investigations:**

Check for foreign bodies or signs of infection in the eye. Check pupil reaction to light. Check vision (Snellen “E” chart), check visual field: Sitting opposite patient about 50 cm apart, ask patient to look at your nose, look at the patient’s face yourself, and move your finger, or a pen in from outside your own vision. Ask the patient to tell you when it comes into view. If you can see it much earlier than the patient, that means they have a gap in their visual field.

Glaucoma can only be definitely diagnosed and treated in an eye hospital, where the pressure in the eye can be measured.

**Treatment:**

If you suspect acute glaucoma, give Diamox tablets 250 mg tds, painkillers, and refer to eye hospital as quickly as possible!

The hospital will sometimes perform an operation, and usually prescribe eye drops, like Timolol.

**Counselling:**

Ask patient to come back to the health post after hospital treatment. If eye drops have been prescribed, explain that these are to prevent future loss of vision, and it is very important to continue using them even if the patient has no symptoms at all.

**Follow-Up:**

Review after referral to re-inforce message about continuing treatment

**Referral situations:**

All suspected cases

## 10.7. Vitamin A Deficiency

### **Important symptoms:**

- First symptom the patient experiences is difficulty seeing in poor light conditions or at night (night blindness – "ratando")
- The eyes may feel dry and gritty

### **Important signs:**

- First visible sign are Bittot spots – small whitish dry spots on the conjunctiva, which are a sign of dry eyes (Xerophthalmia)
- Later the eye may become visibly dry and the cornea may become clouded or deformed
- Final stage is keratomalacia – clouding and softening of the cornea, which may even rupture/break

### **Essential disease information:**

- Vitamin A is an essential vitamin for the normal development and functioning of both the retina and the outer parts of the eye
- Vitamin A is mainly found in yellow or dark green vegetables and yellow fruits (like papaya, mango, orange, carrots, dark green saag, also sweet potato – red and yellow, tomato, yellow pumpkin), but also in meat, (or rather offal - the inner organs of animals), especially liver
- Vitamin A deficiency is still widespread among women and children in the more remote areas of Nepal
- It can be prevented by regularly adding the above mentioned foods to the daily diet or by giving yearly Vitamin A supplements

### **Differential Diagnosis:**

Conjunctivitis, trachoma, cataract

### **Other diseases that may also be present:**

Other forms/symptoms of malnutrition, worm infestation, skin problems, higher risk for infections (e.g. RTI, diarrhea, measles)

### **Action:**

#### **Investigations:**

If visible clouding of cornea or impaired vision even in good light, refer!

#### **Treatment:**

Vitamin A therapeutic dose:

< 6 months:            50 000 IU day 0, day 1 and 2-4 weeks later (grind up tablets and mix with fluid to prevent risk of choking)

6 – 12 months:        1 lk (100,000 IU) day 0, day 1 and 2-4 weeks later

> 2yrs:                 2 lk (200,000 IU) day 0, day 1 and 2-4 weeks later

(source: WHO, UNICEF, IVACG Task Force, 1997)

**Counselling:**

- Advise breastfeeding mothers about above diet requirements
- Advise to take one capsule of Vitamin A (2 lks – 200,000 IU) once within 2 weeks of delivery
- Advise to add foods rich in Vitamin A to food given to small children
- Advise about first signs of vitamin A deficiency (dry eyes, night blindness)

**Follow-Up:**

Review after 2 weeks to check progress and repeat dose of vitamin;  
Reinforce nutritional advice at this time

**Referral situations:**

If visible clouding of cornea or impaired vision even in good light, refer!

## **11. Skin Problems**

### **11.1. Allergic skin rashes and drug reactions**

#### **Important symptoms:**

**Allergic reactions and drug reactions can take many forms, but usually there is some kind of skin reaction :**

- Skin rash, usually itching
- Sometimes all over body, but sometimes only in face, or in one part of the body
- There may be just redness, or red lumps, or small blisters, or scaling, or even large blisters
- Rash may appear over night and fade quickly, or start and spread very slowly

#### **Other symptoms may involve:**

- Sometimes blistering inside mouth
- Oedema (swelling), especially of the eyes and face
- Sometimes shortness of breath (asthma – like reaction)
- In severe cases, patient may collapse

#### **Important signs:**

- Redness and other skin signs
- Signs of scratching
- Oedema of face, especially eyes or limbs
- Check inside mouth
- Listen to chest – there may be wheezing

#### **Essential disease information:**

- Allergies can be against many things – medicines, food, substances in the air (especially pollen), insect bites etc
- Allergies are reactions of the body to a substance it has met before – it is not possible to have an allergic reaction to a drug the first time it is used, but an allergy can appear at any time after that.
- For this reason, it is essential to remember skin testing every time before giving a penicillin injection.
- Allergies tend to get worse every time the substance is encountered again – if there was only a slight rash last time, next time there may be oedema, shortness of breath and collapse
- Drug reactions can also be non- allergic, that is, caused directly by the effect of the drug

#### **Differential Diagnosis:**

Scabies, eczema, worm infestation, other diseases that cause itching skin rashes (anaemia, liver disease and others)



## **Other diseases that may also be present:**

Asthma, eczema

## **Action:**

### **Investigations:**

This is usually a clinical diagnosis, which is confirmed by the effect of therapy.

### **Treatment:**

- If you suspect a drug reaction, first stop the medicine!!
- If only mild skin rash, often no treatment, or only local application of Calamine lotion until rash subsides spontaneously
- If itching badly, or rash is widespread, give antihistamines: Chlorpheniramine, Pheniramine or Cetirizine
- If signs of serious systematic disease (allergic shock, short of breath, generalized oedema), give adrenaline – adult dose ½ mg im or 1mg sc. Child: <6m 50mcg (0,05ml of 1:1000 solution) 6m – 6y 120mcg or 0.12 ml, 6y-12y 250mcg or 0.25ml. dose can be repeated every 5 minutes according to response) and 1 mg per kg Prednisolone (max dose 40 kg) as well, and refer!

### **Counselling:**

- If you are reasonably sure that it was a drug allergy, clearly tell the patient the name and class of the medicine, and give the information in written (on a red card)
- Explain to the patient / the child's parents that he must NEVER be given that medicine again (see above: drug reactions tend to get worse every time)
- If you are not sure, which substance the patient may have reacted to, explain to them the likely causes (s. above), and advise them to avoid possible causes

### **Follow-Up:**

If patient lives nearby, ask to re-attend next day, if not, give enough medicines for 5 days, but advise to come back immediately if symptoms worsen

### **Referral situations:**

All serious cases – severe shortness of breath, collapse

If there is no improvement after 48 hours of treatment

## 11.2. Scabies

### **Important symptoms:**

- Itching skin rash
- Itching worse at night
- Rash especially on hands, feet, abdomen and genital region
- May involve other family members

### **Important signs:**

- Signs of scratching (excoriations)
- Usually worse on hands, feet and abdomen
- On close examination, mite burrows may be seen, especially on hands between fingers (small yellowish elongated marks 3-4mm)

### **Essential disease information:**

- Scabies is caused by small mites that live in the patient's skin, but also in their clothes and in the bedclothes.
- They spread easily between people that share a bed.
- Some people don't have any symptoms in spite of being infected by mites

### **Differential Diagnosis:**

Allergic rashes, eczema, worm infestation, other diseases that cause itching skin rashes (anaemia, liver disease and others)

### **Other diseases that may also be present:**

Worms, anaemia, malnutrition

### **Action:**

#### **Investigations:**

This is usually a clinical diagnosis, which is confirmed by the effect of therapy.

#### **Treatment:**

If scratching is a big problem, Chlorpheniramine or Cetirizine may be given for 3-5 days to reduce itching.

1<sup>st</sup> line treatment is Permethrin, if no improvement after 2-3 weeks, Gamma-Benzene-Hexachloride 2<sup>nd</sup> choice:

#### **Instructions:**

- Wash well at bedtime (after evening meal)
- Apply lotion over whole body below chin, especially between fingers and toes
- Remember to re-apply on hands and feet after washing in between
- In case of Permethrin, wash after 12 hours, repeat procedure after a week
- In case of Gamma Benzene Hexachloride, don't wash off for 24 hours, repeat procedure next day (after washing), and the day after (3 times altogether)

**Counselling:**

- Treatment has to be given to all persons who share a bed with the patient, whether they have symptoms or not
- Wash all clothes and dry them well in the sun
- Wash bedcloths and dry them well in the sun
- Change the gundri (straw mat) of the bed / sleeping place
- Advise that itching may persist for 2-3 weeks after treatment

**Follow-Up:**

Usually none needed, but advise to re-attend if treatment fails (after 2-3weeks)

**Referral situations:**

If there is any doubt about diagnosis, refer to check FBC and stool for worm eggs

**Secondary bacterial infection of scabies:**

- Often redness and purulent discharge, most on hands and feet
- Caused by the same bacteria as impetigo (see guideline 11.3.2. Impetigo)

**Treatment:**

- Apply G.V. (Gentian Violet) daily, after washing
- Give 5 days of Cotrimoxazole, Amoxicillin or Erythromycin (dose see guideline impetigo)  
If scratching is a big problem, Pheniramine, Chlorpheniramine or Cetirizine may be given for 3-5 days to reduce itching
- Apply Permethrin or Gamma-Benzene-Hexachloride only after skin has healed

## **11.3. Bacterial Skin Infections**

### **11.3.1. Cellulitis**

#### **Important symptoms:**

- Redness, swelling and itching/pain of skin / soft tissues
- Often on legs, occasionally hands or face
- Often also fever
- Area of redness/infection spreads from day to day

#### **Important signs:**

- Local signs of infection : redness, swelling, warmth, pain and loss of function;
- Regional lymphnodes may be swollen and painful

#### **Essential disease information:**

- This is a bacterial infection of the deeper skin layers, usually caused by streptococcus, sometimes staphylococcus
- The infection can spread quite quickly and cause serious illness if not treated in time

#### **Differential Diagnosis:**

Fungal infection, abscess, thrombophlebitis, deep vein thrombosis

#### **Other diseases that may also be present:**

Scabies, eczema, diabetes, malnutrition (all are risk factors for cellulitis)

#### **Action:**

#### **Investigations:**

Initially no investigations needed, but refer if no improvement with treatment

#### **Treatment:**

If very high fever (systemic illness), or cellulitis of the face (near the eye), refer! (needs i.v. antibiotics)

Otherwise, give analgesia (Ibuprofen or Paracetamol) AND

Give a 5 day course of antibiotics: (for dosages, see chart at the back of this book)

im Penicillin after skin testing (need to test every time!!) or oral

Amoxicillin/Cloxacillin

or oral Cotrimoxazole

or oral Erythromycin

#### **Counselling:**

Ask for Tetanus (T.T.) vaccine status; if not vaccinated in last 10 years, recommend vaccination.

#### **Follow-Up:**

If any signs of systemic illness, review daily. – After 48hrs of treatment, signs should have improved – if not, change antibiotic or consider referral

#### **Referral situations:**

If systemic illness or cellulitis of the face, refer for i.v. treatment.

If not improving within 48 hrs, refer.

### **11.3.2. Impetigo**

#### **Important symptoms:**

- Itching red spots develop into vesicles that open and the yellow liquid inside forms “honey-coloured” crusts
- Sometimes fever and swelling of lymph nodes

#### **Important signs:**

- Usually affects children under 12 yrs of age
- Sometimes breastfeeding mothers of affected children get sores on their breasts
- Blisters or sores often around mouth and nose
- May also affect legs, arms and body
- Lesions may itch or hurt a little, but usually no major subjective complaints

#### **Essential disease information:**

- This is a highly infectious disease
- It spreads quickly between children who play together, and may also affect their mothers
- The cause is usually a bacterium called Staphylococcus – sometimes Streptococcus
- Antibiotics that work for Staphylococcus: Cloxacillin, Cotrimoxazole, Erythromycin
- Antibiotics that work for Streptococcus: Penicillin, Ampicillin, Cotrimoxazole, Erythromycin

#### **Differential Diagnosis:**

Shingles (Herpes Zoster – Janay Khatira), superinfected scabies, eczema, others

#### **Other diseases that may also be present:**

Worms, malnutrition, scabies

#### **Action:**

#### **Investigations:**

Usually none needed

#### **Treatment:**

1. If only one or two areas affected:
  - Neosporin ointment applied b.d. for 7 days  
(or Gentian Violet solution applied daily)
2. If more than two areas affected: give systemic antibiotics for 5 days:
  - Cotrimoxazole, Ampicillin/Cloxacillin or Erythromycin / Azithromycin

#### **Counselling:**

- Advise about importance of personal hygiene to prevent recurrence:
- Wash at least twice daily with soap and water
- Advise not to let child sleep together with others until lesions have healed
- Advise to give full course of treatment , even if lesions are much improved, otherwise there is increased risk of recurrence

#### **Follow-Up:**

If no improvement after 3 days treatment, consider changing antibiotic

#### **Referral situations:**

Severe illness, or worsening during therapy, consider referral for admission.

### 11.3.3. Abscess

#### **Important symptoms:**

- Usually appears in buttock area, armpits, groins or breasts (especially in breastfeeding mothers)
- Initially small, painful, slightly red swelling
- Becomes more and more painful and bigger in time – over a few days
- Spreading red area on skin
- Eventually, yellowish “head” appears, and if not treated, abscess will burst and discharge pus, and slowly heal over several weeks

#### **Important signs:**

- Red area on skin with underlying visible or palpable swelling
- If abscess is “ripe” yellowish area in the center with shiny, stretched skin
- On palpation, feels as if there is fluid under the skin
- Very painful on palpation!

#### **Essential disease information:**

- Abscesses usually form at the site of a hair follicle, and are usually caused by bacterial infection with mainly staphylococci and streptococci, but can also be E. Coli
- If near mouth or anus, often also anaerobic bacteria
- Small abscesses may heal with antibiotic treatment, but when the swelling is bigger than 2 cm in diameter, usually they won’t heal until the pus has been drained – either by incision or spontaneously

#### **Differential Diagnosis:**

TB (affected lymph nodes) – these are usually in the neck or groin and usually NOT PAINFUL

Malignant tumours (cancer) – grow much slower than an abscess, and usually not painful

#### **Other diseases that may also be present:**

Worms, malnutrition, scabies, cellulitis, diabetes, HIV

#### **Action:**

#### **Investigations:**

Usually none needed, but refer all painless abscesses of the neck and groin! May be TB!

#### **Treatment:**

1. If small (swelling less than 2 cm in diameter), or no discernible fluid collection yet:  
Give Antibiotics: Cotrimoxazole OR Amoxicilin / Ampiclox OR Erythromycin/Azithromycin  
AND Metronidazole, if near mouth or anus
2. If larger than 2 cm, and no signs of spontaneous bursting, and very painful:  
INCISION and DRAINAGE  
Do NOT do this unless you are confident, and the patient is happy for you to go ahead.

## **Procedure:**

- remember your own safety: wear mask, apron, glasses and safe clothing.
- Use sterile instruments (scalpel blade and small artery forceps), and wear sterile gloves
- Give adequate dose of strongest painkiller available one hour BEFORE incision
- Clean area with iodine or betadine solution, at least 10 cm around the abscess
- If there is no obvious “pointing” (yellowish colour and stretchy, shiny skin), try to infiltrate incision point with 2% lignocaine (but remember: local anaesthetic does not work very well in infected areas)
- Make quick, deep incision in the most central area of the abscess, where you could feel the pus collection
- The incision should be at least as long as the scalpel blade is wide. Remember DIRECTION of incision: perpendicular in armpit and neck, radial in breast, and tangential if near anus (this is to avoid cutting through important underlying vessels or muscles)
- If the patient can tolerate it, carefully insert closed artery forceps in incision and open as wide as possible inside, to allow full drainage of pus
- Pack abscess cavity as tight as possible with betadine- or AC-soaked sterile gauze, and apply outer dressing
- Give enough painkillers to last four 24 hours and call patient for dressing change the next day
- If the abscess was big, or there are other smaller ones, give antibiotics as above for 5 days
- Usually, daily dressings at the health post are needed for about 5 days, after that very often the wound has healed enough for patients to just apply clean povidone cream dressings themselves. Expect the wound to be fully healed within 2-3 weeks

## **Counselling:**

- Advise about importance of personal hygiene to prevent recurrence:
- Wash at least twice daily with soap and water
- Advise to re-attend promptly in case of recurrence, or if redness and pain doesn't subside within 48 hours

## **Follow-Up:**

Daily for dressing changes and to re-assess; start antibiotics if redness is spreading after incision

## **Referral situations:**

- Painless abscesses (may be TB),
- Very big abscesses (>4 cm diameter), especially in buttock or anal area
- Multiple abscesses, or frequently recurring abscesses (there may be underlying disease such as diabetes)

## **11.4. Skin Rashes with Viral Infections**

### **11.4.1. Generalised Viral Rash**

#### **Important symptoms:**

- Usually mild fever (may already be gone by the time rash appears)
- Often symptoms of URTI
- Often headache, or abdominal pain
- Child usually mildly unwell
- Skin rash: small red spots, or bumps, or, occasionally vesicles or blisters
- Sometimes all over body, but sometimes only in face, or in one part of the body, or only hands and feet
- Sometimes itching, but often itching is not severe
- Rash may only appear after other signs of illness have gone, or may appear before fever
- Rash may appear over night and fade quickly, or start and spread very slowly
- In many viral illnesses, illness starts improving about the same time the rash appears

#### **Important signs:**

- Redness and other skin signs
- Signs of scratching
- Other signs of mild disease: fever, URTI, conjunctivitis, diarrhoea, headache, loss of appetite

#### **Essential disease information:**

Many viral infections can cause a skin rash, and often it is not possible to tell which disease it is. Important characteristic viral diseases that cause a rash are

- **Measles, chickenpox:** see chapter 13.1. and 13.2.
- **Rubella (“German Measles”)** – illness is milder than measles, often small swollen lymph nodes behind ears, rash appears quite faint. The significance of Rubella is that it can cause serious malformation in the newborn if the mother is infected in pregnancy
- **“Fifth disease”** (caused by parvovirus) rash only on cheeks, often only one side. Usually only lasts 2-3 days
- **“Hand, foot and mouth disease”:** caused by a Coxsackie virus, sudden onset of fever with first papular, then vesicular rash on hands, feet and often inside mouth and on buttocks. Self-limiting
- **Herpes simplex:** most common form is infection of mouth: painful blisters inside mouth and on lips, with mild fever. Often child refuses to eat, especially hot and spicy foods, because of the pain. Advise cold, soft foods, and if possible, anaesthetic mouth cream; Paracetamol for fever

#### **Differential Diagnosis:**

Bacterial infection, especially scarlet fever (see chapter 9.2. tonsillitis), or meningitis (chapter 12.1), typhoid fever (chapter 12.2);

Allergic rash, drug reaction, eczema,  
Scabies, fungal infections

#### **Other diseases that may also be present:**

Malnutrition, worms, Vitamin A deficiency



**Action:**

**Investigations:**

Clinical diagnosis “by exclusion” (if rash does not fit any of the differential diagnoses, and there is mild fever, and child does not appear particularly ill)

**Treatment:**

- There are no specific medicines to make viral diseases get better quickly
- Treat symptomatically: paracetamol for fever, calamine lotion for itching
- Treat with antibiotics if there is bacterial superinfection

**Counselling:**

Advise that viral illnesses rarely last more than a week, and get better on their own. Medicines, particularly antibiotics, are not helpful, and may cause harm. Advise re symptomatic treatment. Advise not to fast (continue to eat / feed nutritious foods, including meat if available during disease and increase food intake after disease)

**Follow-Up:**

Review after 48 hours if no better, but immediately if patient becomes more ill

**Referral situations:**

If no improvement after 2-3 days symptomatic treatment, refer to confirm diagnosis

### **11.4.2. Shingles (Herpes Zoster)**

#### **Important symptoms:**

- Pain in one area of the skin, often starts before any rash appears
- The painful area is very tender even to slight touch
- There may be a slight fever
- If in the area of the head or face, a severe headache may be the first sign
- Sometimes, the person can remember having had chickenpox

#### **Important signs:**

- Normal looking skin in the painful area for the first 6 – 24 hours
- After this, usually a rash appears: clusters of small blisters (1 – 4 mm), which look like the blisters of chickenpox
- Typically, the blisters are in an area of skin that is about 5-10 cm wide and only on one side of the midline
- This can be along an arm or leg, or a section of the head – if the eye is involved, this can cause severe complications
- If the rash appears on the trunk, it often appears like a band of blisters on one side of the body, which almost looks like the mark of a belt – hence the name “Janay Khatira”

#### **Essential disease information:**

Shingles are caused by the same virus that causes chickenpox (Varicella Zoster). The virus can sometimes survive in the body of a person long after the chickenpox attack is over, and it is located in the nerve roots emerging from the spinal cord. As a person grows older, the virus can sometimes be re-activated, that means it can cause an acute infection again, but only in the area that is supplied by that particular nerve root. This happens especially at times when someone’s immunity is low, through stress or other infections, but sometimes it is just because of older age or for no reason.

The rash will usually settle within one or two weeks if left clean and dry.

#### **Differential Diagnosis:**

Herpes simplex – this is an infection with a herpes virus which can look almost exactly the same as herpes Zoster, but the rash is not confined to one side of the body. It often affects the mouth or the genitalia, but if it affects the normal skin, it usually covers an area of about 10-15 cm diameter. This can cause recurrent blisters on the lips or in the genital area.

#### **Other diseases that may also be present:**

Malnutrition, worms, HIV (especially consider AIDS related illness if the rash covers a larger area than described above, or crosses the midline.)

#### **Action:**

#### **Investigations:**

In the typical case, no further investigation is required. If the rash covers a large area, or there are other reasons to suspect HIV or leukaemia, consider referral.

**Treatment:**

There is no easily available treatment which is available in health posts, but the rash will almost always heal by itself after 1-3 weeks. Treat the pain with Ibuprofen and Paracetamol, or Tramadol if severe. Advise to keep the rash clean and dry as far as possible.

Give Calamine lotion for the itching.

If the rash seems to be infected (the skin becomes red and there is a pus like discharge), treat with Flucloxacillin or Ampiclox. (Erythromycin in case of allergy to Penicillin)

**Counselling:**

Advise that rash will eventually heal, but needs to be kept clean and dry.

Advise to avoid direct contact with very small babies or pregnant women, as they can catch chickenpox from the rash.

Advise to return to health post if getting worse.

**Follow-Up:**

Usually not required

**Referral situations:**

When an eye is affected.

If the diagnosis is not clear and the rash has lasted for more than a week

If the rash covers an unusually large area, or recurs frequently, to test for HIV and exclude leukaemia.

## 11.5. Fungal Infections

Tinea capitis (scalp affected), Onychomycosis (nails affected), Ringworm, Athlete's Foot

### **Important symptoms:**

- Slowly spreading itching rash
- On scalp may manifest as dandruff and hair loss
- In nails increasing cracking and deformity of nails, spreading from one digit to the next over months

### **Important signs:**

- Often single or satellite lesions with central normal area and redness, thickness and scaling in peripheral area (ringworm)
- May be pustular or large areas of red rash, or only thickening and scaling
- On scalp often plaques of thick scales that may become infected, hair of affected area is usually broken at few millimeters of length
- Nails look thickened and deformed and are very fragile, there may also be chronic nail bed infection
- Redness and infection between toes, or thickened, itching, cracked skin of soles
- Note: fungal infections nearly always itch or hurt!

### **Essential disease information:**

Fungal infections are caused by slow growing organisms and therefore need long-term treatment: if on the skin of the body and feet, at least 2-3 weeks, if on the scalp or in the nails, often 6-8 weeks systemic treatment is necessary.

### **Differential Diagnosis:**

- Leprosy: lesions of leprosy don't usually itch; the central area is numb – no pain or heat sensation
- Bacterial infections
- Other skin diseases like eczema or psoriasis

### **Other diseases that may also be present:**

- Bacterial superinfection
- Eczema

### **Action:**

#### **Investigations:**

Usually none needed – clinical diagnosis can theoretically be confirmed by skin scrapings and microscopy; response to treatment confirms diagnosis

#### **Treatment:**

**Local treatment:** Whitfield's ointment: apply b.d. to affected area for two weeks  
Clotrimazole ointment: " " " "

**Note:** continue local treatment for at least two weeks, even if lesions have improved a lot

**Systemic treatment:**

(For nail and scalp infections or very widespread tinea corporis / ringworm)

Griseofulvin 10mg per kg body weight in two divided doses (e.g. 5mk/kg b.d.)  
for -8 weeks (adult dose: 250mg b.d.)

Alternative over 12 years: Fluconazole 150 mg twice weekly for 4 – 8 weeks

**Note:**      **counsel women on Griseofulvin to use safe contraception until one month after the end of treatment, and men not to father children until six months after treatment!**

Also treat bacterial secondary infection, if present (see guideline bacterial skin infections)

**Counselling:**

Fungal diseases are infectious – counsel about hygiene and keeping affected skin clean and dry; advise about importance of finishing treatment course, as diseases have a tendency to recur

**Follow-Up:**

Advise patients to re-attend if no improvement after 1-2 weeks of treatment (4 weeks in the case of nail infection):

The diagnosis may be wrong, or the infectious agent may be resistant to the chosen drug

**Referral situations:**

If no improvement after treatment, refer for further investigations (e.g. skin scraping and microscopy)

### **11.5.1. Pytiriasis versicolor ("dubi")**

#### **Important symptoms:**

- Small lighter spots on the skin
- Usually on throat, chest and back, may spread to arms and abdomen
- Sometimes slightly itching

#### **Important signs:**

- Small (2-4mm) irregular, sometimes slightly scaling hypopigmented (not completely white) spots

#### **Essential disease information:**

This is also a fungal disease; it is quite infectious and usually doesn't resolve for several years if untreated; however, it is not a serious health problem

#### **Differential Diagnosis:**

Leprosy – usually single, larger lesion; diagnostic sign is numbness of underlying skin

Vitiligo – completely depigmented (white) areas on hands and face, with no signs of inflammation, this is a problem without any treatment (except protection from sunlight)

Postinflammatory depigmentation (for example, after fungal infection, or impetigo has healed)

#### **Other hypopigmented lesions:**

On the cheeks of dark skinned children who spend a lot of time in the sun, often a different type of hypopigmented spots is seen: these are larger in diameter and their borders are not well defined. They do not itch and tend to change in shape and size over the seasons.

#### **These are not a sign of infection or malnutrition.**

No treatment is needed. They usually disappear spontaneously after puberty.

#### **Other diseases that may also be present:**

Usually none

#### **Action:**

#### **Investigations:**

Usually none needed; possible confirmation through skin scraping and microscopy

#### **Treatment:**

Selsun shampoo (Selenium and Clotrimazole shampoo)

Apply like lotion over whole affected area and do not wash off for 24 hours; repeat process after 2 weeks

If this is not available, use Whitfield's or Clotrimazole ointment – but this is less effective

#### **Counselling:**

Advise patients that hypopigmented spots disappear slowly after treatment over a period of several weeks (pigment has to be built up in the skin)

#### **Follow-Up:**

Not needed

#### **Referral situations:**

If not improving after about 4-6 weeks, consider referral for further investigations

## 11.6. Leprosy

### **Important symptoms:**

- Just one, or several, slowly growing discoloured marks on skin
- May be whitish or blueish, or darker than surrounding skin and may have raised red margin (can sometimes be confused with ringworm)
- No pain or itching
- In more advanced cases there may be painless skin infection or injuries
- Thickening of earlobes, deformity of nose, hands or feet

### **Important signs:**

- Lesions may look paler or darker than normal skin, there may be thickening or scaling of skin, and nodules under the skin (nodules are usually not numb)
- **Centre of skin lesion is numb to touch and to heat/cold/pain (will not feel pin-prick) - this is almost proof of leprosy! (check with ball-pen in lesion, under feet and in palms of hands)**
- Check in side of neck, inside of elbows and back and side of knee: there may be palpable – and sometimes tender - thickened nerves (like strings under the skin)
- Often, fingers or toes are numb to touch, and therefore patient may not have noticed small injuries, which then become infected
- In advanced cases, nose may look pushed in, and earlobes may be thickened
- Patient may not be able to close eyes properly, may not blink when eye is touched with wisp of cotton wool, cornea may look milky
- In advanced cases, there may be weakness of muscles lifting the foot and of hand muscles. There may be deformation of the hand (shaped like a claw)

### **Essential disease information:**

- Leprosy is an infection of the skin and nerves with a bacterium called mycobacterium leprae, which is a little similar to the bacterium causing TB
- M. leprae is an extremely slowly growing bacterium, therefore the disease develops slowly, over months and years, and it also takes a long time to treat properly
- Like TB, leprosy can be cured by a long course (sometimes up to two years) of the appropriate medication, which is available free at government treatment centres (and, for example, the INF mission hospital in Pokhara)
- If untreated, it will lead to progressive disability because of the deformation of hands and feet, and the secondary infections, which cause loss of fingers and toes.

### **Differential Diagnosis:**

Fungal infection, vitiligo, skin infections for other reasons (all these have normal skin sensation – or there is pain or itching!)

burns scars (check history)

### **Other diseases that may also be present:**

Vitamin deficiency, secondary infections

### Action:

#### **Investigations:**

Suspected leprosy cases **all** have to be referred to the nearest district treatment center (you have to find out where that is in your area).

Diagnosis is by a skin biopsy and microscopy which reveals acid-fast bacilli.

#### **Treatment:**

Treatment for leprosy is by a combination of two or three medicines (Rifampicine, Dapsone, and sometimes Clofazimine), taken regularly over a period of 6 to 24 months (according to the type of disease).

The regional treatment centre will supply these medicines for free – and often will supply them to your health post, if you have a leprosy patient in your area: Discuss this with the DHO

#### **Complications of Treatment:**

The medicines prescribed for leprosy can have quite serious side-effects sometimes, and sometimes the patient can have a reaction to the treatment which leads to apparent worsening of the disease, or acute illness with high fever, joint and muscle pains. – Such cases must be referred without delay to a leprosy treatment centre, otherwise permanent disability is a serious risk!

Other signs of unwanted effects or reaction can be:

- Jaundice
- Skin rash, darkening of skin or scaling
- Anaemia, other effects on blood (leads to tiredness, respiratory infections etc)
- Swollen lymph glands and generally being unwell
- Nodules under skin, skin ulcers, skin oedema
- Painful, swollen nerves

#### **Treatment of unwanted effects of therapy:**

- Give Ibuprofen for pain
- Stop medicines but:
- **explain to patient that he needs to continue treatment: refer back to treatment centre!!!**

(if there is a gap of a week or so in the treatment, and it is continued after that, it will still work. However, if the treatment is stopped completely before the full dose has been taken, the disease will come back)

#### **Counselling:**

**In new cases** – do everything possible to convince the patient to start treatment as soon as possible! If treatment is started early, no disabilities may remain.

**In more advanced cases, or after treatment** - the main danger is the development of ulcers and chronic skin infections because of the loss of sensation in the skin – particularly hands and feet. Advise the patient to look after his/her own hands and feet:



- Wear well fitting shoes or sandals when walking
- Avoid work that has a high risk of injury (e.g. chopping wood, walking through undergrowth, cleaning animal stables...)
- Each evening, inspect hands and feet for small injuries or red spots
- Soak feet in water every 2-3 days until skin is soft, and scrape away white, hardened skin
- Thereafter, immediately apply cooking oil, to keep skin soft and prevent injury
- If there are small wounds, cover with clean cloth, rest affected limb
- Come to HP early for treatment of infections
- Advise Tetanus vaccination (TT)

**Follow-Up:**

If possible, follow up to ensure patient is taking medicines and is looking after hands and feet as above

**Referral situations:**

All cases at diagnosis, and if there is any apparent worsening of condition during treatment.

## **12. Bacterial Infections**

### **12.1 Bacterial Meningitis**

**This is a clinical emergency!! Patient needs to be given high dose penicillin and referred immediately!**

#### **Important symptoms:**

- Initially signs of URTI
- **Fever, chills and sweats,**
- **Headache**
- **Photophobia (headache gets worse / eyes hurt in bright light)**
- **Nausea and vomiting**
- Drowsiness, agitation or convulsions

#### **Important signs:**

- Fever; patient usually appears ill
- Non-blanching skin rash may be present in meningococcal sepsis (red or purple spots on the skin that do not fade when pressed)
- Neck stiffness: bending the head forward towards the chest or pulling up the knees increases the headache, and patient will resist it
- In small babies (less than 18 months), fontanelle may appear tense or bulging
- In small babies, extremities may be cold, white, mottled or blue

#### **Essential disease information:**

- Bacterial infection of the membranes covering the brain and spinal cord;
- may lead to increased pressure around the brain, infection of the brain and generalized sepsis –very high mortality and disability rate if not treated quickly
- infectious between close contacts (family members or playmates of patient)

#### **Differential Diagnosis:**

Viral influenza, typhoid fever, head injury, viral meningitis, upper lobe pneumonia, other causes of sepsis

#### **Other diseases that may also be present:**

RTI, bacterial meningitis can affect coagulation and cause damage to almost all organs

#### **Action:**

#### **Investigations:**

If you suspect bacterial meningitis, do not waste time investigating – treat and refer!  
(diagnosis is confirmed by lumbar puncture in hospital)

#### **Treatment:**

- Give double oral dose of Penicillin, Amoxicillin, or Cephalexin (if available)
- If patient cannot swallow medicines:  
Fortified Procaine Penicillin i.m.: 100,000 IU per kg body weight  
before sending to hospital

Plus Gentamycin according to weight  
(remember to skin test for allergy! – put a drop of prepared Penicillin solution on the skin and scratch superficially with the needle. After 15 minutes check for redness – if the skin is red and raised, do not give Penicillin. Alternatively, give an intradermal injection of Penicillin and check after 15 minutes. )

**After giving the first dose, refer to hospital without further delay. If there will be a delay on the way to the hospital, repeat antibiotic doses every 6 hours (except Gentamicin!)**

**Counselling:**

- Needs referral to secondary care!
- Advise re infectious character
- Consider treating close contacts with Rifampicin: >1 yr: 10mg per kg b.d. for 2 days  
Adult: 600mg b.d for 2 days or Ciprofloxacin 500 mg single dose (over 12 years)

**Follow-Up:**

Arrange follow-up for small babies after hospital discharge (to check for hearing loss and developmental delay)

**Referral situations:**

All cases.

## 12.2. Typhoid Fever

### **Important symptoms:**

- **First week:**
  - Continual fever, which increases day by day
  - Often severe headache
  - General aches and pains
  - Sometimes slight cough
  - Usually some diffuse abdominal discomfort or pain
  - Weakness/ prostration (unable to walk or do any work)
- **Second week:**
  - Symptoms as before and:
  - Diarrhoea or constipation
  - Confusion, drowsiness or convulsions

### **Important signs:**

- Often very few clinical signs
- Seriously ill patient
- Usually abdominal tenderness on palpation, often in right lower quadrant
- In second week, often palpable liver or spleen
- Sometimes relative bradycardia: seen in relation with the high fever, the patient's pulse is not very fast
- Occasionally pale rash on chest and abdomen (may be absent or difficult to see)

### **Essential disease information:**

Caused by a bacteria called *Salmonella typhi*. Spread/transmission through contaminated water (human urine and faeces). Often epidemic.

### **Differential Diagnosis:**

Viral influenza, pneumonia, UTI, other causes of fever and abdominal pain

### **Other diseases that may also be present:**

Dehydration and shock; most serious complication is intestinal perforation, which can occur even after the patient has started to improve

### **Action:**

**Consider referral!! – this is a life threatening disease**

### **Investigations:**

In the field, clinical diagnosis with typical symptoms and signs.

In a clinic: Stool culture will confirm diagnosis; check urine, (full blood count if possible),

**Treatment:**

- > Amoxicillin in double usual dose. This is safe in pregnancy.  
in children: 100mg /kg / day in three divided doses
- > Chloramphenicol 60-75 mg/kg/day in four divided doses (example: 40 kg bodyweight – needs 2400 to 3000mg, or 600-750mg four times daily)
- > Cotrimoxazole in double usual dose
- > over 12 year olds: Ciprofloxacin 500mg t.i.d. or 750mg b.d.

All treatments have to be continued for at least 14 days (risk of relapse!)

**Counselling:**

Counsel about hygiene and risk of water-borne diseases

Advise about risk of complications and relapse even after initial improvement

**Follow-Up:**

See the patient frequently until improvement is definite; reinforce message about infection control and necessity to finish full treatment course

**Referral situations:**

Dehydration, shock and bowel perforation are very serious problems. Patients with severe dehydration or worsening abdominal pain should be referred to hospital after first dose of antibiotic.

## **12.3 Extrapulmonary Tuberculosis (EPTB)**

### **Essential disease information:**

15-20 % of infections with Tuberculosis are not in the lungs but in other organs. These forms include:

1. Tuberculosis of the lymph nodes
2. Tuberculosis of the bones and joints
3. Tuberculosis of the brain and cervical cord (TB meningitis) – usually children under 3 years
4. Tuberculosis of the abdomen
5. Generalized tuberculosis (military TB)
6. Tuberculosis of the skin
7. Tuberculosis of the kidneys or ovaries (Urogenital TB)
8. Tuberculosis of the throat (Laryngeal TB)

### **Important symptoms:**

1. Painless swelling, abscess or ulcer of the lymph nodes (often several nodes together)
2. Pain and swelling in affected bone (finger, spinal column) or joint (hip, knee), and often deformity, such as bent spine
3. Slowly developing signs of meningitis with little fever (in children under 3)
4. Long-term low-grade fever, vague abdominal pain, diarrhea or constipation, abdominal distension, weight loss, weakness
5. Sometimes liver and spleen are enlarged
6. Painless, slowly growing skin ulcer
7. Painless haematuria, or lower abdo / back pain – sometimes infertility
8. Long-lasting throat pain and hoarseness – usually in patients with pulmonary TB

### **Important signs:**

- Remember TB in any slowly growing ulcer or swelling, especially in a malnourished or ill – appearing person, especially when there is little pain or redness in the surrounding skin
- Low-grade fever and progressive weight loss are suspicious signs
- Any painful, swollen bones, if there is no history of injury
- Low-grade fever in a very ill child (generalized TB or TB meningitis)

### **Differential Diagnosis:**

Other infections, typhoid, HIV

### **Other diseases that may also be present:**

Malnutrition, pulmonary TB

### **Action:**

### **Investigations:**

If in doubt, treat abscesses and ulcers for 2 weeks – refer if no improvement after that!

**Treatment:**

The medicines are the same as for PTB, but often a longer initial stay at hospital is necessary

**Counselling:**

Needs referral. As in PTB, it is very important to get treatment from a recognized TB centre, and to finish the whole course of treatment.

Explain that this does not get well on its own, but may get a lot worse, and may infect other people

Counsel to eat nutritious foods

**Follow-Up:**

If possible, follow up to ensure patient is taking medicines and is improving

**Referral situations:**

All cases at diagnosis, and if there is any apparent worsening of condition during treatment.

## **13. Viral Infections**

### **13.1. Measles**

#### **Important symptoms:**

- Before rash: symptoms of common cold (high fever, cough, sneezing, conjunctivitis, sore throat, photophobia)
- Rash starts after 3-5 days with red spots starting on face (behind ears), then spreading to body and arms and legs; it can spread over the body in one hour and disappears in the same order
- Without complications, the fever comes down after 6-7 days, the red rash turns brown and disappears;

#### **Important signs:**

- In the first (prodromal) phase before the rash, small white spots can sometimes be seen on the mucosa of the mouth (Koplik's spots), they disappear before the rash comes
- The first, common-cold-like phase before the rash is typical for measles.
- The rash is typical in its form (red, elevated dots of 0.2-0.5 cm that can grow together) and in the distribution over the body

#### **Essential disease information:**

The disease is caused by a virus, transmission by droplet infection (respiratory tract or eye conjunctiva). The incubation period is 8-12 days and the child is most infectious before the appearance of the rash and for at least 7 days after the first symptoms.

There are many possible complications of measles:

- A) stomatitis (painful infection of the mucosa of the mouth), enteritis, diarrhea in 20-40% of cases (the diarrhea can become persistent and precipitate malnutrition)
- B) secondary bacterial infection: otitis media, pneumonia, conjunctivitis
- C) neurological complications (encephalitis)
- D) xerophthalmia ; vitamin A deficiency may combine with measles to precipitate xerophthalmia and blindness.

**Prevention:** Measles vaccination at nine months. (because the child's immune system is not developed enough, the vaccination will not be effective if given before this age) This is part of the Nepali vaccination programme (EPI).

#### **Differential Diagnosis:**

In the first phase: URTI, pneumonia etc.

In the second phase: other diseases with rashes (rubella)

#### **Other diseases that may also be present:**

The possible complications should always be considered: the gastrointestinal complications can make fluid intake difficult and worsen malnutrition. The fever not coming down after 6-7 days suggests bacterial superinfection. Vitamin A supplementation is recommended in children with measles: see next page.



### **Action:**

### **Investigations:**

Usually none needed

### **Treatment:**

- 1) To prevent the further spread of the infection, isolation of the patient for 10 days (if possible)
- 2) Small frequent feeds, infants should continue breastfeeding; extra energy should be provided with added vegetable oil or sugar;
- 3) Keep the patient warm.
- 4) Treat the symptoms

**Fever:** Paracetamol

**Cough with solid mucus:** drink plenty of hot water (with honey, ginger, tulsi, if available), steam inhalation

**Pulmonary obstruction:** Salbutamol

**Blocked nose:** nose drops with N/S or salt in boiled water

**Severe itching and scratching:** Calamine solution, consider Chlorpheniramine, Cetirizine

**Stomatitis:** dilute Povidone solution for mouth gargles

**Diarrhea:** ORS

**Conjunctivitis:** clean with sterile N/S or boiled water, consider antibiotic eye drops/ointment (tetracycline)

- 5) Prevent secondary bacterial infection with antibiotic treatment (Cotrimoxazole, Amoxicilline)
- 6) Treat suspected vitamin A deficiency with Vit. A capsule 200,000 IU (>1 year) / 100,000 IU (6mths to 1 year) / 50,000 IU (<6 mths). Give a second dose the next day.

### **Counselling:**

Stress the importance of Measles vaccination, which is offered at government vaccination centres.

Explain the infectious character of measles.

### **Follow-Up:**

Monitor carefully signs and symptoms of malnutrition after an episode of measles.

Check for signs of vitamin A deficiency.

### **Referral situations:**

Refer for admission if signs or symptoms of severe measles, that is: complications like severe pneumonia, meningitis, diarrhoea and dehydration, inability to drink...

## 13.2. Chickenpox

### **Important symptoms:**

- Before the beginning of rashes: Low grade fever, Headache, Back pain, Feeling of weakness
- Rashes start on trunk as red spots. They develop into small vesicles with clear fluid and spread over face and limbs
- The rash is very itchy, the patient will start scratching and destroy the vesicles, or they just break.

### **Important signs:**

- The signs before the beginning of rashes are not typical, like common cold.
- The rash is very typical: Red, slightly elevated spots, some with vesicles of clear fluid, some scratched and covered in a yellow crust. The presence of different stages of the rash is the most typical sign.
- Because of the severe itching, and scratching, secondary bacterial infection of wounds and scar formation can happen easily

### **Essential disease information:**

Viral disease caused by varicella virus which can be found in secretion from nose and mouth and in the fluid from the vesicles. The transmission is droplet infection, airborne or direct contact, and is very contagious. Incubation period is 14-21 days, and the patient is infective 1-2 days before the rash and remains infective until the last vesicle is covered with crust.

The transmission of a pregnant woman to her child in the first 6 months of pregnancy can cause serious damage to the unborn child. Infection of the mother 5 days before to 2 days after birth can be transmitted to the baby and cause very severe disease. This is why it is important to keep pregnant women away from children with chickenpox.

In older patients, Varicella can cause herpes zoster, a very painful rash with vesicles along one nerve of the skin.

### **Differential Diagnosis:**

Before the beginning of rashes: common cold. The rash is quite typical, other diseases with rashes should be considered.

### **Other diseases that may also be present:**

Chickenpox can cause serious complications: bleeding into the vesicles (haemorrhage), broncho-pneumonia, hepatitis, heart diseases, encephalitis.

### **Action:**

### **Investigations:**

Not needed, the diagnosis is made through the typical rash

**Treatment:**

- 1) To prevent the further spread of the infection, isolation of the patient until every rash is covered with crust (if possible)
- 2) Especially keep pregnant women and children with immune problems (e.g. HIV) away.
- 3) Keep child clean and nails short to prevent skin infection from scratching.
- 4) Treat symptoms:  
Fever: Paracetamol  
Severe Itching: Calamine solution, Cetirizine, Chlorpheniramine
- 5) Treat secondary bacterial skin infection with antibiotic (Cotrimoxazole, Amoxicilline)

For dosages see Medication Dose Charts at the back of this book

**Counselling:**

Keep child as cool as possible, as itching gets worse with warm temperature.

Stress on the infectious nature of the disease and to keep pregnant women and children with reduced immune system away.

**Follow-Up:**

Usually not needed, ask to review for complications, especially skin infections.

**Referral situations:**

Very severe disease in newborn or patient with reduced immune system (possibility of treatment with acyclovir or varicella immunoglobuline in hospital).

Pregnant women who develop chickenpox must be referred! (high risk to both mother and child)

### **13.3. Mumps**

#### **Important symptoms:**

- fever, malaise,
- painful swelling in front of one or both ears or under the chin
- may develop abdominal pain or pain in testicles

#### **Important signs:**

- fever (usually mild),
- tender swelling of salivary glands,

#### **Essential disease information:**

infectious viral disease (transmission via droplet infection), incubation 2-4 weeks, may be transmitted from one day before swelling appears to 3 days after subsiding/end of symptoms. Usually mild, self-limiting disease, symptoms rarely last more than one week, but can cause postviral fatigue for up to 6 weeks.

#### **Important complications:**

- mumps meningitis (may be severe),
- pancreatitis (severe abdominal pain – needs admission),
- orchitis and epididymitis (infection of the testicles) which may lead to infertility in later life (rare in prepubertal boys)

#### **Differential Diagnosis:**

Other infections of the salivary glands, salivary duct stones, tumours

#### **Action:**

#### **Investigations:**

usually none needed, check for signs of calculi and bacterial infection (check the spot inside the cheek, where the salivary duct comes out)

#### **Treatment:**

supportive: Paracetamol for pain and fever, rest, plenty of fluids

#### **Counselling:**

self-limiting disease, but infectious. counsel re signs of complication (headache, drowsiness; pain in abdomen or testicles)

#### **Follow-Up:**

usually none needed

#### **Referral situations:**

Any signs of meningitis, severe abdominal pain (pancreatitis)

## 13.4. Viral Influenza

### **Important symptoms:**

- Headache
- Chills and sweating
- Muscle and joint ache
- Chest pain, dry cough and general malaise

### **Important signs:**

- High fever (can be 39-40 degree Celsius – 104 degree Fahrenheit)
- Other wise no abnormal examination findings

### **Essential disease information:**

- Viral disease: usually 1-3 days prodromal symptoms, improves slowly after 3- 4days, infectious period 6 days before and up to 2 weeks after symptoms. May cause post viral fatigue up to 6 weeks after acute illness

### **Differential Diagnosis:**

Pneumonia, Typhoid fever, Meningitis, UTI

### **Important Complications:**

Pneumonia - may be viral or secondary bacterial  
Conjunctivitis

### **Other diseases that may also be present:**

Malnutrition, asthma

### **Action:**

#### **Investigations:**

- Usually none needed
- WBC, ESR can exclude bacterial infection.

#### **Treatment:**

Antipyretic + analgetic treatment: Paracetamol and /or Ibuprofen  
If Pneumonia – treat with appropriate antibiotic (see Protocol Pneumonia )

#### **Counselling:**

- Self-limiting disease.
- Drink plenty of fluid,
- regular antipyretics
- counsel about mode of transmission (droplet infection)
- counsel about viral origin; antibiotic treatment only useful for superinfection

#### **Follow-Up:**

Usually none needed but immediately if fever gets worse or new symptoms develop. If no improvement at all in 2-3 days.

#### **Referral situations:**

In case of moderate to severe viral pneumonia.

## 13.5. Viral Hepatitis

### **Important symptoms:**

1-2 weeks prodrome:

- mild fever,
- abdominal pain,
- anorexia,
- headache

then

- jaundice,
- urine dark, stool light coloured
- at this time abdominal pain usually better.

### **Important signs:**

- Pain on palpation of RUQ, border of liver more than 1 cm below ribs
- jaundice (look at upper part of white of eyes, frenulum of tongue and palate in small babies)
- fever (usually not very high, but may be)

### **Essential disease information:**

- Usually Hepatitis A : transmitted by faecal-oral route; occurs in epidemics usually in the cold months; most children have been infected by age 12
- May be Hepatitis B: transmitted by parenteral route (through injections, blood and sexual contacts), vertical (mother to fetus) and by close contact in small children; incubation period much longer than Hepatitis A (3-6 months), often milder acute disease. (Usually asymptomatic in children ( 25-30 % of adults in Nepal have been infected ), but may cause complications in later life (liver cirrhosis, liver cancer)

### **Differential Diagnosis:**

**Neonates and very small babies:** sepsis, UTI , physiological jaundice

**Adults:** cholestatic jaundice (disease of bile ducts or gall bladder), liver cirrhosis, cancer of liver or pancreas, enteric fever

### **Other diseases that may also be present:**

Worms and Malnutrition; in adults HIV/Aids

### **Action:**

#### **Investigations:**

In the field. Clinical diagnosis.

In a clinic with laboratory:

- Urine test ( for infection and for urobilinogen)
  - FBC, ESR, LFT
- stool for worms.

**Treatment:**

- Usually none needed and none helpful
- Try to avoid Paracetamol , use physical treatments for fever instead: cold sponging, plenty of fluids (Paracetamol can affect the liver)
- if available, Vitamin B Complex may be given

**Counselling:**

- Counsel about hygiene; (ref mode of transmission)
- Advise rest
- advise plenty of fluids,
- light diet (traditional diet of sugarcane, papaya and mango is quite appropriate)
- low salt, low protein ( avoid large amount of pulses and milk /meat product )
- Self limiting disease

**Follow-Up:**

Usually not needed but advise re-consult if jaundice does not resolve after 1-2 weeks or if symptoms get worse.

**Referral situations:**

If jaundice is not resolving within 5 days

All unwell children.

Small babies for further investigations, unless it is clearly physiological jaundice (started 2-5 days after delivery, no signs of illness, feeding well)

Patients with high fever and a lot of abdominal pain

Patients with slow onset, deepening jaundice.

## 13.6. HIV / AIDS

**This chapter has mainly been written to enable health workers to recognize possible symptoms of HIV infection and counsel patients appropriately.**

### **Important symptoms:**

- Prolonged, mild fever
- Skin rashes – maculopapular rash, or fungal skin infection, or herpes, or varicella zoster
- Chronic diarrhea, loss of appetite
- Weight loss
- Chronic cough
- Oral thrush

### **Important signs:**

In adults:

- Weight loss
- Skin tumors and skin infections
- fever (usually not very high)
- oral thrush
- recurrent pneumonia, which doesn't respond well to treatment
- lymphadenopathy
- unexplained diarrhoea, which doesn't respond to anti-infective treatment

in children:

- failure to thrive
- recurrent respiratory infections
- chronic diarrhoea
- oral thrush

### **Essential disease information:**

- HIV is a virus which affects the body's immune system, and therefore allows other infections to affect the patient more easily and more severely
- In the initial phase of HIV infection, there may be a skin rash, or swollen lymph nodes and fever, but often this is so unspecific that it is not diagnosed. The secondary infections start appearing many months, often years, later
- HIV virus is transmitted from one individual to another mainly by 4 routes:
  - 1. Sexual contact – this is the commonest route, and can be prevented by only having protected sex (using a condom) outside marital relationships – also contact of infected blood or other body fluids with mucous membranes or broken skin
  - 2. Insufficient infection prevention procedures: using needles, scalpels, razor blades which have been used on HIV infected person before, and have not been properly sterilized
  - 3. Blood products (for example, blood transfusions), which have not been properly screened for HIV
  - 4. “Vertical” transmission, that means from mother to child, either during pregnancy, or during childbirth, or through breastfeeding



### **Differential Diagnosis:**

Other causes for chronic diarrhoea, chronic cough and weight loss: TB, giardia infection, malabsorption syndromes, malnutrition, liver / kidney / heart disease

### **Other diseases that may also be present:**

Worms and Malnutrition;

### **Action:**

### **Investigations:**

If patient agrees, refer for HIV testing

### **Treatment:**

- treat the infections as they happen: Clotrimazole paint for oral thrush (Or Fluconazole), Cotrimoxazole for pneumonia, antibiotics for severe skin infections,
- after initial anti-infective treatment, use loperamide or codeine for diarrhoea

the main role of the village health worker is appropriate counselling:

### **Counselling:**

- Take family history: is sexual partner at risk / already infected? Any children infected?
- **Most importantly: gently ask whether patient is aware of possible diagnosis, and counsel re testing.** As specific treatment for HIV is only available in regional and central hospitals in Nepal, the objective of testing is mainly to confirm diagnosis (so that other, treatable diseases are excluded), and to protect persons at risk from infection

### **In confirmed cases:**

- Counsel about mode of transmission
- In men, counsel about MUST of using condoms every time
- In women, counsel about risk of transmission to children – advise contraception; If already pregnant, refer for preventive treatment at appropriate hospital, such as Maternity Hospital (transmission to unborn child can almost always be prevented, if treated in time.)
- In women, also discuss referral to rehab centre (Maiti Nepal) in Kathmandu
- Counsel re nutritious diet and about importance of attending health post in case of skin / respiratory infections

### **Follow-Up:**

Follow-up is mainly for counselling and support, according to patient's need

### **Referral situations:**

All suspected cases for testing; confirmed cases for treatment and for treatment of serious infections.

All pregnant women (to prevent transmission to unborn child)

## **14. Protozoal Infections**

### **14.1. Malaria**

#### **Important symptoms:**

- Fever
- Headache
- Bodyache
- Weakness

#### **Important signs:**

- Fever
- Anaemia
- Sometimes palpable spleen

#### **Danger signs in severe malaria:**

- Loss of consciousness, collapse, convulsions
- Severe anaemia (very pale)
- Anuria or oliguria or very dark urine
- Jaundice
- Abnormal bleeding from gums, nose, GI tract
- Very high fever
- Pulmonary oedema or metabolic acidosis – increased respiratory rate or abnormal deep breathing
- Hypoglycaemia – sweating, restless, dilatation of pupils, palpitations, breathless

#### **Essential disease information:**

Malaria is caused by a very small parasite called plasmodium, which lives in the human blood, but also sometimes liver, spleen and other tissues. It is transmitted by mosquitoes. For this reason, malaria is only seen in the hot parts of the country, and usually during the rainy season. Preventing mosquito bites will prevent malaria.

In Nepal, there are two types of malaria: One is caused by plasmodium vivax, the other by plasmodium falciparum (p.f.). P. vivax is 10 times more common in Nepal, but p.f. usually causes the more severe disease.

In many patients, malaria only causes a fever and anaemia, but if not treated, it can be very severe and lead to renal failure, meningitis, severe anaemia, lung disease, hypoglycaemia, and death. Severe disease and death happen more easily in children and pregnant women and people with other illnesses.

It is very important to recognize and treat malaria in its early stages.

#### **Differential Diagnosis:**

Influenza, typhoid fever, meningitis, other severe infections. In the most southern districts of Nepal: Kala Azar.

## **Other diseases that may also be present:**

Malnutrition, worms, anaemia

## **Action:**

### **Investigations:**

Check for other focus of infection: urine , ears, chest

Check Hb

If available, do rapid Detection test for p.f. (this test only detects P. falciparum, it does not show positive in P.vivax malaria)

If possible, refer to a centre where microscopy of the blood is available (thick and thin films)

### **Treatment:**

#### 1. Suspected malaria – no testing available:

Chloroquine once daily for three days (see medication chart for correct dose for age / weight)

Repeat dose if there is vomiting within 30 minutes of taking it

#### 2. confirmed uncomplicated p. vivax malaria (by microscopy)

Chloroquine once daily for three days (see medication chart for correct dose for age / weight)

Repeat dose if there is vomiting within 30 minutes of taking it

Plus

Primaquine for 5 days (see medication chart for correct dose for age)

#### 3. suspected malaria when there is no response within 48 hours of treatment with chloroquine, and referral is not possible

Sulfadoxin and Pyrimethamine single dose (see medication chart for correct dose for age / weight)

#### 4. confirmed uncomplicated p. falciparum malaria (by microscopy or RDT)

Sulfadoxin and Pyrimethamine single dose (see medication chart for correct dose for age / weight)

Plus

Single dose Primaquine 10mg per kg body weight

#### 5. Confirmed p.f. malaria when there is no improvement 48 hours after treatment with SP

Quinine tablets for 7 days (see medication chart for correct dose for age / weight)

#### 6. Severe malaria if immediate referral is not possible:

Quinine Sulphate 10mg per kg i.m. pre-referral dose and repeat every 8 hours until hospital can be reached or patient can take oral medication (see medication chart for correct dosage)

### **Counselling:**

Explain how to prevent further attacks:

- l. avoid mosquito bites: use nets, stay inside during dawn and dusk, use incense, cover up

- m. reduce amount of mosquitoes in the area by preventing stagnant water

advise to return immediately if symptoms recur

**Follow-Up:**

Observe carefully for 48 hours to assess response to treatment

**Referral situations:**

Ideally, all suspected cases should be referred for diagnosis

Refer all cases who do not respond to treatment within 48 hours

Refer all severe cases of malaria (after pre-referral treatment, if hospital is more than an hours transport distant)

Signs of severe/complicated malaria:

- loss of consciousness, convulsions
- severe anaemia (very pale, or Hb less than 8)
- reduced urine output (very concentrated urine)
- jaundice
- bleeding from nose, gums or GI tract
- very high fever
- respiratory distress (pulmonary oedema)
- metabolic acidosis (deep, uneven breathing, breath smells sour)
- Hypoglycaemia – sweating, restless, dilatation of pupils, palpitations, breathless

## **14.2. Kala-Azaar**

### **Important symptoms:**

- Fever for more than 14 days
- In a person who lives or stays in an affected area
- No improvement with malaria treatment
- Fatigue, loss of appetite, weight loss

### **Important signs:**

- palpable enlarged spleen

### **Essential disease information:**

Kala Azar is caused by a parasite called leishmania, which is transmitted by a small fly-like insect (sand-fly). It is only present in the most southern districts of Nepal, which border on India.

After the parasite has been transmitted through the bite of the sandfly, there is an incubation period of several weeks or even months. If not treated, the patient will gradually get weaker and in most cases will die.

Kala Azar can still only be treated by doctors in Nepal, although there is now a new treatment available which can be taken by mouth.

### **Differential Diagnosis:**

typhoid fever, malaria, leukaemia

### **Other diseases that may also be present:**

Malnutrition, worms, anaemia, malaria

### **Action:**

Refer all suspected cases

## **15. Care for the Sick Neonate (New Born)**

Definition of neonate: baby in the first 4 weeks after birth

**Early neonate:** 1<sup>st</sup> week or 7 days or 168 hours of life

**Late neonate:** 7<sup>th</sup> day to 28<sup>th</sup> day

### **15.1. Physical Examination of Newborn**

The newborn should always be examined immediately after birth and 24 hours after birth

#### **A) Apgar score: Look for:**

Sign	Normal (2)	Abnormal (1)	Seriously abnormal (0)
Respiratory rate	Strong cry, regular breathing	Irregular, slow breathing	No breathing effort
Heart rate	More than 100 / min	Less than 100/min	absent
Colour of baby	pink	Body pink, arms and legs blue	Blue or pale
Muscle tone	Active movement	Some flexion	flaccid
Reflex stimulation (e.g. catheter in nostril)	Cry, sneeze	grimace	none

#### **B) After this, look for:**

1) Umbilical cord	4) Nose	7) Genitalia
2) Ears	5) Neck	8) Legs
3) Mouth	6) Chest	9) Feet
		10) Rectum

#### **C) Look for Danger signs in neonate:**

- Bleeding from any sites
- Jaundice appearing within 24 hours of birth
- Not passing meconium (stool) within 24 hours or urine within 48 hours of birth
- Persistent (more than 3 times in a day) vomiting
- Inability to suck well
- Irritability or drowsiness
- Uprolling (hiding) of eyes
- Excessive frothing or choking at feeds
- Respiratory difficulty
- Hypothermia or hyperthermia (baby excessively cold or hot to touch – body temperature low or high)

## 15.2. Essential Care for Newborn Health

<b>Care of future mothers</b>
<ul style="list-style-type: none"><li>• Improve the health and status of women</li><li>• Improve the nutrition of girls</li><li>• Discourage early marriages and child bearing</li><li>• Promote safer sexual practices</li><li>• Provide opportunities for female education</li></ul>
<b>Care during pregnancy</b>
<ul style="list-style-type: none"><li>• Improve the nutrition of pregnant women</li><li>• Immunize against tetanus</li><li>• Screen and treat infections, especially syphilis and malaria</li><li>• Improve communication and counselling: birth preparedness, awareness of danger signs, and immediate and exclusive breastfeeding</li></ul> <p><b>Special attention:</b></p> <ul style="list-style-type: none"><li>• Monitor and treat pregnancy complications, such as anemia, pre-eclampsia, and bleeding</li><li>• Promote voluntary counselling and testing for HIV</li><li>• Reduce the risk of mother-to-child transmission (MTCT) of HIV</li></ul>
<b>Care at time of birth</b>
<ul style="list-style-type: none"><li>• Ensure skilled care at delivery</li><li>• Provide for clean delivery: clean hands, clean delivery surface, clean cord cutting, tying and stump care, and clean clothes</li><li>• Keep the newborn warm; dry and wrap baby immediately, including head cover, or put skin-to-skin with mother and cover</li><li>• Initiate immediate, exclusive breastfeeding, at least within one hour</li><li>• Give prophylactic eye care, as appropriate</li></ul> <p><b>Special attention:</b></p> <ul style="list-style-type: none"><li>• Recognize danger signs in both mother and baby and avoid delay in seeking care and referral</li><li>• Recognize and resuscitate asphyxiated babies immediately</li><li>• Pay special attention to warmth, feeding, and hygiene practices for preterm and LBW babies</li></ul>
<b>Care after birth</b>
<ul style="list-style-type: none"><li>• Ensure early postnatal contact</li><li>• Promote continued exclusive breastfeeding</li><li>• <i>give vitamin A supplementation to mother within one week of birth (author's addition)</i></li><li>• Maintain hygiene to prevent infection: ensure clean cord care and counsel mother on general hygiene practices, such as hand-washing</li><li>• Provide immunizations such as BCG, OPV, and hepatitis B vaccines, as appropriate</li></ul> <p><b>Special attention:</b></p> <ul style="list-style-type: none"><li>• Recognize danger signs in both mother and newborn, particularly of infections, and avoid delay in seeking care and referral</li><li>• Support HIV positive mothers to make appropriate, sustainable choices about feeding</li><li>• Continue to pay special attention to warmth, feeding, and hygienic practices for LBW babies</li></ul>

Source: National Neonatal Strategy – from State of the World's Newborns: A report from Saving Newborn Lives

### **15.3. Neonatal resuscitation**

- If the baby's breathing is very slow or irregular
- Or the baby looks white / grey or blue
- And
- The baby's heart rate is less than 100 per Minute

#### **Start Cardiopulmonary resuscitation:**

- Covering the baby's mouth and nose, only use half your own breath (see images)
- Compress the chest 100 times per minute by circling the baby's chest with your hands and only using your thumbs
- If there is only one health worker, compress the chest 30 times and give 2 breaths, if there are 2 health workers, compress 15 times and give 2 breaths, repeat cycle 3 times
- If you see any improvement in the baby's condition, repeat further 3 times
- If after 3 more cycles there is no improvement at all (heart rate still below 100 per minute), hand the baby to the mother and counsel that it's survival chance is very low
- Look after the mother



## **15.4. Jaundice of the Newborn**

### **Sites to look for jaundice:**

- Whites of eyes
- Tip of nose
- Earlobes
- Over chest
- Over abdomen
- Over legs
- Soles of feet

### **Level of jaundice:**

Mild	– only visible in head and neck
Moderate	– visible in head and neck and trunk (above knees)
Severe	– visible also below knee and on soles of feet

### **15.4.1. Physiological Jaundice of the Newborn**

#### **Main Symptoms and Signs:**

- Jaundice in the newborn usually appearing 1-3 days after birth.
- Usually peaks in the first week of life, and usually disappears within 2-3 weeks.
- Usually not severe (see above)

#### **Important Disease Information:**

The blood of the unborn fetus is different from the blood of the child living outside the uterus. Within the first month of life, the baby's blood is changed completely to the new form, and during this time, the baby can often look a bit yellow

#### **Treatment:**

- If the baby is well, advise to expose it to the evening or morning sun for 1 hour twice a day
- Refer if any danger signs

### **15.4.2. Pathological Jaundice (due to disease)**

- Jaundice in newborn before 24 hours after birth, or starting more than 5 days after birth.
- Severe jaundice within 3 days of birth.
- Ill baby or any danger signs (see chapter 15.1.)

#### **Causes:**

- Blood group incompatibility (can be ABO, but usually rhesus group)
- Cephalhaematoma (large blood collection under skin of head)
- Various medicines or drugs (taken by mother)
- Metabolic factors (liver, kidney or other problems)
- Respiratory distress
- Starvation
- Maternal diabetes
- Surgical conditions (e.g. pyloric stenosis)
- Septicemia
- TORCH infections (infections by various viruses or bacteria during pregnancy)
- Neonatal hepatitis

Treatment: Often needs exchange transfusion  
**needs to be referred!!** (give one dose of antibiotics before referral)

## **15.5. Septicemia in the newborn**

**definition:** infection with or without fever in an irritable, poorly feeding, lethargic child should be suspected as septicemia. Sometimes petechia (tiny red spots in the skin) or purpuric rashes (blueish-red large spots under skin) can be seen

### **Examination:**

Note: fully undress the neonate (in a warm room)

Look for signs of local infection such as:

- Pus or bloody discharge or redness at umbilicus
- Skin infection (pustules or blisters)
- Signs of meningitis (bulging fontanelle, irritable, excessive crying, poor feeding, convulsions)
- Otitis media (check ear drums)
- Signs of pneumonia (raised resp. rate, subcostal indrawing, grunting, stridor)
- Signs of dehydration (sunken eyes, skin fold slow to return, urine output reduced, unable to feed)
- Signs of anaemia (very pale or yellowish)
- Signs of hypothermia – cold extremities, white , mottled or blue extremities

### **Investigations:**

Should have: blood sugar level, Lumbar Puncture, Full Blood Count, haemoglobin, Blood culture, Urine routine examination and culture CXR

### **Treatment:**

- Refer!!
  - Before referral, give inj Benzylpenicilline 100,000 IU / kg or Ampicilline 50-100 mg/kg, and if available, add Gentamycine 2-3 mg/kg.
  - Alternative: inj Chloramphenicol 25mg / kg plus Inj Gentamycine 2-3 mg/kg.
- If referral is not possible, give the following treatment for 7-10 days: Penicillin 50,000 IU/kg 6 hourly or Chloramphenicol 5-6 mg/kg 6 hourly or Ampicilline 20 -30 mg/kg 8 hourly AND Gentamicin 2-3 mg/kg 12 hrly

Supportive treatment: if present, treat shock, dehydration, anaemia and fever

## 15.6. Government of Nepal / Ministry of Health Vaccination Schedule

Vaccine	age				
	1): At birth	2): Age > 45 days	3): 1 month after 2)	4): 1 month after 3)	5): Age > 9 months
BCG	√	(give now if not given before)			
DPT and Hepatitis B (tetravalent vaccine) Or DTP, HepB and HiB (pentavalent vaccine)		√	√	√	
Polio		√	√	√	
Measles					√

**Note:** if any vaccination has been missed, give the same at the next time of visit; even if it is several months late, the vaccine still works

The reason for setting the dates as above is to get all children vaccinated as early as possible. – but this doesn't mean they shouldn't get the vaccine if they are older. The government policy in Nepal is to start the course of DPT up to one year of age, and to give measles up to three years of age.

However, remember that DPT vaccine should not be given to children over the age of 6, because it can cause serious reactions if the child is already immune.

### Government of Nepal policy for Vitamin A Supplementation and Albendazole treatment

**Vitamin A Supplementation:** All children between the ages of 1 and 5 years are given Vitamin A 200,000 IU twice a year. Children between 6 and 12 months are given 100,000 IU.

**Albendazole treatment :** All children between the ages of 2 years and 5 years are given 400mg Albendazole twice a year. Children between 1 and 2 years are given 200mg only.

## 15.7. Integrated Management of Childhood Illness (IMCI)

IMCI provides a framework for the assessment and management of all children aged 2 months to 5 years.

### 1. Find out why the child is here today

- Greet the mother and introduce yourself
- Find out the child's age
- Ask what problem has brought her here
- Check whether it is a new case or follow-up

### 2. Exclude danger signs:

- Child not able to drink or breastfeed
- Child lethargic or unconscious
- Child vomiting everything
- Child has had (or is having) convulsions

If any danger signs are present the child needs urgent attention – quickly complete the rest of the assessment, give any immediate treatment necessary and, if possible, refer.

*If there are no danger signs then:*

### 3. Does the child have a cough or difficulty breathing?

If yes then we need to decide if this is an upper respiratory tract infection (URTI) or lower respiratory tract infection (LRTI or pneumonia).

Common features of an URTI: fever, cough, runny nose. An URTI should be followed up in 5 days **if** the child is not improving.

A LRTI is diagnosed in the presence of fever, cough or runny nose **PLUS** any of the following features:

- Abnormal chest sounds – stridor, wheeze or crackles
- Indrawing
- High respiratory rate (remembering normal rates by age: under 3 months < 60/min; 3 months–1 year < 50/min; 1-2 years < 40/min; 2-5 years < 30/min)
- Irritable/drowsy child, feeding poorly

Treat a LRTI with antibiotics, as per the guidelines. The child should be followed up in 2 days, or immediately if deteriorating.

If the child is wheezing then give salbutamol (syrup or inhaler) for 5 days in addition to the antibiotic.

If the cough persists for more than 30 days then consider TB, asthma or pertussis.

If the child presents with recurrent wheezing then consider asthma.

*If there is no cough or difficulty breathing then:*

#### **4. Does the child have diarrhoea?**

If yes then we need to decide if this is viral diarrhoea or amoebic or bacillary dysentery (or rarely cholera).

We also need to assess the child for signs of dehydration: lethargy; irritability; absence of tears; sunken eyes; sunken fontanelle (up to ~ 18 months old); dry mouth/tongue; and slowly unfolding skin pinch (at mid-point between umbilicus and side of abdomen). If the child is dehydrated then manage as per the guidelines.

Typical features of viral diarrhoea:

- loose stool x4-6 /day
- mild fever
- mild abdominal cramps

Typical features of amoebic dysentery:

- gradual onset
- no vomiting
- no blood in stool
- mucous in stool
- offensive “fishy” smell
- mild abdominal cramps
- can run a chronic, relapsing course

Typical features of bacillary dysentery:

- sudden onset
- vomiting
- high fever
- blood in stool
- severe abdominal cramps

Typical features of cholera: sudden onset, explosive “rice water” diarrhea, rapidly leading to dehydration (and subsequent shock/death if untreated).

The management of all cases of diarrhoea includes ORS and zinc. Additional treatment depends on the diagnosis (see guidelines).

If there are features of both amoebic and bacillary dysentery, then treat for both.

If the diarrhoea continues for more than 14 days it is classed as “persistent”. At this point, if the child is dehydrated, refer. If not dehydrated then continue zinc for another 14 days and review the child in a further 5 days.

*If there is no diarrhoea then:*

### **5. Does the child have a fever?**

Fever defined as axillary temperature > 37.5 degrees Centigrade or > 99.5 degrees Fahrenheit.

Look for:

- Runny nose (suggestive of a common cold or URTI)
- Measles – current or within past 3 months – if present then check for mouth ulcers and eye complications – give extra dose of vitamin A, treat mouth ulcers with gentian violet and manage eye complications as per guidelines
- Features of meningitis – headache, vomiting, stiff neck, photophobia, rash, tense bulging fontanelle, drowsiness – manage as per guidelines
- *Features of malaria, if in a malaria zone*

If no obvious cause then give paracetamol (give a dose in clinic if temperature greater than 38.5 degrees centigrade) and arrange follow-up in 2 days (sooner if child deteriorates) – if fever persists for more than 7 days without an obvious cause, then refer for further assessment.

*If there is no fever then:*

### **6. Does the child have an ear problem?**

If the child has ear pain and/or discharge, then treat with an antibiotic as per the guidelines.

Check for features of mastoiditis – very tender swelling over bony point behind ear – if present give paracetamol (for analgesia) and the first dose of a broad spectrum antibiotic and refer (this is an emergency).

If ear discharge continues for more than 14 days this is classed as a chronic infection – if possible use a wick to dry the ear, and then treat with gentamicin ear drops for 14 days (following up in 5 days to assess response to treatment) – if the discharge persists then refer.

*THEN PROCEED WITH THE FOLLOWING STEPS FOR ALL CHILDREN:*

### **7. Check for malnutrition – see separate guidelines**

### **8. Check for anaemia:**

If any of the following features are present then check the haemoglobin level: shortness of breath (SOB); pallor (look at palms and conjunctiva); leg swelling (oedema); malnutrition.

Anaemia is defined as a haemoglobin level  $< 11$  – if anaemic then treat with iron and vitamin C as per the guidelines (and give a dose of albendazole if child has not received one in the previous 6 months).

Review the child every 14 days and continue iron for at least 2 months (or until the haemoglobin level is normal).

Refer the child if any of the following apply:

- The anaemia is severe: haemoglobin level  $< 6$
- There is evidence of an enlarged liver and/or spleen
- The anaemia fails to improve with treatment

### **9. Check the child's vaccination status**

If one or more vaccinations are outstanding then provide the parent or carer with the dates of future vaccination days.

### **10. Give vitamin A routinely (every 6 months from the age of 6 months)**

Give an extra dose of vitamin A if the child has severe malnutrition or persistent diarrhoea (except if the child has received a dose within the previous month).

### **11. Give Albendazole routinely (every 6 months from the age of 1 year)**



## **15.8. Malnutrition in Children**

### **Important symptoms:**

- Weight loss
- Anorexia, child refusing to eat
- Weakness
- History of recurrent infections (pneumonia, diarrhoea, UTI)

### **Important signs:**

- Low weight for height, low weight for age (see growth chart chapter 15.7.2.)
- Short height for age
- Thin, light coloured hair
- Apathy
- Pale (anaemic), Mouth ulcer
- Dehydrated
- Local infection ( eye, ear, throat, skin etc)
- Systematic infections (pneumonia, diarrhoea, UTI)
- In Marasmus (“Sukenas”), ‘Monkey face’ (wrinkled, loss of elasticity like an old man)
- Kwashiorkor (“Phukenas”) patients may have abdominal distension and a ‘moon face’ and peripheral oedema (therefore, they may not look thin!)

### **Essential disease information:**

#### **Stunting**

This is defined as “low height for age”. It is caused by chronic malnutrition. It is not an emergency, the child’s “weight for height” is usually normal, and it will NOT respond to feeding. Other than offering dietary advice to prevent the situation worsening there is nothing else to be done.

There are two forms of severe malnutrition

**Marasmus:** especially seen in children under 2 (rare in children who are still breastfeeding). The problem is a lack of food necessary for growth. The baby or child is extremely thin, has no subcutaneous fat, producing skin wrinkle & folds. Weight for length or height is less than 70% of the median. These patients are often deficient in vitamins (e.g. Vit-A, mineral, zinc, calcium, magnesium). This type develops over weeks or months.

**Kwashiorkor:** is an acute illness that suddenly appears over a few days, usually occurs in children of 2-4 yrs of age. The child develops oedema and skin lesions like severe sun burn in a fair skinned person. The hair is depigmented and pulls out easily and painlessly. The reason for the oedema is a combination of low protein levels and sodium retention, and can also lead to ascites. Because of other mechanisms, the child can develop symptoms like toxic shock.

#### **Differential Diagnosis:**

T.B., HIV, dehydration of other cause, worm infestation, hypoproteinemia, anemia, nephrotic syndrome,

### **Other diseases that may also be present:**

recent history of measles, history of many infections, diarrhea, T.B., vitamin A deficiency, worm infestation,

### **Action:**

#### **Investigations:**

The initial step is to find out the level of malnutrition:

#### **Assessment of Malnutrition**

- Use a “weight for age” chart for infants
- As soon as the child is able to stand, use a wall-mounted “weight for height” chart (removing shoes/sandals if worn) – this chart is more accurate for the older child, especially if there is uncertainty regarding the child’s exact age
- MUAC is a useful screening tool, and can be used on home visits if necessary – however, the above charts are more reliable for an individual child.

#### **Mild**

- Weight for height 85-95%
- Or MUAC 12.5 – 13.5 cm in a child over one year

#### **Moderate**

- Weight for height 70-85% of median
- Mid-upper-arm circumference 11.5 -12,5 cm in a child over one year

#### **Severe**

- Weight for height <70% of median
- Mid-upper-arm circumference <11.5 cm in a child over one year
- Oedema
- Skin lesions
- Apathy
- Dehydration
- Severe Anaemia

### **Treatment:**

Patients with severe and moderate malnutrition are at a high risk of secondary problems that can be life-threatening. The start of treatment also means some additional risks (e.g. fluid overload).

**For this reason, severe cases must and moderate cases should be referred so that the start of treatment can be closely monitored in a hospital setting.**

The following principles are also valid for mildly malnourished children, and the complications should be considered.

### **Principles of treatment:**

**initial treatment** (specific objectives): return to normal homeostasis/stability and treatment of complications.

- The immediate treatment of life threatening complications- hypoglycaemia and hypothermia, heart failure, septic shock, infestations and infections, severe

- dehydration and severe anaemia. - The prevention of hypoglycaemia and hypothermia.
- Nutritional treatment based on a maintenance diet (total 100 kcal/kg/day), divided into frequent meals (eight meals per 24 hours). In severe Marasmus, up to 130kcal/kg/day can be given.

**transition phase**

- The diet is gradually increased over 4-5 days.

**rehabilitation or catch up growth** (specific objectives):

- Promote rapid weight gain (10-20 g/kg/day) and the preparation for discharge.
- A nutritional treatment based on a high energy intake (160-200 kcal/kg/day) divided into six meals a day.
- Emotional and physical stimulation.

**Management of Mild Malnutrition:**

- give Vitamin A in doses given in chapter 10.7. on Vit A deficiency (unless the child has had a dose within a month before). If the child has eye problems related to Vit A deficiency, give the same dose again on day 2 and 2 weeks later
- In children over 1 year of age, give Albendazole (once the child is a bit better)
- Check for Anaemia (check Hb)
- If mild anaemia, don't give iron immediately, but after child is a bit better (can cause nausea)
- Give Folic Acid 5mg immediately and 1g daily thereafter
- If severe anaemia (Hb less than 4 gm%) refer to hospital for transfusion
- treat any infections, but do not give antibiotics routinely
- counsel mother about sarbottam pito– containing grain (slow release energy), pulses (protein), sugar and/or fat such as ghee (fast release energy) and fruit mix or green vegetables (vitamins), and especially about feeding frequent, small meals (6-8 times daily!)
- follow up (and weigh!) after 2 weeks, and then at least monthly until weight gain is satisfactory

**Management of Moderate Malnutrition,**

As in mild malnutrition, **AND:**

- Give Vitamin B complex and Vi C fro 2 weeks
- Treat any infections, but even when no infections apparent, give a course of available broad spectrum antibiotic
- Give Zink for 2 weeks (but this can cause nausea, so don't give immediately)
- Review weekly until weight gain is satisfactory
- Refer if weight gain is not satisfying

**Management of Severe Malnutrition – SPECIAL CASE:**

**Diagnostic Criteria:**

- Weight for height in “dark red” band OR weight for age < -3 SD and/or
- MUAC < 11.5cm and/or
- Bilateral oedema

### ***Clinical Features:***

- Severe wasting (marasmus) – child looks like “skin and bone”, with loose folds of skin on buttocks/thighs
- Bilateral oedema (kwashiorkor): mild = both feet; moderate = both feet and lower legs and/or hands/lower arms; severe = generalized
- Dermatitis – seen especially in conjunction with oedema: abnormally light/dark patches of skin; shedding of skin in scales; ulceration, especially in the groin/armpits/behind ears
- Eye signs:
  - Secondary to infection – pus/redness and/or
  - Secondary to vitamin A deficiency – Bitot’s spots (superficial foamy white spots on the conjunctiva); corneal clouding; corneal ulceration

### ***Reductive Adaptation***

“Reductive adaptation” is the process by which all the body systems slow down in response to reduced calorie intake in a severely malnourished child. These systems must learn to function fully again. This is important because rapid changes in feeding and/or fluids must be avoided when treating these children, otherwise the systems will be overloaded and the child can die. The following are also important:

- The usual signs of infection (fever, inflammation) may be absent – therefore assume the presence of bacterial infection and treat all children with broad spectrum antibiotics – see below
- The severely malnourished child makes less haemoglobin than normal, thus appearing anaemic, but there are unused iron stores in the body. Giving unnecessary iron can be toxic and promote infections. Thus avoid giving iron early in treatment – wait until the recovery stage
- Intracellular levels of sodium rise in severely malnourished children, and potassium levels fall – therefore provide extra potassium (and magnesium if possible, as this is needed for potassium to enter cells and be retained) and restrict sodium (salt) intake

### ***Management***

- **If possible, refer all children urgently to a feeding centre or hospital – the basic component of care in a specialist unit is 2 hrly feeds with a formula known as F75 – this contains a suitable concentration of the child’s initial nutritional requirements, including a mineral/vitamin mix**
- If referral is impossible and F75 is not available, we may need to utilize sorbattom pito – IF we are confident of the ingredients (see above), avoid adding salt, and can boost the potassium content with mashed banana (or alternative) – the child would need to be kept within the clinic for at least the first couple of days, with additional IMMEDIATE management as follows:
  1. Check for hypoglycaemia – defined as blood glucose < 3mmol/litre (54mg/dl) – causes lethargy/drowsiness, leading to loss of consciousness and subsequent death if untreated – if no testing strips are available then assume the child is hypoglycaemic and treat: if the child is unconscious or fitting, give 5ml/kg 10% dextrose iv, thereafter: 50ml bolus of 10% glucose (orally or via NG tube) and

- start feeds 30 min later – feed every 30 min for first 2 hrs (a quarter of the 2 hrly feed) – recheck blood sugar after 2 hrs, reverting to 2 hrly feeds if  $> 3$  mmol/litre
2. Check for hypothermia – defined as rectal temperature  $< 35.5$  deg. Centigrade (95.9 deg. Fahrenheit – leaving thermometer in place for 1 min) or axillary temperature  $< 35$  deg. Centigrade (95 deg. Fahrenheit – leaving thermometer in place for 3 min) – greater risk in severely malnourished children as they have insufficient calories to keep warm – often occurs in conjunction with hypoglycaemia (and both are signs of serious systemic infection as well) – manage by warming child with skin-to-skin contact with mother, blankets, and indirect heat from a heater/fire (not letting child get too close). When handling the child, always warm your own hands first and try to keep the child covered as much as possible.  
Note: never use a hot water bottle.
  3. Check for signs of shock – some typical features of shock are always present in a severely malnourished child (eg. low systolic blood pressure), so shock is diagnosed according to the following criteria: lethargic/unconscious child PLUS cold hands PLUS capillary refill  $> 3$ sec (or weak/fast pulse, with tachycardia defined as  $> 160$ /min in children aged 2-12 mths and  $> 140$ /min in children aged 1-5 yrs) – likely causes of shock are dehydration or sepsis, which are difficult to distinguish clinically in a severely malnourished child – management: *oxygen (if available in hospital)*, keep child warm and start IV fluids - if no improvement after 1 hr @ 15ml/kg then diagnose septic shock, and continue maintenance IV fluids @ 4ml/kg/hr, start IV antibiotics (as below). If fluids are given too fast, this can cause heart failure: check pulse and respiratory rate every 10 minutes while giving iv fluids and stop immediately if the rates increase. If there is no improvement with iv fluids, the child may need a *blood transfusion (if available in hospital)*
  4. Check for very severe anaemia – defined as haemoglobin  $< 4$  – can cause heart failure, so ideally *give blood transfusion (if available in hospital)* – as it is unlikely to be caused by malnutrition alone, also consider hookworm (and malaria in a malaria zone)
  5. Give emergency eye care for corneal ulceration (and if corneal clouding is present and you are unsure if the cornea is ulcerated): give a dose of vitamin A immediately (by mouth, 50,000 IU if  $< 6$  mths old; 100,000 IU if aged 6-12 mths; 200,000 IU if  $> 1$  yr), PLUS atropine 1% eye drops (to relax eye and stop the lens from pushing out) PLUS chloramphenicol or tetracycline 1% eye drops – repeat the dose of vitamin A on day 2 and day 15, and continue the drops for at least 1 week or until the eye signs have improved – can also put eye pads (or simple gauze) soaked in normal saline on the eyes to ease discomfort
  6. Manage watery diarrhoea and/or vomiting with ReSoMal (1 litre packet of ORS; 1.7 litres of water; 40 gm of sugar; *plus 33 ml of mineral/vitamin mix or 1 level scoop of Combined Mineral/Vitamin Mix (if available in hospital)*): most of the standard signs of dehydration (lethargy, irritability, absence of tears, sunken eyes, dry mouth/tongue, thirst, slowly unfolding skin pinch) can be present in a severely malnourished child even without dehydration, so assume the child is dehydrated if there is a history of watery diarrhoea and/or vomiting – give ReSoMal @ 5ml/kg

- every 30 min for the first 2 hrs, and then 5-10ml/kg alternate hrs for up to 10 hrs, and just give after each loose stool when improved
7. Give antibiotics to all children: if there are no complications then use cotrimoxazole PO 12 hrly for 5 days; if there are any complications (shock, hypoglycaemia, hypothermia, dermatosis with ulceration, respiratory tract infection or UTI) then give gentamicin IV or IM once daily for 1 week PLUS ampicillin IV or IM 6 hrly for 2 days followed by amoxicillin PO 8 hrly for 5 days; if there is no improvement after 48 hrs add *chloramphenicol IV or IM 8 hrly for 5 days (if available in hospital)*
  8. Give folic acid (important for managing anaemia and repairing damaged gut): give 5mg on day 1 and 1mg on subsequent days for at least 2 weeks
  9. If not using F75 then give 2 week courses of zinc, vitamin B and vitamin C – also give an extra dose of vitamin A (if not already given for eye complications – see above)
- Ongoing care:
    - Feeding – when the child is finishing the 2 hrly feeds, with little vomiting or diarrhoea, they can be moved to 3 hrly feeds – when managing these well can be moved to 4 hrly feeds – *in hospital they should normally be ready to switch to F100 (which has a higher protein and calorie content than F75) after about 1 week*
    - Iron – once the child is improving (*and in hospital has been on the F100 for at least 2 days*) start giving iron: 3mg elemental iron/kg/day PO (in 2 divided doses)

**If at all possible, only trained health workers should treat severe malnutrition in an appropriate institution.**

### **Counselling:**

- Use child health card
- Complete Immunizations
- Teach about a sarbottam pitho and how to prepare lito, find out what foods are available and teach how to feed that child appropriately with these
- Teach about hygiene (hand washing, toilet, safe drinking water etc.)
- Family planning advice for parents (a period of min. 2 years between children brings benefit to the older and younger sibling)

### **Follow-Up:**

**Mild cases** - after two weeks, and then monthly, record weight in growth chart and give feed-back to parents, follow up until normal weight is reached

**Moderate cases** – review after 1-2 days and according to need thereafter

**Severe cases** – initially observe for 2-3 days at health centre, then call according to need

### **Referral situations:**

All severe (and moderate) cases at first visit.

All cases not gaining weight by second visit.

### **15.8.1. Nutrition Advice for Children Under Five Years**

#### **1. Exclusive breastfeeding up to the age of 6 months**

Exclusive breastfeeding means that the baby is not given any other milk or food apart from its own mother's milk from the moment of its birth to the age of about 6 months. The baby should be fed on demand, and at least 8 times in 24 hours.

Buffalo or cow milk contains more fat than mother milk (therefore the baby will suck less often, and the mother's milk production may go down); also, it does not provide the protection from disease that mothermilk can give, and can even cause illness.

Children should be given only breastmilk up to 6 months of age, and should be given occasional breastfeeds up to the age of two years.

#### **2. Introduce weaning foods after 6 months**

From the age of six months, the mother's milk alone is not enough anymore for the baby's requirement. From this time, the baby needs to be given small amounts of extra foods. Weaning foods include: rice with milk, semolina, mashed fruits etc

One of the best weaning foods in Nepal is sorbattom pito – a flour made out of two parts cereal and two parts pulses.

When making a porridge out of this, a little salt or sugar and some cooking oil or ghee can be added for taste and extra calories. Mashed vegetables or fruits mixed in provide extra vitamins.

Children 6 months to one year of age need to be fed nutritious food at least 3 times daily as well as breastfeeding on demand.

Children 1-2 years of age should be breastfed on demand plus three nutritious meals and 2 additional nutritious snacks per day.

Children over 2 years need three nutritious meals per day plus 2 nutritious snacks.

A nutritious meal should contain green vegetables, pulses, grains, oil or ghee, meat or fish and available fruit in a daily balance.

#### **3. Feed small children frequently during the day**

Especially children who are small or light for their age, need to be fed at least 4 times a day (milk feeds or breast feeds do not count). Malnourished children need 6 feeds a day on top of milk feeds / breast feeds.

#### **4. Avoid sweets**

Sometimes, children will develop a taste for sweet foods (or chow-chow), which will stop them feeling hungry, but not give them the nutrition they need for growing. – Do not give children sweets/ biscuits / chow-chow, unless they also eat nutritious meals at least three times a day.

#### **5. Do not give tea or coffee to children under five**

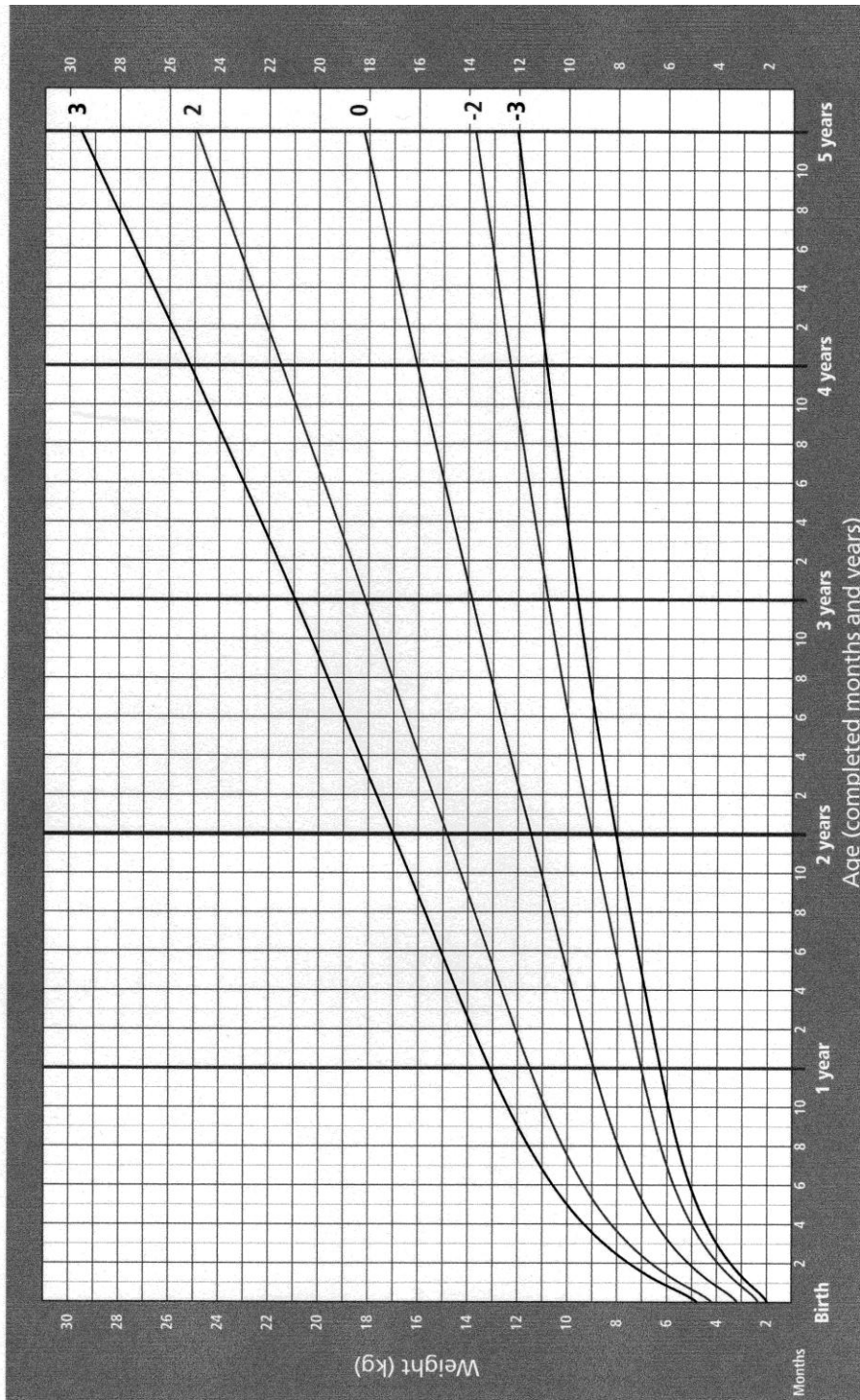
Many children can drink tea without any real adverse effect, but on some children it will have the effect of stopping them feeling hungry, and quite often also making them irritable and restless, and sleeping poorly. Do not give tea to children who are small or thin for their age! (Give them milk, or just water or juice instead)

**Also remember to look after children's teeth: teach them to brush twice daily, after food, with a soft brush and fluoridated toothpaste. If they learn this habit young, they will keep their teeth healthy later as well.**

## 15.8.2. "Road to Health" – Growth Chart for children under five years

### Weight-for-age GIRLS

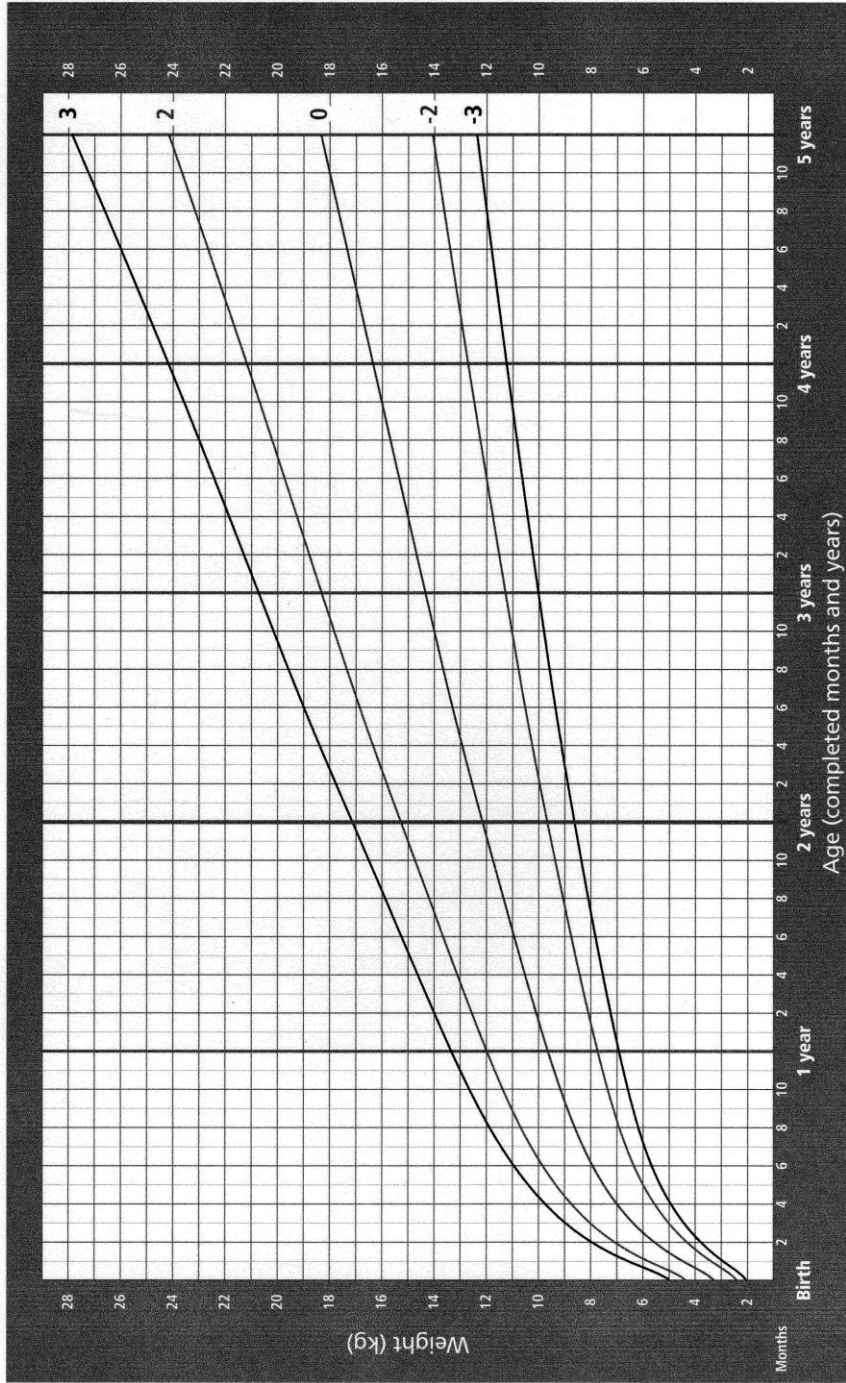
Birth to 5 years (z-scores)





# Weight-for-age BOYS

Birth to 5 years (z-scores)



WHO Child Growth Standards

## **16. Anaemia (Low blood count)**

### **Important symptoms:**

- Tiredness
- Short of breath at exercise
- Headaches, dizziness, weakness
- Itching of skin all over body, or only in some parts
- In children: not growing well, not doing well at school
- If anaemia is of slow onset, there may be no or very few symptoms

### **Important signs:**

- May look pale (look at inside of eye lids, hands and tongue)
- May have fast heartbeat at rest
- Gets breathless easily
- In severe cases, swelling of lower body and reduced urine output

### **Essential disease information:**

Anaemia can have many causes:

1. Blood loss: This can be visible as in heavy periods or during and after childbirth, or invisible as with a stomach ulcer or cancer of the bowel or womb
2. Not enough blood being produced: because of lack of iron or other essential Vitamins in the food
3. Anemia due to serious other diseases, such as kidney problems, heart disease, severe rheumatoid arthritis, malaria and others

In children, the typical age for nutritional anaemia is after weaning – usually between the ages of 6 and 18 months. In older children, anaemia should be uncommon, except in severe worm infestation (or malaria), and could be a sign of blood cancer.

### **Differential Diagnosis:**

Other causes for headaches, breathlessness and weakness: Consider heart disease, chest infections, asthma etc

### **Other diseases that may also be present:**

Malnutrition, worms, malaria, stomach ulcer, cancer, rheumatoid arthritis, heart disease

### **Action:**

#### **Investigations:**

Check haemoglobin, using Sahli method or Haemoglobin colour scale, to confirm that Hb is below 11.5. (if above 11.5, this should not be considered as anaemia.) If no obvious reason (such as malnutrition, worms, heavy periods or after childbirth), also refer to investigate for causes of anaemia – particularly, consider stomach ulcer/gastritis  
Feel for an enlarged liver or spleen – if there is hepatosplenomegaly, refer for investigations without delay.

**Treatment:**

- Ferrous Sulphate 200 mg with Vitamin C 50mg three times daily for at least one month. Advise not to take together with tea, as this prevents the body from taking up the iron.
- If suspected worm infestation, treat with Albendazole 400 mg (give Niclosamide 1g twice 2 hours apart in case of tapeworm, together with Bisacodyl, see chapter 3.4.)
- If suspected stomach ulcer / gastritis, treat as explained in chapter 3.6

**Counselling:**

Advise to eat more foods rich in iron (meat, red or brown pulses, black millet) and rich in Vit C (Amala, Suntala, Tomatoes, Lapsi, Grapefruit etc.) Advise nutritious food.

**Follow-Up:**

Depending on the reason of anaemia, review after 2-4 weeks (2 weeks for children), or earlier if the patient is very ill.

**Referral situations:**

- In severe cases, especially if anaemia is due to sudden blood loss (such as injury or childbirth) and urine output is low
- In severe anaemia where the reason is not clear
- In children under the age of 6 months and between 1 and 7 years, especially when there is an enlarged liver or spleen.
- If there is no improvement after 2 weeks treatment

## **17. Endocrine Disorders**

### **17.1. Diabetes (Disease causing raised level of sugar in the blood)**

#### **Important Symptoms and Signs**

- Thirst, Tiredness
- Passing lots of urine
- Weight loss
- Blurred vision
- Coma
- Infections of the skin and thrush
- Slow wound healing

#### **Essential Disease Information**

Diabetes has many causes. The high level of sugar (Glucose) in the blood spills over into the urine, to give a positive test for glucose.

Insulin is a chemical produced by the pancreas gland. It moves sugar from the blood to the body tissues where it is stored and used for energy. Diabetes is caused by a lack of insulin (type 1), or by the body being unable to respond to the insulin (type 2).

Typically, type 1 diabetes starts in children or young people, who may have had a viral illness a few weeks previously, and then get unwell fairly suddenly over several days.

Type 2 diabetes is more common in older people, and usually only in those who are overweight. They can often be well for a long time before getting any symptoms, but may feel tired and thirsty. A urine check will then show sugar in the urine.

Diabetes is a lifelong disease. The high blood sugar levels can cause acute and chronic problems:-

#### **1 acute problems.**

- The high blood sugar can upset the balance of other salts in the blood which can cause collapse.
- In patients who are taking medication for diabetes, the blood sugar can be very low because of the medication, and this can cause collapse and even death

#### **2 chronic problems**

High blood sugar levels over a long time damage the blood vessels and can cause:-

- Heart disease
- Kidney disease
- Blindness
- Poor blood flow leading to foot ulcers
- Nerve problems e.g. stroke, loss of foot and hand sensation
- Infections
- Pregnancy problems

Known diabetic patients on treatment can also have problems with too low blood sugar levels

## **Differential Diagnosis**

- Thirst : kidney disease
- Weight loss: infection, malnutrition, infestation (worms), bowel disease, cancer
- Blurred vision: eye disease, brain disease
- Coma: head injury, infection, (other metabolic problem)
- Recurrent infections: HIV, malnutrition, leukaemia

## **Action**

### **Investigations**

If you suspect a new diagnosis of diabetes, the confirming test is a dipstick urine test for sugar. – It will be clearly positive only in diabetes.

### **Treatment**

If the patient is very ill, set up an iv saline (not dextrose!!) drip, giving about 1000 ml over 2 hours in an adult, and according to guidelines in a child. Refer to hospital to stabilise the blood sugar. Insulin injections and tablets can be used. The patient will usually be given a prescription for medication to continue using at home.

### **Counselling**

Diabetes is a lifelong disease and it is very important to keep to the medication to prevent the chronic problems.

The blood sugar level is altered by the medication, the amount of food eaten, and exercise. If more work is to be done, then more food will need to be eaten, or the blood sugar levels can fall too low, which can cause coma and death.

- Patients with diabetes should always carry some sugar with them, in case their sugar level falls and they begin to feel unwell.
- Stop smoking
- Any injury needs to be cleaned quickly to prevent infection
- Care of feet is important to prevent ulcers
- Early treatments of infections as patients with diabetes are at greater risk.
- Early referral to hospital if a patient with diabetes becomes unwell.
- Referral to hospital for a woman with diabetes who becomes pregnant.

## 17.2. Thyroid Disease

### Important Symptoms

Hypothyroid (low thyroxine levels)	Hyperthyroid (high thyroxine levels)
➤ Weight gain	➤ Weight loss
➤ Slow (in actions and mood)	➤ Restless and anxious
➤ Feel the cold	➤ Feel hot
➤ Constipation	➤ Diarrhoea
➤ Period problems	➤ Hair loss, thin hair
➤ Hair loss, thick and coarse hair	
➤ In children – short for age but high weight for height and slow mental development	

### Important Signs

Hypothyroid	Hyperthyroid
➤ Usually fat	➤ Usually thin
➤ Slow pulse	➤ Fast or irregular pulse
➤ Dry, coarse hair	➤ Hair loss
➤ Thick skin	➤ Warm hands and feet
➤ Enlarged thyroid gland (the gland moves up and down when the patient is asked to swallow)	➤ Enlarged thyroid gland (the gland moves up and down when the patient is asked to swallow)
➤ Children: slow growth while looking fat, short for age ➤ slow mental development and signs of puberty delayed	➤ Swollen tender skin on the front of the lower leg
If such children are not treated, they can be permanently disabled	

### Essential Disease Information

The thyroid is a gland in front of the neck, just below the voice box, and cannot usually be felt. It produces a hormone called thyroxine.

Thyroxine controls the body's basic metabolic rate "energy levels". The production of thyroxine in the thyroid gland is controlled by the pituitary gland in the brain. Iodine is needed to make thyroxine.

Low levels of thyroxine can be caused by:- Low iodine intake. Underactive pituitary gland Thyroid gland disease e.g. inflammation, infection

High levels of thyroxine can be caused by:- Overactive pituitary gland, Thyroid gland disease e.g. inflammation, cancer

Both hyper- and hypo-thyroidism can cause serious illness and death if untreated

### **Differential diagnosis**

<b>Hypothyroid</b>	<b>Hyperthyroid</b>
Slow mood (mental illness)	Restless (mental illness)
Constipation(Bowel problems)	Weight loss(bowel disease, malnutrition, cancer)
Period problems (see vaginal bleeding 5.6.)	Diarrhoea (bowel disease)
Slow pulse (Heart Problems)	Fast/irregular pulse(heart problems, infection)
Child symptoms/signs (other endocrine (hormonal) problems, malnutrition, chronic disease, infection)	Warm hands/ feet(temperature, infection)

### **Action**

Diagnosis is made by a blood test at a major hospital (only some district hospitals, but not all, can perform this blood test).

**Hypothyroid** patients need thyroxine tablets for life, and occasional blood tests to make sure the dose is correct.

**Hyperthyroid** patients need tablets and sometimes surgery to decrease the amount of thyroxine produced by the body

### **Counselling:**

It is very important to attend for all the blood tests, especially in a child, as the person's health very much depends on this.

### **Referral Cases:**

All suspected cases

## **Annex I: Medicine Dosage Chart**

### **Some Notes on Rational Prescribing of Medicines:**

#### **Rational prescribing:**

- Right diagnosis, right patient, right medicine, right dose, right time (interval / duration)
- Prescribe as few medicines as possible
- Prescribe sequentially, if necessary (in patient with several problems, treat first one, then the other)
- Point out to the patient which medicine is the most important one, explain simply how they work (e.g. antibiotic, painkillers etc.)
- Remember: some patients may not need to take medicine at all!

#### **Communication:**

- When explaining how to take medicines, use simple concepts that mean something to the patient (e.g., don't tell times with someone who doesn't have a watch; relate medicine schedule to daily activities)
- Make it as simple as possible (e.g. if there are several medicines to take, explain to patient which ones to take together at what times.)
- Don't make it difficult: e.g. don't say "only take this medicine on empty stomach / only with food" unless absolutely indicated – with most medicines (important exceptions are NSAIDs and Tetracycline/ Doxycycline it doesn't matter very much whether the stomach is full or empty when they are taken)
- Whenever possible, use recollection aids (write things down in words or pictures)
- After explaining – check if patient has understood: ask them to explain it back to you!



## **Annex II: References**

Sources:

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We have tried to be as accurate as possible in this drug list, but mistakes can happen, and prescribing practices can change over time. For these reasons, only prescribe any medication if you feel confident enough to do so. Otherwise please consult other sources or a more experienced colleague.

Note: this list does not include drugs for Tuberculosis, Leprosy or Family Planning. For these, please consult guidelines by MoH / GoN

According to the national List of Essential Medicines (Final Draft, 4th Revision), medicines printed *in bold italics* are available in Sub Health Posts and Health Posts, whereas medicines printed *in italics only* are only available in Health Posts.

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
Acetazolamide (Diamox)	Tablet 250 mg	Do not give in pregnancy, do not give for long periods of time	1 Tab 3 - 4 times daily	Acute Mountain Sickness – especially prevention Acute glaucoma
<i>Acetylsalicylic acid</i> ( <i>Aspirin, Nespirin</i> )	<i>Tablet 300mg</i>	<i>do not give to children under 12</i> <i>caution: can cause gastric bleeding; take with food</i>	<i>for fever or mild pain: 2 Tab 3-4 times daily;</i> <i>for migraine: 3-4 tab (1000mg) 4hrly</i> <i>for Angina prevention give 50-150mg/day</i>	<i>Pain, headache, angina (prevention)</i>
<i>Adrenaline</i> ( <i>Epinephrine</i> )	<i>Injection, 1mg in 1ml</i>	<i>Only in emergencies!</i>	<i>Give 1/2 ampoule im or 1 amp s.c., assess for effect – may be repeated as necessary</i> <i>In children: &lt; 10kg 0.05ml,</i> <i>10-15 kg: 0,1 ml s.c.</i> <i>16-25 kg: 0,2 ml s.c.</i> <i>26-35 kg: 0,3 ml s.c.</i>	<i>Allergic shock (patient collapsed)</i>
<i>Albendazole</i>	<i>Tablet 400mg ; suspension 200mg/5ml</i>	<i>do not give in first 3 months of pregnancy;</i> <i>do not give to children under 1 year</i>	<i>above 2 yrs: 400mg single dose tapeworm: 400mg o.d. for seven consecutive days</i> <i>children 1-2 yrs: 200mg single dose</i>	<i>Worm infestation</i>
<i>Aluminium Hydroxide and other agents</i> ( <i>antacid; Digene, Monogene etc</i> )	<i>Tablet 250mg; oral suspension 300mg/5ml</i>	<i>advise not to take together with other medicines (2hrs before or after)</i>	<i>1 tablet or 5-10 ml 4-6 times daily, especially before bedtime</i>	<i>Gastritis</i>

Drug name	Dosage form	Cautions	Normal Dose	Indication
<i>Aminophylline</i> (Aasma, Aminophylline)	<i>Tablet 100mg</i>	<i>overdose can cause death! Make sure pt takes no more than 3 tabs a day</i>	<i>1 tab 2-3 times daily</i> (16-20 kg: ½ tab 2-3 times daily; 21-30 kg: 1 tab b.d.)	<i>Asthma, when Salbutamol alone is not sufficient</i>
<i>Amoxicillin</i> (or Ampicillin)	<i>Tablet 250mg, 500mg; powder for oral suspension 125mg/5ml DT (Dispersible Tablet) 125 mg or 250 mg</i>	<i>ask for Penicillin allergies</i>	<i>3-6 kg: 75mg (2,5 ml susp. or 1/2 DT 125 mg) t.d.s.</i> <i>7-10 kg: 125 mg (5 ml susp or 1 DT 125mg) t.d.s.</i> <i>11-15 kg: 7,5 ml suspension t.d.s.</i> <i>16-20 kg: 1 tab 250 mg t.d.s.</i> <i>21-30 kg: 1+½ tab 250 mg t.d.s.</i> <i>&gt; 30 kg and adult: 1 tab 500 mg t.d.s.</i>	<i>Infection, especially respiratory</i>
Amoxicillin	Powder for injection, 500mg	check for allergies; skin test for penicillin allergy	as emergency treatment: 3-10 kg: 125 mg iv/im t.d.s 11-20 kg: 250 mg t.d.s > 20 kg: 500 mg t.d.s.	Severe infection
Ampicillin (or Amoxicillin)	Tablet 250mg, 500mg; syrup 125mg/5ml, i.v./i.m. injection	check for Penicillin allergies	3-6 kg: 2,5 ml suspension t.d.s. 7-10 kg: 5 ml suspension t.d.s. 11-15 kg: 7,5 ml suspension t.d.s. 16-20 kg: 1 tab 250 mg t.d.s. 21-30 kg: 1+½ tab 250 mg t.d.s. > 30 kg and adult: 1 tab 500 mg t.d.s.	Infection, especially respiratory; i.m./i.v.; emergency treatment in puerperal sepsis (severe infection within 1 week of childbirth); combine with Gentamicin and Metronidazole
Ascorbic acid	see Vitamin C			
<i>Azithromycine</i> (alternative: <i>Erythromycine</i> or <i>Clarithromycin</i> )	<i>Tablet 250mg or 500 mg</i>	<i>Can cause stomach upset</i>	<i>Trachoma or Sexually Transmitted Infection: 1g (2 Tab 500mg) single dose</i> <i>Respiratory, skin or ear infections: Children from 3 months 10mg per kg per day for 3 days, 15-25kg: 200mg daily, 25-35kg: 300mg daily 35-45kg: 400 mg daily</i> <i>Adult: 500mg daily for 3 days</i>	<i>Trachoma, Sexually Transmitted Infections (Chlamydia), skin, ear r respiratory infections</i>

Drug name	Dosage form	Cautions	Normal Dose	Indication
Beclomethasone	Inhaler 100mcg per metered dose	Use with caution in children	Start dose: adult 2pfs bd Children under 6 years: 1 pf once daily 6-12 years: 1 puff bd Dose can be increased up to fourfold	Asthma, COPD, when Salbutamol alone is not sufficient
(Benzathine) Benzylpenicillin (Penicillin G) (or Procaine Penicillin, P.P.F)	Powder for injection, 600,000IU or 1200,000IU	in any but newborn baby, do skin test to exclude allergy	emergency treatment before referral: 3-10 kg: 3Lk IU i.m. 10-15 kg: 6Lk i.m. 16-20 kg: 9 Lk i.m. 21-30 kg: 12 Lk i.m. adult 24 Lk i.m.	Severe infection, especially suspected meningitis
<i>Benzoic acid and Salicylic acid (Whitfield's ointment)</i>	<i>Ointment or cream, 6%+3%</i>	<i>make sure lesion is actually healing with treatment - if not, may be leprosy or cancer</i>	<i>apply b.d. to affected skin for two weeks minimum (otherwise recurrence is likely)</i>	<i>Ringworm, fungal skin infections</i>
Bethamethasone	Ointment or cream, 0.1%	do not apply in face, don't use for more than two weeks	apply thinly twice daily to affected skin	Allergic rash, eczema
<i>Bisacodyl (Dulcolax)</i>	<i>Tablets or suppositories 5mg</i>	<i>Don't use regularly; don't give to children below 2 years</i>	<i>5-10mg, usually at night in children 5 mg</i>	<i>Constipation (or in conjunction with tapeworm medicine)</i>
<i>Buscopan (Hyoscine butylbromide) (altern: Dicyclomine)</i>	<i>Injection 20mg/ml, tablet 10 mg</i>	<i>Overdose causes dry mouth and high heart rate</i>	<i>Injection: 20mg i.v./i.m. up to t.d.s. Tablet 10 mg 3-4 times daily Children above 2 years 0,3 mg/kg per dose up to t.d.s.</i>	<i>Nausea, crampy pain (especially renal colic)</i>
<i>Calamine lotion</i>	<i>Lotion, 1%</i>		<i>apply 2-3 times daily</i>	<i>Itching skin, like chickenpox</i>

Drug name	Dosage form	Cautions	Normal Dose	Indication
Calcium Gluconate	Injection 1 g per 10ml	Do not give to patients with heart problems	Give 1g (10ml) iv slowly over 5 minutes	In Eclampsiy / Pre-eclampsia: In overdose of Magnesium Sulphate, If the patients is unconscious, the respiratory rate is less than 15 min, the urine output is les than 100ml/4hours or the patella reflex is absent
Cefixime	Tablet 200mg or 400mg	Can cause allergic reactions	For gonorrhea: 500mg single dose Other infections: 6-10kg: 75mg daily 11-20kg: 100mg daily 20-30kg: 200mg daily >30kg (adult dose): 200-400 mg daily for 5 days	Infections, particularly gonorrhea Also used in kidney infections
Cefradine	Tablets 250mg, 500mg	may cause allergies	5-10 kg: 125 mg qds 11-20 kg: 250 mg tds > 20 kg: 250 mg qds Adults: 250mg qds, pregnant women 500mg qds	Infections, esp in children and pregnant women
Cetirizine	Tablets 10mg	may rarely cause drowsiness or problems with urine, eyes or liver	11-15 kg 2,5 mg o.d., 16-30 kg 5 mg o.d., >30 kg 10 mg o.d.	allergies and itching skin rashes – less drowsiness than with Pheniramine or Chlorpheniramine
<i>Cetrimide</i>	<i>Solution, 20% for dilution</i>	<i>may cause skin allergies</i>	<i>for skin cleaning, dilute 1 in 20 to make 1% solution,</i>	<i>Skin disinfection,</i>
<i>Charcoal, activated</i>	<i>Powder 10g in sachet</i>	<i>Can cause constipation, consider giving laxative</i>	<i>after inducing vomiting, give 1 g/kg, max. 10g diluted in water to drink, repeat after 1 hr - refer!</i>	<i>Poisoning (1<sup>st</sup> aid)</i>

Drug name	Dosage form	Cautions	Normal Dose	Indication																								
Chloramphenicol	Tablets 250mg	Do not give to pregnant or breast-feeding mothers or babies < 1 month; Exact dosage !!	Adult 50mg/kg per day in 4 divided doses; child over 1 month 75mg/kg/day in 4 doses 6 hrly 7-10 days	Typhoid fever																								
<i>Chloramphenicol</i>	<i>Solution (eye/ear drops)</i>	<i>do not use ear drops if ear drum is perforated</i>	<i>eye: apply 2 hrly for two days, then t.d.s for three days</i> <i>ear: 1-2 drps tds</i>	<i>Ear/eye infections</i>																								
<i>Chlorhexidine</i>	<i>Solution, 5% for dilution</i>	<i>may cause skin allergies</i>		<i>Skin disinfection, Mouth wash</i>																								
Chloroquine	Tablet 150mg base	Should not be given on empty stomach. Repeat the dose if there is vomiting within 30 minutes of giving chloroquine. Observe for 48 hours, and refer if no improvement after this. Can cause nausea and vomiting and visual disturbances. Also can cause itching	Dose for 3 day treatment: <table border="1"> <thead> <tr> <th>Age (yrs)</th> <th>Day 1</th> <th>Day 2</th> <th>Day 3</th> </tr> </thead> <tbody> <tr> <td>&lt;1yr</td> <td>½ Tab</td> <td>½ Tab</td> <td>½ Tab</td> </tr> <tr> <td>1-4</td> <td>1 Tab</td> <td>1 Tab</td> <td>½ Tab</td> </tr> <tr> <td>5-9</td> <td>2 Tab</td> <td>2 Tab</td> <td>1 Tab</td> </tr> <tr> <td>10-14</td> <td>3 Tab</td> <td>3 Tab</td> <td>1½ Tab</td> </tr> <tr> <td>&gt; 14</td> <td>4 Tab</td> <td>4 Tab</td> <td>2 Tab</td> </tr> </tbody> </table> Total dose: <1yr: 1 ½ Tab 1-4 yrs: 2 ½ Tab 5-9 yrs: 5 Tab 10-14 yrs: 7 ½ Tab >14 yrs: 10 Tab	Age (yrs)	Day 1	Day 2	Day 3	<1yr	½ Tab	½ Tab	½ Tab	1-4	1 Tab	1 Tab	½ Tab	5-9	2 Tab	2 Tab	1 Tab	10-14	3 Tab	3 Tab	1½ Tab	> 14	4 Tab	4 Tab	2 Tab	For suspected Plasmodium vivax malaria (in low to medium risk malaria affected areas, where there is not microscopy of Rapid Diagnostic Test available and there is clinical suspicion of malaria.) In combination with Primaquine for confirmed P. vivax malaria.
Age (yrs)	Day 1	Day 2	Day 3																									
<1yr	½ Tab	½ Tab	½ Tab																									
1-4	1 Tab	1 Tab	½ Tab																									
5-9	2 Tab	2 Tab	1 Tab																									
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<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
Chloroquine	Syrup 50mg of base in 5ml	Should not be given on empty stomach. Repeat the dose if there is vomiting within 30 minutes of giving chloroquine. Observe for 48 hours, and refer if no improvement after this. Can cause nausea and vomiting and visual disturbances. Also can cause itching	For children less than 1 year: Day 1: 7.5ml Day 2: 7.5 ml Day 3: 7.5 ml  For children 1-4 years of age: Day 1: 15ml Day 2: 15ml Day 3: 7.5ml	For suspected Plasmodium vivax malaria (in low to medium risk malaria affected areas, where there is not microscopy of Rapid Diagnostic Test available and there is clinical suspicion of malaria.) In combination with Primaquine for confirmed P. vivax malaria.
<b><i>Chlorpheniramine Malleate (Antalergin, Piriton)</i></b>	<b><i>Tablets 4mg</i></b>	<b><i>May cause drowsiness, do not use in children under 1 year</i></b>	<b><i>Adult: 4mg 3-4 times daily Child: 6-12kg : 1mg (1/4tab) b.d. 12-20kg: 1mg qds 20-40kg: 2mg (1/2 Tab) qds</i></b>	<b><i>Allergic reactions, generalized itching;</i></b>
Cinnarizine	Tablets 25mg	Do not use in children under 6 years	25-50mg t.i.d., children over 6 years half dose motion sickness: 12.5-25mg 2 hrs before travel	Nausea, dizziness, tinnitus, motion sickness (travel sickness)
<b><i>Ciprofloxacin</i></b>	<b><i>Tablet 250mg, 500mg</i></b>	<b><i>- do not give to children under 12 or pregnant and breastfeeding women! - may cause hearing problems and kidney problems</i></b>	<b><i>adult: 500mg b.d to t.d.s. adolescents 30-40 kg: 250 mg t.d.s., adolescents &gt; 40 kg : as adults</i></b>	<b><i>Severe infection, esp bloody diarrhea (not children), typhoid fever</i></b>

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Ciprofloxacin</i>	<i>Eye/ear drops, eye ointment</i>	<i>Can cause hearing problems if used as ear drops if there is perforation of ear drum</i>	<i>Eye: one drop every 2 hours for 2 days, then 3 times daily for 3 days or use ointment twice daily Ear: 1-2 drops tds</i>	<i>In eye or ear infections if other drugs have not helped</i>
Clarithromycin (or Erythromycin)	Tab 250mg	Can cause stomach upset	6-10 kg: 62,5 mg (1/4 tab) b.d. 11-20 kg: 125 mg (1/2 tab) b.d. 21-30 kg: 187.5 mg (3/4 tab) b.d. 21-40 kg: 250 mg (1 tab) b.d. >40 kg and adult: 500 mg (2 tab) b.d.	Chest or ear inf., genital inf., penicillin-allergy
Clotrimazole (Antif, Candid)	Cream 1% or 2% vaginal tablets 100mg	For skin treatment: make sure lesion is responding – if not, consider leprosy or cancer	fungal skin infections: apply cream b.d. for 2 weeks at least; vaginal thrush: insert two tablets into vagina at night, for 3 consecutive nights	Fungal infections, vaginal thrush
Clotrimazole (Candid)	Mouth paint 1%		10-20 drops applied gently inside mouth, preferably with cotton bud, t.d.s. or q.d.s., until cleared. Cover all lesions in mouth	Oral thrush, especially in small children
<i>Clove oil</i>	<i>Oil</i>	<i>For local application only!</i>	<i>Apply to painful tooth several times a day</i>	<i>Used for tooth ache; may also be useful for small areas of eczema</i>
Cloxacillin (or Amoxi/Cloxacillin) (Huclox)	Capsule 250mg, 500mg; syrup 125mg / 5ml	Check for Penicillin allergy	3-6 kg: 100 mg (4 ml syrup) q.d.s. 7-10 kg: 125 mg (5 ml syrup) q.d.s. 11-15 kg: 162,5 mg (6,5 ml s.) q.d.s. 16-20 kg: 187,5 mg (7,5 ml s.) q.d.s. 21-30 kg: 250 mg (1 caps) q.d.s. >30 kg and adult: 500 mg (1 c.) q.d.s	Infections, esp skin (impetigo, cellulitis)



<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
Codeine phosphate	Tablets 15mg	Do not use for more than 2 weeks, except in severe disease – causes dependency May cause severe constipation Restrictive use in children	Usual adult dose: 1-2 tabs t.d.s. (15-30 kg: 7,5 mg (1/2 tab) t.d.s., > 30 kg: 15 mg (1 tab) t.d.s.)	Painkiller – in conjunction with Paracetamol, when this is not enough Also suppresses cough and causes constipation Mildly relaxant and sedative
<i>Cotrimoxazole (Sulfamethoxazole and Trimethoprim) (Cotrim, Bitrim, Bactrim, Careprim)</i>	<i>Tablet, 400+80mg, Tab 800+160mg, syrup 200+40mg/5ml</i>	<i>Check for allergies, avoid in pregnancy</i>	<i>Adult dose: 800+160mg b.d. Child: 3-6 kg: 80+16 mg (2 ml syrup) b.d. 7-10 kg: 140+28 mg (3,5 ml s.) b.d. 11-15 kg: 240+52 mg (6,5 ml s.) b.d. 16-20 kg: 300+60 mg (7.5 ml) b.d. 21-30 kg: 400+80 mg (1 tab) b.d.</i>	<i>Infection, esp. respiratory and urinary tract, also skin infections, diarrhea in HIV, bacterial dysentery</i>
<i>Dexamethasone (alternative: Prednisolone)</i>	<i>Tablet, 500mcg</i>	<i>Do not use for more than one week – do not repeat courses more than once a month, four times a year ( refer!)</i>	<i>Acute asthma: 0,5 mg/kg (max. 8 mg) o.d. for 3 days only AMS: give 8mg (16 tablets or two ampoules) once, then 4 mg 6hourly</i>	<i>Acute asthma, Acute Mountain Sickness, Rheumatoid Arthritis</i>
<i>Dexamethasone</i>	<i>Injection, 4mg</i>	<i>Only for use in emergency: severe acute asthma or AMS, severe allergic reaction (with breathing problems or collapse)</i>	<i>Give 8mg (2 ampoules) once, then continue with oral course (0,5 mg/kg (max. 8 mg) i.v., then continue with oral course)</i>	<i>Acute asthma, Acute Mountain Sickness, Allergy. Also used in bowel obstruction (palliative care)</i>

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Dextrose 5% (alternative: Normal Saline or Ringer's lactate)</i>	<i>Infusion solution 500ml</i>	<i>Only give i.v. in situations where oral hydration is not possible: emergency situations (blood loss, shock), or severe dehydration with vomiting Caution in children or elderly people or patients with known heart problems!!</i>	<i>In blood loss and shock: give two bottles as quickly as possible, then assess further need; in dehydration give 1 – 2 bottles over half an hour (in children, give 15 ml/kg as quick as possible, then assess further need; rehydration need, if possible orally: 3-6 kg: 350-700 ml per day 7-10 kg: 700-1200 ml per day 11-15 kg: 1200-1500 ml per day 16-20 kg: 1500-1800 ml per day 21-30 kg: 1800-2000 ml per day &gt; 30 kg: &gt;= 2000 ml per day)</i>	<i>Dehydration, acute blood loss</i>
<i>Diazepam</i>	<i>Injection 10mg (5mg/ml, 2 ml)</i>	<i>Only in emergencies! May cause patient to stop breathing!</i>	<i>in epileptic seizure give 5mg slowly iv or im, assess after 5 mins and repeat if necessary (children: 0,1 mg per kg, 6-10 kg: 0,25 ml; 11-15 kg: 0,4 ml; 16-20 kg: 0,6 ml; 21-30 kg: 0,75 ml; may be repeated once after 5 min.)</i>	<i>Epileptic seizures, eclampsia</i>
<i>Diazepam</i>	<i>Tablet 5mg</i>	<i>Do not use for more than one week – causes dependence! Also causes drowsiness Do not use in children</i>	<i>Use 2 – 5mg 2 – 3 times daily, according to response</i>	<i>Acute anxiety, severe back pain (with analgesia)</i>

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Diclofenac sodium</i>	<i>Injection, 75mg in 3ml</i>	<i>Do NOT use routinely – only in acute, severe pain; do not use in Children under the age of 6 years</i>	<i>75mg i.m., follow with Diclofenac or Ibuprofen orally (children above 6 years: 20-30 kg: 25 mg (1 ml) i.m.; 30-40 kg: 37,5 mg (1,5 ml) i.m.; &gt; 40 kg: 50 mg (2 ml) i.m.)</i>	<i>Acute pain, e.g. renal colic, severe back pain, if Paracetamol doesn't work</i>
Diclofenac sodium	Tablet, 50mg	May cause gastric bleeding, may cause worsening of asthma Do not use regularly in children under 12	Adult: 50 mg t.d.s.	Pain, esp joint or back pain, if Paracetamol doesn't work
Dicyclomine (alternative: Buscopan)	Tablets 20mg	Can cause urinary retention	Usual dose 10-20mg t.i.d. (Children >2 years 10 mg t.i.d.)	Colicky pain (renal colic, spasmodic abdominal pain)
<b><i>Doxycycline</i></b>	<b><i>Tablet, 100mg</i></b>	<b><i>Do not use in pregnant or breastfeeding mothers or children under 12 yrs</i></b>	<b><i>100 – 200 mg daily, in one or two doses, 5-7 days</i></b>	<b><i>Infection, especially respiratory and genital</i></b>
Epinephrine s. Adrenaline				
Erythromycin (alternative: Clarithromycin)	Tablet 250mg, powder for oral solution 125mg/5ml	Advise – can cause stomach upset	3-6 kg: 62.5mg (2,5 ml syrup) t.d.s 7-10 kg: 75-125mg (3-5 ml) t.d.s 11-15 kg: 125-187 mg (5-7,5 ml) tds 16-20 kg: 187 mg (7,5 ml) t.d.s. 21-30 kg: 250 mg (1 tab) t.d.s. >30 kg: 500 mg (2 tab) t.d.s. adult: 1000 mg t.d.s.	Infection, especially skin and respiratory, useful alternative in penicillin-allergy

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Ethyl alcohol (Methylated Spirits)</i>	<i>70% (if 90% solution, prepare 70% by adding sterile water)</i>	<i>Only for external use – do not use on open or infected wounds</i>		<i>Skin disinfection</i>
Famotidine (altern: Ranitidine) (Famonit, Ulfam)	Tablet 20mg	May cause problems with sexual function in men	20 mg b.d. for 14 days, or as required	Gastritis which does not respond to Antacid alone
<i>Ferrous sulphate (Iron tablets)</i>	<i>Tablet, 200mg</i>	<i>Advise to take with fruit or just water; not with tea or milk! If causing stomach upset, may be taken with food, but better on empty stomach Advise stool will turn black</i>	<i>Take two to three tablets daily for at least one month Children: &gt;15 kg: ½ tab daily &gt; 30 kg: 1 tab daily</i>	<i>Anemia Note: give together with Vitamin C, if available, for better resorption</i>
<i>Ferrous sulphate and Folic Acid</i>	<i>Tablet, 60mg + 250mcg</i>	<i>Advise to take with fruit or just water; not with tea or milk! If causing stomach upset, may be taken with food, but better on empty stomach Advise stool will turn black</i>	<i>One daily. Child: 4-6kg: ½ Tab, 6- 10kg: 1 Tab, 10-14kg: 1 ½ tab, 15- 19kg 2 Tab daily</i>	<i>Anemia prevention in pregnancy</i>
Ferrous Fumarate and Folic Acid	Syrup, 20 mg iron and 0.5 mg folic acid per 5 ml	Advise to take with fruit or just water; not with tea or milk as this reduces absorption	4-6kg: 0.5ml bd, 6-10kg: 0.75ml bd, 10-14kg: 1 ml bd, 15-19kg 1.75 ml bd	malnutrition and anaemia in children

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Fluconazole</i> ( <i>Diflucan, Fluzide, Zocon</i> )	<i>Tablet 50mg, 150 mg</i>	<i>Do not give to pregnant or breastfeeding women; can cause liver damage</i> <i>Avoid in children</i>	<i>Vaginal thrush: single dose of 150mg</i> <i>Oral candidiasis, fungal nail infection: 50 mg daily for 2-6 weeks</i> <i>Children: 3 – 6 kg: 25mg daily</i> <i>7-15 kg: 50 mg daily</i> <i>16-30 kg: 100mg daily</i>	<i>Vaginal thrush, Oral candidiasis, fungal nail infection</i>
Fluorescein eye drops	1% drops	External use only	Apply to injured eye – check in bright light	To examine injured eyes
Folic acid	1 mg or 5mg tablet		1mg daily for first 12 weeks of pregnancy. In malnutrition – 5mg stat, then 1mg daily for 2 weeks	Prophylaxis in early pregnancy, malnutrition
<i>Frusamide</i> ( <i>Lasix</i> )	<i>Tablet 40mg</i>	<i>Start in low dose whenever possible, do not give high dose for long time without referring</i> <i>Do not use in children, refer for doctor's advice</i>	<i>High BP: try ½ tab o.d. for 2 weeks</i> <i>Severe oedema – give 40 mg – 80 mg o.d. or b.d. for one to two days, then re-assess</i>	<i>Heart failure, water retention (swelling of hands and feet, difficulty breathing) when referral is not possible (see guideline heart disease)</i>
<b><i>Gamma Benzene Hexachloride</i></b> ( <b><i>Scabex, Scamel</i></b> )	<b><i>Lotion 1%</i></b>	<b><i>Do not use on broken skin</i></b>	<b><i>Apply to whole body except head; wash after 24 hrs; repeat treatment twice more</i></b>	<b><i>Scabies (luto)</i></b>
Gentamycin	Solution 0.3% (eye drops/ear drops)	Do not use ear drops if ear drum is perforated;	Ear drops: apply t.d.s for 5-7 days Eye drops: 2 hrly for first two days or until better, then complete 5 day treatment with t.d.s. application	Ear infection (Otitis media or externa) Eye infection or injury

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Gentamycin</i>	<i>Injection 80mg</i>	<i>Do not use if very low urine output</i>	<i>Emergency treatment before referral: 80mg slow i.v. injection, Child: 2-5 kg: 10 mg, 6-7 kg: 15 mg, 8-10 kg: 20 mg, 11-15 kg: 30mg, 15-20 kg: 40 mg, 21-30 kg: 60mg, &gt;30 kg: 80mg If referral impossible, repeat every 24 hours</i>	<i>Puerperal sepsis (severe fever within 1 week after childbirth) together with Ampicillin and Metronidazole or suspected meningitis as alternative to Penicillin, Neonatal Sepsis</i>
<i>Gentian Violet</i>	<i>Solution, paint, tincture</i>		<i>Apply daily to affected area</i>	<i>Skin infections, small injuries, small burns wounds</i>
Glycerin (alternative: Paraffin or Vaseline)	In 500ml bottles		Skin: apply regularly, as required Constipation: mix 50-50 with warm water, use as enema (rectally) with 30 ml per 10 kg	Dry and cracked skin; constipation
Griseofulvin (Fungivin, Geovin)	Tablets 125mg, 250mg	Teratogenic: advise women to use safe contraception up to one month after treatment; men should not father children for 6 month after treatment;	Adult dose: 250mg b.d. for 2 weeks or until cleared Child: 3-5 kg: 31.25mg (1/4 125mg tab) o.d. 6-10kg: 31.25mg(1/4 125mg tab)b.d. 10-15kg: 62.5mg (1/2 125mg tab)b.d 15-20mg: 125mg am, 62.5mg pm 20-25mg: 125mg b.d. 26-35kg: 250mg a.m. 125mg p.m. >35kg : 250mg b.d. treat for at least 2 weeks, or until symptoms gone (max 6 weeks)	Severe fungal infections of skin, nails and hair, Candidiasis (thrush) of mouth
<i>Hydrochlorothiazide</i>	<i>Tablet, 25mg</i>	<i>Do not use high doses for long periods of times Do not use in pregnancy/children!!</i>	<i>High BP: use 1/2 tablet daily, check after two weeks Oedema: one tablet daily</i>	<i>Oedema, high BP</i>

Drug name	Dosage form	Cautions	Normal Dose	Indication
Hydrocortisone	Ointment or cream, 1%	Avoid use in face, do not use on infected skin or more than 2 weeks	Apply thinly b.d. to affected area	Mild eczema or allergic rash
Hyoscine butylbromide s. Buscopan				
<b><i>Hypochlorite (Virex)</i></b>	<b><i>Packet 160g</i></b>	<b><i>Only handle with gloves and protective goggles: can cause caustic burns</i></b>	<b><i>160g are needed for 10l water: first dissolve one packet in 1l water, then mix in remaining water</i></b>	<b><i>High Level Disinfection: submerge instruments for 20 minutes. Sterilisation: submerge for 10 hours in closed container</i></b>
Isosorbide Mononitrate	Tb, 10mg or 20mg	May cause drop in blood pressure; may cause headache Do not use in children	10-20mg stat, if regular: 10- 20mg o.d. or b.d. (if b.d., give morning and lunchtime),	Angina, heart attack, very high blood pressure
<b><i>Ibuprofen (Brufen, Bofen, Nurofen)</i></b>	<b><i>Tablets, 200 or 400mg</i></b>	<b><i>May cause gastric bleeding, avoid if patient has asthma (unless he has taken Ibuprofen before, with no bad effects)</i></b>	<b><i>Child: tablet may be ground and given in water: 3-6 kg: ½ tab (100 mg) grounded with water, <u>divided in 3 doses per day</u> 7-10 kg: 50 mg (1/4 tab) t.d.s. 11-15 kg: 100 mg (1/2 tab) t.d.s. 16-20 kg: 100 mg (1/2 tab) t.d.s. 21-30 kg: 200 mg (1 tab) t.d.s. adult: 200-400mg t.d.s.</i></b>	<b><i>Pain, especially, joint or back pain Fever in children, if not controlled by Paracetamol</i></b>
<b><i>Iodine</i></b>	<b><i>Solution 2.5%</i></b>	<b><i>May cause allergies</i></b>	<b><i>Apply locally as required</i></b>	<b><i>Skin or wound disinfection</i></b>
Lactulose	Solution	Very safe laxative, but can cause mild stomach cramps	Give 2.5 to 10 ml 1-3 times daily, according to weight and effect	Constipation

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Levonorgestrel</i>	<i>Tablet 0.75mg (2 tablet pack)</i>	<i>Can cause vomiting. Next period may be delayed or early</i>	<i>Give 1.5mg as single dose within 72 hours of sexual intercourse</i>	<i>Emergency contraception</i>
<i>Lignocaine</i>	<i>Injection 2%</i>	<i>Do not give more than 10 ml of 2% solution by injection (0.2ml/kg for 2% solution)</i>	<i>Local anaesthesia, for injection or local application</i>	<i>Local anaesthesia for suturing</i>
Lignocaine with Adrenaline 1 :10,000	Injection 2% plus adr. 1 :10,000	NEVER use for anaesthesia on fingers or toes; max adult dose 6ml	Local (dental) anaesthesia as per protocol	generally ONLY for local anaesthesia for tooth extraction
Loperamide	Tablets 2mg	May cause constipation if overused – do not use for mild diarrhea Do not use in children < 12 years, avoid if patient ill with fever	Adult: 2-4mg after every watery stool, stop if no stool for more than 4 hours	Severe acute diarrhea, sometimes useful in chronic diarrhea – but first refer for diagnosis!
<i>Magnesium Hydroxide</i>	<i>Tablets 500mg</i>	<i>Interacts with many other drugs. Can cause diarrhoea</i>	<i>1-2 tablets 3-4 times daily</i>	<i>Gastritis, acid reflux</i>
Magnesium Sulphate	crystals	Avoid in elderly and weak patients or children. If using externally, only use on unbroken skin	1 small spoonful in a glass of water (may be mixed with one spoonful of liquid Paraffin), If using externally, grind and mix with water to make a paste	Strong laxative – usually acts within 2-4 hours Can also be used locally on abscesses or on sprains



<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Magnesium Sulphate</i>	<i>Inj 50% (1g in 2ml)</i>	<i>Do not give if the patients is unconscious, the respiratory rate is less than 15min, the urine output is less than 100ml/4hours or the patella reflex is absent.</i>	<i>Start dose: 10g (20ml) given im 5g in each gluteal muscle Maintenance dose: 5g im (in gluteal muscle) every 4 hours for 24 hours in total</i>	<i>Pre-eclampsia / Eclampsia continue treatment until 24 hours after birth of baby or after last seizure</i>
Mebendazole (alternative: Albendazole)	Tablets 100mg, Solution 100mg / 5ml	Do not give in pregnancy or to children less than 3 months of age	Threadworm: > 3 months age: 100mg single dose, repeated after 2 weeks. Hookworm, Roundworm and Whipworm: > 1 year age: 100mg bd for 3 days	Worm infestation, especially threadworm and whipworm
Mefenamic Acid (also in Cyclomef, Dysmen, Efespas)	Tablets 250mg, 500mg	Do not use in patients with severe gastritis	500mg t.i.d. during menstruation	Painful periods; also reduces blood loss
<i>Methylergometrine (Methergin)</i>	<i>Tablets, 125mcg Injection, 200mcg/ml</i>	<i>Do not give when BP is &gt;150 systolic or &gt;100 diastolic! Avoid in breastfeeding mothers if possible (may reduce milk production and cause problems in newborn)</i>	<i>Primary PPH: give 200mcg i.m (or iv in emergency), may be repeated after 20-30mins Oral: 250mg t.i.d.</i>	<i>Post-partum hemorrhage, post-abortion hemorrhage</i>
<i>Metroclopramide (Emenorm, Geenorm)</i>	<i>Tablet, 10mg, suspension 5mg/5ml</i>	<i>avoid in pregnant or breastfeeding mothers do not use in normal vomiting in children</i>	<i>Adult: 10 mg t.d.s Children 15-25 kg 2.5mg t.d.s 26-50 kg 5mg t.d.s</i>	<i>Severe nausea and vomiting</i>

Drug name	Dosage form	Cautions	Normal Dose	Indication
<i>Metronidazole</i> (Amet, Amgit, Protogyl)	<i>Tablets, 200mg, 400mg, solution 200mg/5ml, i.v. injection 500mg</i>	<i>advise patient not to take ANY alcohol with this! avoid high doses (more than 400mg) in pregnant women</i>	<i>amoebic dysentery: 3-6 kg: 80 mg (2 ml solution) t.d.s. 7-10 kg: 120 mg (3 ml solution) t.d.s. 11-15 kg: 200 mg (5 ml) t.d.s. 16-20 kg: 280 mg (7 ml) t.d.s. 21-30 kg: 400 mg (1 tab) adult 400-800mg tds for 5-7(-10) days bacterial vaginosis (vaginal discharge): 400mg tds for 5 days OR 2000mg stat</i>	<i>Infections, esp genital, oral, postpartum amoebic dysentery (foul diarrhea, often with mucus); emergency treatment in puerperal sepsis (severe infection within 1 week of childbirth); combine with Gentamicin and Ampicillin</i>
Neosporin	ointment (avoid powder)		Apply b.d. for 5-10 days	Skin and eye infections (incl impetigo)
Niclosamide (Niclosan)	tablets 500mg	give together with laxative, if possible Do not use in children below 12 years	1g (2 tabs) on empty stomach, second dose of 1 g 1-2 hrs later, follow with purgative (Bisacodyl or Magnesium Sulphate) after 1 hr	tapeworm infestation (diagnosis by patient describing tapeworm segments in stool)
<i>Nifedipine SR</i> (Depin, Nifelat)	<i>Tablets 10mg, 20mg</i>	<i>emergency medicine! Do not give for normal High Blood Pressure Do not use in children</i>	<i>Pre-eclampsia: give 20mg stat, then 20mg b.d - refer! prem labour: 20mg tds - refer! HAPE 20 mg tds - descend! (refer)</i>	<i>High BP (pre-eclampsia) and premature labour, High Altitude Pulmonary Edema (HAPE)</i>
Norethisterone (Norgest, Femitrone)	Tablet 5 mg	remember: abnormal vaginal bleeding can be caused by cancer - do not delay diagnosis by treating, if you have any suspicion!	To stop heavy bleeding: 5mg tds to delay bleeding: 5mg bd to regulate menses: 5mg bd for 3 weeks, followed by 1 week break, repeat 3 cycles	Dysfunctional uterine bleeding irregular menstruation

Drug name	Dosage form	Cautions	Normal Dose	Indication
Norfloxacin (Alflox, Norspan...)	Tablets or caps 200 or 400 mg	avoid in pregnancy, children under 12 yrs, and breastfeeding mothers	UTI: 400 mg b.d. for 3 days, genital infection: 400-800mg b.d. for 7 days	Urinary Tract Infection, genital infection
<i>Normal Saline (0.9%) (or Ringer's lactate, or 5% Dextrose)</i>	<i>Infusion solution, 500ml</i>	<i>emergency medicine! Do NOT give i.v infusion for general "weakness" do NOT give if patient can be hydrated orally</i>	<i>In blood loss and shock: give two bottles as quickly as possible, then assess further need; in dehydration give 1 – 2 bottles over half an hour (in children, give 15 ml/kg as quick as possible, then assess further need; rehydration need, if possible orally: 3-6 kg: 350-700 ml per day 7-10 kg: 700-1200 ml per day 11-15 kg: 1200-1500 ml per day 16-20 kg: 1500-1800 ml per day 21-30 kg: 1800-2000 ml per day &gt; 30 kg: &gt;= 2000 ml per day)</i>	<i>Acute blood loss, dehydration</i>
Omeprazole (Ozid, Zosec, Omi zole)	Tablets, 20mg	do not give in normal cases of gastritis Do not use in children	ulcer: usually 20mg b.d., in combination with antibiotics, for one week reflux oesophagitis: 20mg at night, stop when symptoms disappear (but usually they will recur later)	Severe gastritis, gastric ulcer, severe reflux oesophagitis, gastritis if Antacid and Ranitidine (Famotidine) have not worked

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<b>Oral Rehydration salts (Jiban Jal)</b>	Powder, 27.5g/l	remember: in dehydrated children give first dose of J.J. in the health post: quick rehydration is more important than using boiled water	usually 1 glass after every liquid stool, 1/2 glass in small children	Diarrhea, dehydration
<b>Oxytocin</b>	<b>Injection, 5IU</b>	<b>NEVER give Oxytocin i.m. before the baby is born!</b>	<b>normal delivery: 10 IU (2 amp) i.m. after delivery of baby's shoulders;</b> <b>PPH: repeat after 15 mins and add 10 IU into i.v. drip, also give Methergin</b>	<b>Management of third stage, Postpartum hemorrhage</b>
<b>Paracetamol</b>	<b>Tablets 250 mg, 500mg; suppositories; syrup 125mg/5ml</b>	<b>check dose, and avoid giving together with combination medicines that contain Paracetamol; overdose causes liver damage</b>	<b>adult dose: 500-1000mg tds or q.i.d.; child dose t.d.s. to q.i.d.</b> <b>3-6 kg: 60 mg (2,5 ml syrup)</b> <b>7-10 kg: 90 mg (4 ml syrup)</b> <b>11-15 kg: 156 mg (6,5 ml syrup)</b> <b>16-20 kg: 250 mg (1 tab 250 mg)</b> <b>21-30 kg: 375 mg (1 + 1/2 tab 250 mg)</b>	<b>Fever, pain</b>
Paraffin (alternative Glycerin or Vaseline)	Liquid or ointment		Apply to skin as required Liquid can also be used as oral laxative: give one spoonful in warm water daily	For dry and broken skin; constipation
<b>Permethrin (Perlice, Permite)</b>	<b>Lotion and cream</b>	<b>do not use on broken / infected skin, avoid contact with eyes</b>	<b>apply all over body (including face and scalp in small children), wash off after 8-12 hours, repeat after 1 week</b>	<b>Scabies, lice</b>

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<i>Pheniramine (Avil)</i>	<i>Injection, 22.75mg, tablets 25mg or 50mg</i>	<i>do not use injection except in severe reactions, where Tablets take too long to work Do not use in children under 12 years</i>	<i>inj:1-2 ml i.m. or slow i.v. oral: 25mg t.i.d. or 50mg b.d.</i>	<i>Allergic reactions</i>
<b>Phenoxyethylpenicillin (Penicillin V) (Pentids 400)</b>	Tablet 125mg or 250mg	check for Penicillin allergy	3-6 kg: 62,5 mg (1/2 tab 125 mg) b.d. 7-10 kg: 125 mg (1 tab 125 mg) b.d. 11-15 kg: 125 mg (1 tab) t.d.s. 16-20 kg: 125 mg (1 tab) q.i.d. 21-30 kg: 250 mg (1 tab) t.d.s. >30 kg: 250 mg (1 tab) q.i.d. double dose in severe infections, such as rheumatic fever	Infections, especially throat adult pneumonia, rheumatic fever, "cellulitis" (skin infection)
<i>Povidone Iodine (Betadine)</i>	<i>Ointment or solution</i>	<i>May cause allergies</i>	<i>Apply o.d. or b.d. as required</i>	<i>Skin and wound disinfection, ointment for chronic wounds</i>
Prednisolone	Tablet 5mg	emergency medicine - do not use for more than 1-2 weeks, (total 4 times in a year – refer!) as it can cause severe side effects (for example, gastric bleeding)	asthma: in acute illness give 30mg (6 tab) o.d. in the morning for 3 days, then stop children: in acute illness 1 mg/kg (max. 30 mg) o.d. in the morning for 3 days, then stop rheumatoid arthritis: when VERY severe, give 10mg in the morning for a week, then 5 mg for a week, then stop - if needed again, refer	Asthma, Rheumatoid arthritis, HACE (High Altitude Cerebral Edema)

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<b>Primaquine</b>	Tablet 7.5 mg	Do not give to children below the age of 1 yr or to pregnant women. Can cause loss of appetite and sometimes problems with blood formation.	In combination with Chloroquine for p. vivax malaria give following dose for 5 days: 1-4 years ½ Tab. 5-9 years: 1tab, 10-14 years: 1½ tab, >14 years 2 tab In combination with Sulfadoxine/Pyrimethamine as a single dose in p.f. malaria at 0.75 mg/kg: 1 Tab for every 10 kg body weight. Use ½ Tab for weights in between: 1 ½ Tab for 15 kg Do not give to children less than 1 yr of age	In combination with Chloroquine or with Sulfadoxine/Pyrimethamine to treat the plasmodium in the liver
<b>Promethazine</b>	<b>Tab 25mg</b>	<b>Can be sedating</b>	<b>2-5 years ½ tablet daily</b> <b>5-10 years 1 tab daily</b> <b>&gt;10 years and adult dose: 1-2 tab daily</b>	<b>Nausea, vomiting</b> <b>Allergic reactions</b>
<b>Quinine sulphate</b>	Tablets 300mg	Make sure you give the correct dose! In overdose, quinine can have dangerous side effects, especially heart and kidney failure. It can also cause headaches, abdominal pain, rashes and visual problems	10mg/kg three times daily for 7 days 5-10kg: ¼ tab (75mg) 10.1-14kg: ½ Tab (150mg) 14.1-20kg ¾ tab (225mg) 20.1-30kg 1 tab (300mg) 30.1-40kg 1 ¼ tab (375mg) 40.1-50kg 1 ½ tab (450mg) >50kg (adult dose) 2 tab (600mg)	For confirmed p.f. malaria, where there is no improvement after 48 hours of treatment with SP (sulfadoxine/pyrimethamine)

<b>Drug name</b>	<b>Dosage form</b>	<b>Cautions</b>	<b>Normal Dose</b>	<b>Indication</b>
<b>Quinine sulphate</b>	Injection 600mg in 2 ml	Emergency treatment only! Can cause severe hypoglycaemia when given iv – don't give i.v. outside hospital. Can be painful at im injection. Only give im if patient can't take by mouth	Give 10mg per kg body weight into muscle of anterior thigh (not buttock). Dilute 10 times with normal saline before giving, and divide into two parts, then give each part into one anterior thigh. If it is not possible to get patient into hospital, repeat treatment every 8 hours until the patient can take oral medication	Pre-referral treatment in severe malaria, when patient can't take oral medication
<i>Ranitidine (alt: Famotidine) (Aciloc)</i>	<i>Tablet, 150mg</i>	<i>Can cause problems with sexual function</i>	<i>adult usually 150mg b.d. for 14 days children: 3-15 kg don't give 16-20 kg: 37,5 mg (1/4 tab) b.d. 21-30 kg: 75 mg (1/2 tab) b.d.</i>	<i>Gastritis symptoms, when antacid alone is not effective</i>
Retinol – s. Vitamin A				
<b>Ringer's lactate (alternative Normal Saline or 5% Dextrose)</b>	<b>Injectable solution, 500ml</b>	<b>emergency medicine! Do NOT give i.v infusion for general "weakness" do NOT give if patient can be hydrated orally</b>	<b>In blood loss and shock: give two bottles as quickly as possible, then assess further need; in dehydration give 1 – 2 bottles over half an hour (in children, give 15 ml/kg as quick as possible, then assess further need; rehydration need, if possible orally: 3-6 kg: 350-700 ml per day 7-10 kg: 700-1200 ml per day 11-15 kg: 1200-1500 ml per day 16-20 kg: 1500-1800 ml per day 21-30 kg: 1800-2000 ml per day &gt; 30 kg: &gt;= 2000 ml per day)</b>	<b>Acute blood loss, shock</b>

Drug name	Dosage form	Cautions	Normal Dose	Indication
Salbutamol	Inhalation aerosol, 200mcg per metered dose	If overused, can cause palpitations and trembling – but often not used correctly – check patient’s technique!	Usual dose is two doses (one dose for children under six) three to four times daily, when feeling out of breath; in acute attack, adult may take five to ten doses at one time (child max. 2-4 doses at one time!)	Asthma, Chronic Obstructive Pulmonary Disease
<i>Salbutamol (Asthalin, Azmol)</i>	<i>Tablets 4mg or syrup 2mg per 5ml</i>	<i>Overuse causes fast heartbeat and trembling Doesn’t work well in children under one year</i>	<i>Usual adult dose 4 mg t.d.s. to q.i.d.;</i> <i>Children &lt;1 year 1mg t.d.s./q.i.d.</i> <i>1-6 years 2 mg t.d.s. to q.i.d.</i>	<i>Asthma, Chronic Obstructive Pulmonary Disease (less effective than inhaler)</i>
Selenium shampoo (Selsun)	shampoo		For Dandruff: use shampoo twice weekly for 2-6 weeks For pytiriasis (dubi) apply as lotion all over affected area, wash off after 24 hrs, repeat after two weeks	Dandruff, pytiriasis versicolor (dubi)
Senna	Tablets or powder	Do not use on a regular basis, causes dependency Don’t use in children	In severe constipation – give one dose in the evening	Constipation (esp elderly)
<i>Silver Sulfadiazine cream (Silvin, Silverex)</i>	<i>cream</i>		<i>Apply to dressings as required</i>	<i>Superficial wounds, especially burns (softens and disinfects skin)</i>
<i>Sodium Chloride 0.9%</i>	<i>see Normal Saline</i>			
Spirolactone	Tab 25mg	Do not use in children under 12 and pregnant women	Heart failure: 25mg daily Ascites (palliative care) 50-100mg daily	Heart failure, ascites (in palliative care)



Drug name	Dosage form	Cautions	Normal Dose	Indication
Sulfadoxine and Pyrimethamine	Tablet 500mg Sulfadoxine and 25mg Pyrimethamine	Sulfadoxine can cause rash and rarely severe skin reactions. This is rare with a single dose treatment.	Dose according to weight: 5-10 kg: ½ tab 10.1-14 kg: ¾ tab 14.1-20 kg: 1 tab 20.1-30 kg: 1 ½ tab 30.1-40 kg: 2 tab 40.1-50kg: 2 ½ tab > 50kg (adult dose): 3 Tab	Uncomplicated confirmed plasmodium falciparum malaria (where there is microscopy or RDT testing available.) Should be given in combination with a single dose of Primaquine
<b><i>Sulfamethoxazole and Trimethoprim</i></b>	<b><i>see Cotrimoxazole</i></b>			
Tetracycline	Capsules, 250 and 500mg	Do not give in pregnancy and to children under 12yrs! (causes problems in bones and teeth)	Usual dose 250mg q.i.d. for 7 days, in severe infection, dose may be doubled Severe acne: 250 mg b.d. for 2-6 weeks	Infection, especially genital (sexually transmitted diseases), cholera, can be used in acne
<b><i>Tetracycline</i></b>	<b><i>Eye ointment 1%</i></b>		<b><i>Preventive: Apply to both eyes immediately after birth (after cleaning with boiled water)</i></b> <b><i>Curative: apply b.d. for five days</i></b>	<b><i>Eye infection, prevention of infection in the newborn</i></b>
<b><i>Theophylline (or Aminophylline) (Deriphylline)</i></b>	<b><i>Tablets, 300mg</i></b>	<b><i>Overdose may cause serious heart disease!</i></b> <b><i>Side effects include trembling</i></b> <b><i>Do not use in children &lt;12 years, avoid in pregnancy</i></b>	<b><i>Usual adult dose 300 mg 2-3 times daily max 800 mg per day</i></b> <b><i>(16-20 kg: 150 mg (1/2 tab) once daily</i></b> <b><i>21-30 kg: 150 mg (1/2 tab) b.d.</i></b>	<b><i>Asthma, Chronic Obstructive Pulmonary Disease</i></b>
Tinidazole (alternative: Metronidazole)	Tablets, 500mg	Avoid in early pregnancy and children <6 years	Amoebic dysentery: 1 g b.d for 3 days; Child 15-30 kg: 500 mg b.d. for 3 days Bacterial vaginosis: 2g single dose Anaerobic wound infection: 2g stat, then 500mg b.d. for 5 days	Amoebic dysentery, bacterial vaginosis, anaerobic infection

Drug name	Dosage form	Cautions	Normal Dose	Indication
Tramadol	Tablets or capsules 50mg	ONLY use in severe pain (e.g. broken bones or cancer pain) DO NOT use more than two weeks, unless very serious disease AVOID use in children	50-100 mg t.i.d. or q.i.d. as required (in children above 1 year: 1 mg per kg max. t.d.s.)	Severe pain
<b>White Vaseline</b> (alternative: Glycerin or Paraffin)			Apply b.d. or as needed	For dry and broken skin
<b>Vitamin A (Retinol)</b>	<b>Capsule 200,000 Iu or Tablet 50,000 IU</b>	<b>do NOT give in pregnancy!!</b>	<b>breastfeeding mothers: give 2 Lk as soon as possible after delivery; night-blindness or Bitot spots: &lt;6mths: 0,5 Lk ; 6mths – 1yr: 1 Lk; &gt; 1yr: 2Lk stat, repeat next day and after after 2 weeks; measles, diarrhea: above dose single dose, repeat next day prophylaxis in under 5s: above dose 6 monthly</b>	<b>Prevention of blindness, treatment of measles and diarrhea, prophylaxis for breastfeeding mothers</b>
<b>Vitamin B tablets (var)</b>	<b>Various strengths</b>		<b>Usual dose 1 Tab b.d. for 14 days Continue in alcoholism or severe malnutrition</b>	<b>Malnutrition, alcoholism</b>
Vitamin B solution	various concentrations of different Vit B compounds	Only in moderate to severe malnutrition. Do not use as an appetite enhancer! Counsel mother regarding nutritious food	usual dose 5ml twice daily for children under 1yr, 10 ml bd for children over 1 year to prepare Resomal: add one packet of ORS and 33ml of Vit B solution to 1.7 l water	Malnutrition in children

Drug name	Dosage form	Cautions	Normal Dose	Indication
Vitamin C tablets (Ascorbic Acid)	Tablet 500mg		Usually 1-2 Tablets a day, if for iron supplementation, give together with iron	Malnutrition, iron deficiency anaemia,
<b>Zink Sulphate</b>	<b>Soluble Tab 20mg</b>	<b>May cause vomiting – watch for 30 minutes, if vomiting occurs, repeat the dose – may be given in two divided doses</b>	<b>2-6 months: 10 mg daily for 10 days 6months – 5 years: 20mg daily for 10 days. Tablets can be chewed or dissolved in ORS, water or milk</b>	<b>As supplement in the treatment of pneumonia, diarrhea, measles or malnutrition</b>

abbreviations:

o.d. = once daily	b.d. = twice daily	t.d.s = t.i.d. = 3 times daily, usually 8 hrly
x hrly = every x hours	mtly = monthly	q.d.s = q.i.d. = 4 times daily, usually 6 hrly
esp – especially,	incl = including	yrly = yearly
AMS = Acute Mountain Sickness		
BP = Blood Pressure		
COPD = chronic obstructive pulmonary disease (or "chronic bronchitis")		
HACE = High Altitude cerebral Edema		
HAPE = High Altitude Pulmonary Edema		
RA = Rheumatoid Arthritis		
UTI = Urinary Tract Infection		