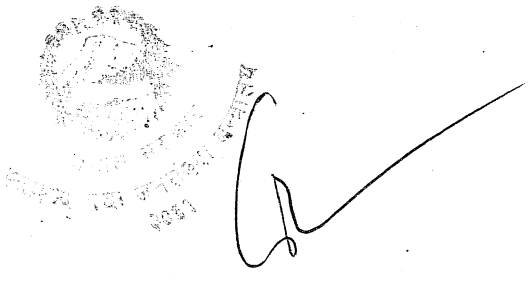
National Antibiotic Treatment Guidelines

Government of Nepal

Ministry of Health and Population

2014



Preface

Antimicrobial resistance (AMR) is one of the world's most serious public health problems. Many of the microbes that cause infectious disease no longer respond to common antimicrobial drugs. In the recent past, emergence and spread of resistance in several microorganisms has rendered the management of many infectious diseases difficult. Resistance to antimicrobials is a natural and inevitable biological phenomenon that can be amplified or accelerated by a variety of factors and practices. Antimicrobial resistance is possibly the single biggest threat facing the world in the area of infectious diseases. The consequences of resistance are severe and several. Infections caused by resistant microbes fail to respond to treatment, resulting in prolonged illness and greater risk of death. It leads to higher treatment costs, longer hospital stays, and unnecessary deaths. The more we use antibiotics, the more we contribute to the pool of antibiotic-resistant microbes. Even with appropriate antimicrobial use, resistance emerges. The progress is more rapid when there is inappropriate use. Treatment failures also lead to longer periods of infectivity, which increase the number of infected people moving in the community and thus expose the general population to the risk of contracting a resistant strain of infection. Treatment of infections with resistant strains may require use of expensive and potentially toxic second line of drugs. It is also a threat to patient safety due to the rapidly growing pandemic of antimicrobial resistance. Newer drugs are being discovered only slowly. Efforts need to be made to slow down or delay the resistance, thus preserving the available antimicrobials. Several success stories of reversing resistance through the rational use of antimicrobials have been achieved. These need to be scaled up to combat the problem comprehensively.

While resistance can and does appear in any setting, hospitals – featuring the combination of highly susceptible patients, intensive and prolonged antimicrobial use, and cross-infection – have become a hot spot for highly resistant bacterial pathogens. The international movement of resistant strains, especially when these are multi- or extensively resistant, can be considered as a public health event of international concern (PHEIC) as per the provisions of the International Health Regulations 2005. The prevention and containment of resistance has a common approach and requires integrated and well coordinated efforts at the national level. It is a biological, behavioural, technical, economic, regulatory and educational problem, and requires a comprehensive response employing evidence based strategy. It also requires ownership and active participation by several stakeholders.

The World Health Assembly resolution in 1998 had urged Member States to develop measures to encourage the appropriate and cost-effective use of antimicrobials; prohibit the dispensing of antimicrobials without the prescription of a qualified health-care professional; improve practices to prevent the spread of infection and thereby the spread of resistant pathogens; strengthen legislation to prevent the manufacture, sale and distribution of counterfeit antimicrobials and sale of antimicrobials in the informal market; and reduce the use of antimicrobials in food-animal production. This message was reinforced in 2005 wherein Member States were encouraged to ensure the development of a coherent, comprehensive and integrated national approach towards implementing the strategies for containment of antimicrobial resistance, and to monitor regularly the use of antimicrobial agents and the level of antimicrobial resistance in all relevant sectors.

WHO, South-East Asia Regional Office has developed regional strategy of prevention and containment of antimicrobial resistance for 2010-2015. The guiding principles are: understand the emergence and spread of resistance; rationalize the use of available antimicrobial agents; prevent emergence of resistance by reducing selection pressure by appropriate control measures; bring about a change in behaviour of prescribers of antimicrobial agents and communities to ensure their rational use; combat antimicrobial resistance by promoting discovery, development and delivery of new drugs/tools; and combat antimicrobial resistance through nationally coordinated efforts with defined functions by different sectors/programmes. The goal of the guiding principles is to minimize the morbidity and mortality due to antimicrobial-resistant infection and to preserve the effectiveness of antimicrobial agents in the treatment and prevention of microbial infections. The following are the objectives:

1. To establish a national alliance for prevention and control of antimicrobial resistance.
2. To institute a surveillance system that captures the emergence of resistance, trends in its spread and utilization of antimicrobial agents in different settings.
3. To promote rational use of antimicrobial agents at all levels of healthcare and veterinary settings.
4. To strengthen infection control measures to reduce the disease burden.
5. To support research to develop and/or improve use of antimicrobial agents.

It is a huge task to carry out, but needs to be done to combat the problem of antimicrobial resistance. Hospitals and health institutions should strengthen activities to achieve objectives 3 and 4. The key elements and major activities to accomplish objectives 3 and 4 are:

A. Promote optimal prescription: Develop standard treatment guidelines (STGs) advocating evidence-based monotherapy or combination therapy and implement it.

B. Make available quality laboratory data in real time: Ensure quality-assured laboratory determination of resistance and utilize generated data for immediate use as well as for developing/modifying use of antibiotics guidelines.

C. Rationalize use in veterinary sector: Ban non-therapeutic use of antimicrobial agents, develop standard treatment guidelines (STGs) and train professionals in use of STGs.

D. Promote compliance and proper public use: Educate communities on proper compliance and non-self medication, prevent over-the-counter availability of antimicrobial drugs and provide continuous education to pharmacists/chemists in appropriate use of antimicrobial agents.

E. Strengthen disease control programmes: Support activities at the community level to assure adherence and monitor resistance and effect of interventions.

F. Augment infection-control practices in hospitals: Establish infection control practices, especially universal/standard precautions, and provide an enabling environment, provide personal protective equipment (PPE) and other infrastructural support and institute and empower Hospital Infection Control Committees.

This effort to prepare National Antibiotics Treatment Guidelines is among the initiations towards combating antimicrobial resistance. The guideline has categorized health institutions in three levels based upon infrastructure and sanctioned post of healthcare providers. The treatment guideline for sub-health post and health post is based upon list of essential drugs, whereas at primary health care centre and district hospital doctors can use judgments for use of some antibiotics that are not included in the national list of essential drugs. Tertiary level and specialized hospitals has to give priority to essential drugs, although there are other antibiotics to choose depending upon the need of the patients. However, reserve antibiotics are listed for prescribing by faculty, specialist and consultant. Hospitals should develop policy, guidelines and procedures for use of these antibiotics. Antibiotics that are included in the list of essential drugs are tabulated in annex I and grouping of antibiotics is in annex VIII.

Appropriate use of antibiotics, especially adhering to national list of essential medicines has other benefits too. It includes time-tested relatively safe antibiotics, which are relatively cheaper. It has proven efficacy, side-effects well reported, so are relatively safer for the patients. Since the drugs listed as essential drugs are for the majority of the population, other drugs not included in the list are also important for certain ailment and particular patients. However, essential drugs should be prescribed as far as practicable.

Treatment protocols for the use of anti-retroviral, anti-tubercular and anti-leprosy drugs are not included as there are well-developed national protocols for these diseases.

It is expected that other activities will also go together with the implementation of this guideline at the hospital which will contribute significantly on rational use of antibiotics and prevention and containment of antimicrobial resistance. WHO Regional Office for South-East Asia has proposed some indicators and targets to meet by 2015. As we are initiating the programme quite late, we should target to achieve by 2020. Some important indicators and targets are as follows:

1. National intersectoral steering committee for antimicrobial resistance monitoring (AMR) constituted and functional.
2. National alliances for prevention and control of antimicrobial resistance constituted and functional.
3. National networks for surveillance of antimicrobial resistance through quality laboratory services strengthened.
4. Over-the-counter sale of selected antimicrobial agents stopped.
5. Ban in place on non-therapeutic use of antimicrobial agents in animals.

6. Number of antimicrobial agents for which resistance against nationally identified microorganisms has stabilized or decreased.
7. Per cent of hospitals in the public and private sector with a policy for rational use of antimicrobials.
8. National Hospital Accreditation Schemes with rational use of antimicrobials as an essential requirement for accreditation.
9. Per cent of hospitals that show a decrease in the rate of hospital associated infections (HAI).

It is expected that with full cooperation and participation of all concerned stakeholders, we will be able to achieve targets and combat against antimicrobial resistance. Since doctors and health care professionals have major role to play, hospitals and health institutions should be the pioneers in initiating the activities of combating the problem of antimicrobial resistance.

Initiation and drafting of the guidelines was done by Alliance for the Prudent Use of Antibiotics, Nepal Chapter (APUA-Nepal), by involving experts from different disciplines. The draft received from APUA Nepal was discussed among various experts before finalising the guideline. Thanks are due to APUA- Nepal for preparing the draft and continuous involvement during the reviewing process for the finalisation of the guidelines. Contribution of all organizations and individuals in developing this guideline is acknowledged with sincere gratitude.

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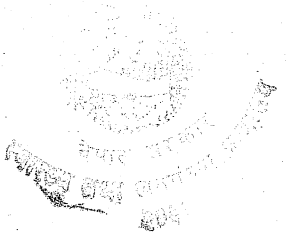


TREATMENT GUIDELINES

GENERAL MEDICINE

Enteric Fever

Symptoms and signs

- Fever
- Bodyache
- Headache
- Drowsiness
- Constipation followed by diarrhoea
- Relative bradycardia
- Abdominal distension
- Spleen palpable from the second week.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Cotrimoxazole 160/800 mg q12h for 14 days OR • Ciprofloxacin 500 mg q12h for 14 days OR • Ofloxacin 400 mg q12h for 14 days	• Cotrimoxazole 160/800 mg q12h for 14 days OR • Chloramphenicol 500 mg q6h for 14 days OR • Ciprofloxacin 500 mg q12h for 14 days OR • Ofloxacin 400 mg q12h for 14 days OR • Inj Ceftriaxone 1g q12h for 7-14days

Gastritis and Peptic Ulcer

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Suspected cases of *Helicobacter pylori* refer to higher centre. • Antacid tablet (Aluminium hydroxide+ Magnesium trisilicate) 1-2 tablets to be chewed 1-3 hours after meals for 3 weeks or any time during attack of pain. • Omeprazole 20 mg q24h OR • Ranitidine 150 mg q12h If improvement is not observed, refer to higher centre for further investigation and necessary management.	Proton pump inhibitors for 4-6 weeks • Omeprazole 20 mg q12h OR • Pantoprazole 40 mg 12h PLUS (for 10-14 days) • Clarithromycin 500 mg q12h and Amoxicillin 500 mg q8h OR • Amoxicillin 500 mg q8h and Metronidazole 400 mg q8h For relapse cases(at least for 14 days) • Bismuth subcitrate 120 mg q6h OR • Metronidazole 400 mg q8h and • Tertracycline 500 mg q6h	Proton pump inhibitors for 4-6 weeks • Omeprazole 20 mg q12h OR • Pantoprazole 40 mg 12h PLUS (for 10-14 days) • Clarithromycin 500 mg q12h and Amoxicillin 500 mg q8h OR • Amoxicillin 500 mg q8h and Metronidazole 400 mg q8h For relapse cases(at least for 14 days) • Bismuth subcitrate 120 mg q6h OR • Metronidazole 400 mg q8h and • Tetracycline 500 mg q6h

Upper Respiratory Tract Infection

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 7 days	• Amoxicillin 500 mg q8h for 7 days OR • Azithromycin 500 mg q24h for 3-5 days OR • Amoxicillin +clavulanic acid 625 mg q8h for 7 days

Lower Respiratory Tract Infection

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
Mild to moderate • Amoxicillin 500 mg q8h for 7 days Severe • Refer to higher centre	Mild to moderate • Amoxicillin 500 mg q8h for 7 days OR • Azithromycin 500 mg q24h for 3-5 days OR • Amoxicillin +clavulanic acid 625 mg q8h for 7days Severe • Inj Cefotaxime 1g q12 h PLUS Inj Cloxacillin 500 mg q6h for 7-10 days OR • Inj Piperacillin+ tazobactam 4.5 g q8h for 7-10 days OR • Inj Amikacin 15-22.5 mg/kg daily q 8h for 7-10 days

Bronchitis

Symptoms and signs

- Fever
- Dry cough (unproductive initially becomes productive at the later stage)
- Mucoid or purulent sputum
- Chest pain
- Wheezing
- Breathlessness.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Cotrimoxazole 160/800 mg q12h for 7 days OR • Tetracycline 500 mg q6h for 7 days OR • Amoxicillin 500 mg q8h for 7days OR • Erythromycin 500 mg q6h for 7days OR • Doxycycline 100 mg q24h for 7days	• Cotrimoxazole 160/800 mg q12h for 7 days OR • Tetracycline 500 mg q6h for 7 days OR • Amoxicillin 500 mg q8h for 7days OR • Erythromycin 500 mg q6h for 7days OR • Doxycycline 100 mg q24h for 7days OR • Cefaclor 500 mg q8h for 7days OR • Cefuroxime axetil 500 mg q12h for 7 days OR • Clarithromycin 500 mg q12h for 7 days OR • Azithromycin 500 mg q24h for 3-5 days OR • Amoxicillin + clavulanic acid 625 mg q8h for 7 days Modify the treatment if possible according to C/S result

Pneumonia

No single regimen is appropriate in all circumstances and attempts to rationalize empirical treatment depended on the age and clinical status, its severity and the circumstances in which it develops (e.g. community acquired or nosocomial).

Severe pneumonia is defined by any of the following:

- Respiratory rate > 30/min
- Diastolic BP < 60mm Hg
- Systolic < 90mm Hg
- Multiple lobe involvement

- Rapidly progressing consolidation
- WBC <4 or >30 X 10^9/L
- PaO_2 <60mm Hg or saturation <90% breathing room air
- $PaCO_2$ >50mm Hg
- Confusion, shock or deteriorating renal function

In general, patients with severe pneumonia should be admitted to hospital.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Cotrimoxazole 160/800 mg q12h for10-14 days OR • Amoxicillin 500 mg q8h for 10-14 days OR • Tetracycline 500 mg q6h for 10-14 days OR • Erythromycin 500 mg q6h for 10-14 days OR • Azithromycin 500 mg q24h for 5-7 days	• Cotrimoxazole 160/800 mg q12h for 10-14 days OR • Amoxicillin 500 mg q8h for 10-14 days OR • Tetracycline 500 mg q6h for 10-14 days OR • Erythromycin 500 mg q6h for 10-14 days OR • Azithromycin 500 mg q24h for 5-7days OR • Cefuroxime axetil 500 mg q12h for 10-14 days OR • Amoxicillin+clavulanic acid 625mg q8h for 10-14 days OR • Cloxacillin 500 mg q6h for 10-14 days OR • Inj Amikacin 15-22.5 mg/kg daily q8h for 7-10 days

Nosocomial Pneumonia

Broad spectrum parenteral combination therapy is indicated for severe nosocomial pneumonia, e.g. combination treatment with Amoxicillin+clavulanic acid or a 2nd or 3rd generation Cephalosporin and either an Aminoglycoside or Ciprofloxacin.

Consider adding Vancomycin if enterococcal or MRSA infection is likely.

These regimens do not take account of *Legionella* and other atypical pneumonias, none of which are commonly hospital- acquired, or of fungal, viral or protozoal pneumonias.

Acute Bacterial Meningitis

Symptoms and signs
- Fever
- Headache
- Vomiting
- Sudden onset neck rigidity
- Convulsions

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
Causative organism or susceptibility not known (empirical) • Benzyl penicillin 50,000U/Kg/dose q4h PLUS • Chloramphenicol 1g q6h for 14 days	Causative organism or susceptibility not known (empirical) • Benzyl penicillin 50,000U/Kg/dose q4h PLUS • Chloramphenicol 1g q 6h for 14 days OR • Inj Ceftriaxone 2g q12h for 14days PLUS • Inj Ampicillin 2g q4-6h in adults<50 years

Urinary Tract Infection

Symptoms and signs

- Acute agonizing pain over the loin often radiating to the groin and suprapubic region
- Frequent passage of small amount of scalding usually cloudy urine sometime associated with strangury.
- Pain suprapubic or urethral region while passing urine
- Usually high grade fever with chills and rigor
- Anorexia and vomiting

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Cotrimoxazole 160/800 mg q12h for 7 days OR • Ciprofloxacin 500 mg q12h for 7 days OR • Nitrofurantoin 100 mg q6h for 7days	1st line • Cotrimoxazole 160/800 mg q12h for 7 days OR • Ciprofloxacin 500 mg q12h for 7 days OR • Cephalexin 500 mg q6h for 7days OR • Norfloxacin 400 mg q8h for 7 days OR • Nitrofurantoin 100 mg q6h for 7days OR • Cefuroxime axetil 500 mg q12h for 7 days OR • Inj Gentamicin 2-5 mg/Kg daily q12h for 7 days OR • Inj Amikacin 15-22.5 mg/kg daily q 8h for 7 days 2nd line • As per culture and sensitivity results

Fever in neutropenic patients

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Refer to higher centre	1st line • Inj Ceftazidime 2g q 8h PLUS Inj Amikacin 22.5 mg daily q8-12h 2nd line • Inj (Piperacillin +Tazobactam) 4.5 g q8h PLUS Inj Amikacin 22.5 mg daily q8-12h 3rd line • Inj Meropenem 0.5-1g q8h Suspected Staphylococcus infection • Inj Vancomycin 1 g q 12h OR • Inj Teicoplanin 3-6mg/kg q12-24h Suspected or proven invasive fungal infection • Inj Voriconazole 4-6 mg /kg q 12h OR • Inj Amphotericin B 250 mcg-1 mg/kg daily

Prophylactic antibiotics in neutropenic patients (in higher centre)

- Ciprofloxacin
- Fluconazole
- Aciclovir
- Cotrimoxazole (for PCP Prophylactic)

SURGERY

Cellulitis
-a spreading skin infection that also involves areas of tissue just below the skin surface

Symptoms and signs
- Redness, tenderness and swelling on the skin.

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5-7days OR • Ciprofloxacin 500 mg q12h for 5-7days OR • Cloxacillin 500 mg q8h for 5-7days If cellulitis with DM, Refer to higher centre	• Amoxicillin 500 mg q8h for 5-7days OR • Ciprofloxacin 500 mg q12h for 5-7days OR • Cloxacillin 500 mg q8h for 5-7days In DM with cellulitis • Inj Gentamicin 2-5 mg/Kg daily q12h for 5-7 days / Inj Tobramycin 3 mg/kg daily q 8h for 5-7 days OR • Inj Metronidazole 500 mg q8h for 5-7 days If necrotizing fascitis develops refer to higher centre	• Same as District Hospital • Extensive Debribement in case of necrotizing fasciitis

Lymphadenitis
-an infection of the lymph nodes (glands)

Symptoms and signs
- Swollen, tender, and hard lymph node
- Skin over a node may be red and hot.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5-7days OR • Ciprofloxacin 500 mg q12h for 5-7days OR • Cotrimoxazole 160/800 mg q12h for 5-7days OR • Cloxacillin 500 mg q8h for 5-7days If not getting better, refer to higher centre	• FNAC or biopsy • Appropriate specific antibiotics according to C/S result • ATT if suspected or proven tuberculosis

Abscess
- a localized collection of pus in any part of the body

Symptoms and signs
- Open sore or closed nodule which may be reddened and may drain pus
- Localized swelling and induration may occur
- Tender and warm to touch.
- Fever or chills may occur.

Treatment
First aspirate with needle to confirm the diagnosis followed by incision and drainage of pus, then daily dressing of the wound with Neomycin ointment.

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5-7 days OR • Cotrimoxazole 800/160 mg q12h for 5-7 days OR • Ciprofloxacin 500 mg q12h for 5-7days OR • Cloxacillin 500 mg q8h for 5-7 days	• As for HP/SHP, OR • Inj Gentamicin 2-5 mg/kg daily q12h for 5-7 days Inj Tobramycin 3mg/kg daily q 8h for 5-7 days OR • Inj Metronidazole 500 mg q 8h for 5-7 days	• Inj Ceftriaxone 1g daily PLUS • Inj Metronidazole 500 mg q8h for 5-7 days OR • Appropriate antibiotics according to C/S results

Wound Infection

Symptoms and signs

- Pain
- Swelling
- Pus discharge

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5-7 days OR • Ciprofloxacin 500 mg q12h for 5-7days OR • Cotrimoxazole 800/160 mg q12h for 5-7 days OR • Cloxacillin 500 mg q8h for 5-7 days	• As for HP/SHP OR • Inj Gentamicin 2-5 mg/kg daily q 12 h for 5-7 days/Inj Tobramyin 3 mg/kg daily q 8 h for 5-7 days OR • Inj Metronidazole 500 mg q 8h for 5-7 days	• As for PHC/DH OR • Inj Ceftriaxone 1g dailyPLUS • Inj Metronidazole 500mg q8h for 5-7 days OR • Appropriate antibiotics according to the C/S results

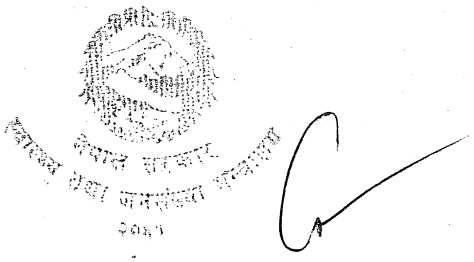
Burn

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Daily dressing of the wound with Silver suphadiazine cream OR • Neomycin ointment if burn in face • (Amoxicillin OR Ciprofloxacin OR Cotrimoxazole OR Cloxacillin) if fever or any features of infection • Refer to higher centre	• As for HP/SHP • Inj Gentamicin 2-5 mg/kg daily q12 h /Inj Tobramycin 3 mg/kg daily q8h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days	• As for District hospital • Inj Ceftriaxone 1g daily for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days

Trauma

Treatment



HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Tetanus Toxoid IM stat • Daily dressing of the wound with Neomycin ointment • Immobilisation if any fracture • Refer to higher centre	• As for HP PLUS Antibiotics as per required • Amoxicillin, Cloxacillin • Inj Gentamicin 2-5 mg/kg daily q12 h /Inj Tobramycin 3 mg/kg daily q8h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days	• As for District hospital • Inj Ceftriaxone 1g daily for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days

Pancreatitis

Symptoms and signs

- Severe pain in the epigastric region
- Pain relieved by sitting up

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Inj Ciprofloxacin 200 mg q12h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days (if fever) • Refer to higher centre	• As for District hospital OR • Inj Imipenem + cilastatin 1-2 g daily of imipenem q6-8h for 5-7 days

Acute Cholecystitis/ Acute Appendicitis

Symptoms and signs

- Pain in right subcostal region aggravated by a deep breath
- Fever

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Nil per orally (NPO) • Refer to higher centres	• Inj Ciprofloxacin 200 mg q12h for 5-7 days PLUS Inj Metronidazole 500 mg q8h for 5-7 days • NPO • Refer to higher centre	• Surgery if needed • As for District Hospital OR • Inj Ceftriaxone 1g daily for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days

Obstructed or Strangulated Hernia

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Nil per orally (NPO) • Refer to higher centres	• Inj Ciprofloxacin 200 mg q12h PLUS • Inj Metronidazole 500 mg q8h • NPO • Refer to higher centre	• Surgey as per requirement • Inj Ciprofloxacin 200 mg q12h for 5-7 days OR • Inj Ceftriaxone 500 mg q12h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days Antibiotics, their doses and duration can be changed according to the patient's profile, surgeon's clinical judgement and the hospital facilities.

All Surgeries

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Nil per orally (NPO) • Refer to higher centres	• Inj Ciprofloxacin 200 mg q12h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days • NPO • Refer to higher centre	1st line • Cloxacillin 500 mg q8h for 7 days PLUS • Inj Ciprofloxacin 200 mg q12h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days 2nd line • Cloxacillin 500 mg q8h for 7 days • Inj Gentamicin 1g iv q12h for 5 days PLUS • Inj Metronodazole 500 mg q8h for 7 days 3rd line • Inj Ceftriaxone 500 mg q12h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days PLUS • Inj Gentamicin 1g IV q12h for 5 days Antibiotics, their doses and duration can be changed according to the patient's profile, surgeon's clinical judgement and the hospital facilities.

PAEDIATRICS

Pneumonia

Symptoms and signs

- Cough
- Fever
- Difficulty in breathing
- Respiratory rate <2 month≥60/min
  2 month-1yr≥50/min
  1year-5year≥40/min

Treatment (duration- 5 days)

	1st–line Cotrimoxazole q12h		2nd line Amoxicillin q8h	
Age/ Weight	Cotrim 80/400 mg	Cotrim-p 20/100 mg	250 mg	125 mg/5 ml
2-12 months (4-10 Kg)	½ tab	2 tab	½ tab	5 ml
1-5 year (10-19 Kg)	1 tab	3 tab	1 tab	10 ml

Bacillary Dysentery

Treatment

Age/Weight	Ciprofloxacin 250 mg q12h for 3 days
2-4 months (4-6 Kg)	¼ tab
6-12 months (6-10 Kg)	½ tab
1-5 year (10-19 Kg)	1 tab

Severe Pneumonia

Symptoms and signs

- Features of pneumonia along with chest indrawing

Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Inj Ampicillin 15 mg/kg/dose q6h for 5 days OR • Inj Benzyl penicillin 1lakh U/Kg q6h for 5 days	• Inj Ampicillin 15 mg/kg/dose q6h for 5 days OR • Inj Benzyl penicillin 1lakh U/Kg q6h for 5days • Oxygen SOS • Fluid and electrolyte maintenance

Acute Ear Infection

Symptoms and signs

- Pain in the ear
- Fever
- Ear discharge

Treatment (duration- 5 days)

	1st–line Cotrimoxazole q12h		2nd line Amoxicillin q8h	
Age/ Weight	Cotrim 80/400 mg	Cotrim-p 20/100 mg	250 mg	125 mg/5ml
2-12 months (4-10 Kg)	½ tab	2 tab	½ tab	5 ml
1-5 year (10-19 Kg)	1 tab	3 tab	1 tab	10 ml

Note: If the child is suffering from Mastoiditis, the child should be referred to PHC/District/Zonal or higher centre for treatment after giving first dose of an antibiotic and first dose of Paracetamol for pain.

Acute Osteomyelitis and Septic Arthritis

Symptoms and signs

- Inflammation localized to the region of joint
- Pain and tenderness
- Swelling
- Erythema
- Decreased range of motion
- Fever
- Toxic appearance
- Pseudoparalysis of involved extremity.

Treatment

HP/SHP	PHC/ District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Ampicillin10-25 mg/Kg q6h PLUS • Inj Gentamicin 6 mg/Kg/24 hours q24h for 3-4 weeks • Refer to higher centre	• Ampicillin10-25 mg/Kg q6h PLUS • Inj Gentamicin 6 mg/Kg/24 hours q24h for 3-4 weeks • Modify the treatment according to the C/S reports

Acute Post-streptococcal Glomerulonephritis

Causative agents: Group A beta-haemolytic streptococci.

Symptoms and signs

- Common in children but rare before the age of 3 years
- Asymptomatic microscopic haematuria
- Varying degrees of oedema
- Hypertension
- Oliguria
- Acute renal failure
- Non-specific symptoms such as malaise, lethargy, abdominal or flank pain and fever

Treatment

HP/SHP	PHC/ District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Inj Benzyl penicillin: 50,000 to 1 lakh U/Kg q6h for 10 days OR • Inj Benzathine penicillin 6 lakh U (<27Kg) 12 lakh U (>27 Kg) OR • Erythromycin 40 mg/Kg/24hr q6h for 10 days • Refer to higher centre	• Inj Benzyl penicillin: 50,000 to 1 lakh U/Kg q6h for 10 days OR • Inj Benzathine penicillin 6 lakh U (<27Kg) 12 lakh (>27 Kg) OR • Erythromycin 40 mg/Kg/24hr q6h for 10 days

Acute Rheumatic Fever

Etiology: Group A, B- haemolytic streptococcus

Diagnosis

- *Modified Jones major criteria:* Carditis, polyarthritis, erythema marginatum, chorea and subcutaneous nodule
- *Clinical Lab minor criteria:* Fever, arthritis, previous history of rheumatic fever, elevated acute phase reactants (ESR and CRP) and prolonged P-R interval on an electrocardiogram PLUS evidence of a preceding group A streptococcal infection (culture, rapid antigen).

One major and two minor OR two major and one minor criteria plus evidence of a preceding streptococcal infection indicate a high probability of rheumatic fever.

Treatment

HP/SHP	PHC /District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Benzathine penicillin 6 lakh U (<27Kg) 12 lakh U (>27 Kg) OR • Penicillin V 250 mg q6h for 10 days • Erythromycin 40 mg/Kg/24hr q6h for 10 days • Refer to higher centre	• Benzathine penicillin 6 lakh U (<27Kg) 12 lakh U (>27 Kg) OR • Penicillin V 250 mg q6h for 10 days • Erythromycin 40 mg/Kg/24hr q6h for 10 days • Refer to cardiologist

Acute Bacterial Meningitis

Causative Pathogens

First 2 months of life:

a. Group B streptococci
b. Gram –ve enteric bacilli
c. L-monocytogens
d. *H. influenzae* type b
e. *Staphylococcus*

2 month-12 years of age:

a. *H.influenzae* type b
b. Streptococcus pneumoniae
c. N. meningitides
d. *Staphylococcus*

Over 12 years of age:

a. N. meningitidis
b. S. pneumonia
c. *Staphylococcus*

Symptoms and signs

- Fever
- Vomiting
- Convulsion
- Loss of consciousness
- Purpuric rashes
- Features of shock
- Neck rigidity
- Sudden onset with rapidly progressive manifestations of shock, purpura, disseminated intravascular coagulation and reduced levels of consciousness are due to meningococcal sepsis with meningitis
- Several days of upper respiratory tract or gastrointestinal symptoms followed by meningitis are due to *H. influenzae* type b or pneumococcus.

Treatment

HP/SHP	PHC/ District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Inj Benzyl penicillin 3 lakh U /Kg/24hr q6-8h for 10-14 days	• Inj Benzyl penicillin 3 lakh U/Kg/24hr q6-8h for 10-14 days

OBSTETRICS AND GYNAECOLOGY

Urinary Tract Infection

Symptoms and signs

- Acute agonizing pain over the loin often radiating to the groin and suprapubic region
- Frequent passage of small amount of scalding usually cloudy urine sometime associated with strangury
- Pain in suprapubic or urethral region while passing urine
- Usually high grade fever with chills and rigor
- Anorexia and vomiting

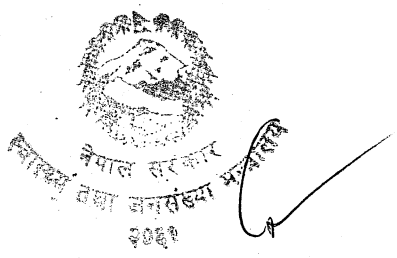
Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 14 days OR Cotrimoxazole 800+160 mg q12h for 7 days (for non-pregnant) In severe infection (for non-pregnant) • Ciprofloxacin 500 mg q12h for 7 days. Refer to hospital if fever does not subside within 7 days of treatment OR if infection reoccurs.	• As per SHP/HP OR • Nitrofurantoin 100 mg q8h for 14 days Parenteral therapy if patient is very sick • Inj Ampicillin 2 g IV q6h 2-3 days OR • Inj Gentamicin 5 mg/Kg IV q24h for 3 days (if sensitive to ampicillin) Then switch over to oral medicine as: • Amoxicillin 500 mg q8h for 12 days	• Amoxicillin 500 mg q8h for 14 days OR • Nitrofurantoin 100 mg q8h for 14 days Parenteral therapy if patient is very sick • Inj Ampicillin 2 g IV q6h 2-3 days OR • Inj Cefotaxime 1 g IV q6h 2-3 days OR • Gentamicin 5 mg/Kg IV q24h for 3 days Then switch over to oral medicine as: • Amoxicillin 500 mg q8h for 12 days OR • Cefixime 400 mg q6h for 12 days OR • Nitrofurantoin 100 mg q8h for 12 days

Puerperal Sepsis

Symptoms and signs

- Fever with chills (temperature higher than 38°C)
- Lower abdominal pain
- Profuse foul smelling discharge per vaginum
- Subinvolution of uterus (enlarged uterus)
- Peritonitis and pelvis abscess may occur



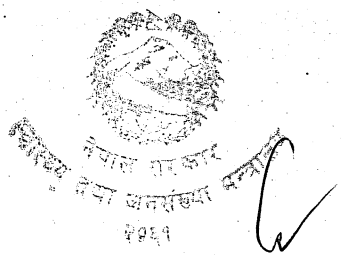
Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
• Inj Ampicillin 2 g IV q6h for 2 days PLUS • Inj Metrionidazole 500 mg q8h for 2 days PLUS • Paracetamol 500 OR Ibuprofen 400 mg q8h or SOS Then refer to hospital for further treatment after immediate care is given.	• Amoxicillin 1g q8h for 7 days PLUS • Metronidazole 400 mg q8h for 7 days PLUS • Paracetamol 500 mg q8h for 2 days *Parenteral therapy* • Inj Ampicillin 2 g IV q6h for 2-3 days OR • Inj Ceftriaxone 1g IV q12h for 2-3 days PLUS • Inj Metronidazole 500 mg q8h IV for 2-3 days Then switch over to the oral medication as: • Amoxicillin 500 mg q8h for 7day OR Metronidazole 400 mg q8h for 7days	• Amoxicillin 1g q8h for 7 days OR PLUS • Metronidazole 400 mg q8h for 7 days PLUS • Paracetamol 500 mg q8h for 2 days *Parenteral therapy* • Inj Ampicillin 2 g IV q6h for 2-3 days OR • Inj Ceftriaxone 1g IV q12h for 2-3 days PLUS • Inj Metronidazole 500 mg IV q8h for 2-3 days Then switch over to the oral medication as: • Amoxicillin 500 mg q8h for 7 days OR • Cefixime 400 mg q12h for 7 days OR PLUS Metronidazole 400 mg q8h for 7days

Post Abortion Infection

Symptoms and signs

- History of previous unsafe abortion
- Lower abdominal pain and tenderness
- Prolong vaginal bleeding
- Generalized discomfort- flu like syndrome
- Fever (more than 38^0C) with chills and rigor
- Foul smelling vaginal discharge
- Mucous discharge from the cervix
- Cervical tenderness on bimanual examination
- Evidence of shock (fall in BP/ rising pulse)



Treatment

HP/SHP	PHC/District Hospital	Zonal & above or referral centre
Oral Therapy • Doxycycline 100 mg q24h for 7 days OR • Amoxicillin 500 mg q8h for 7 days PLUS • Metronidazole 400 mg q8h for days *Parenteral Therapy* • Inj Ciprofloxacin 500 mg q12h for 2days OR • Inj Ampicillin 2 g IV q6h for 2 days PLUS • Inj Metronidazole 500 mg q8h for 2days Then refer to hospital for further treatment after immediate care is given.	*Oral Therapy* • Doxycycline 100 mg q24h for 7days OR • Amoxicillin 500 mg q8h for 7 days PLUS • Metronidazole 400 mg q8h for days *Parenteral Therapy* • Inj Ampicillin 1g q6h for 2 days OR • Inj Ciprofloxacin 500 mg q12h for 2days PLUS Inj Gentamicin 5 mg/Kg for 3days (if sensitive to Gentamicin) PLUS • Inj Metronidazole 500 mg q8h for 2days Then switch on to oral medication as: • Amoxicillin 500 mg q8h for 5days OR • Ciprofloxacin 500 mg q12h for 5days PLUS • Metronidazole 400 mg q8h for 5 days	*Oral Therapy* • Doxycycline 100 mg q24h for 7days OR • Amoxicillin 500 mg q8h for 7 days PLUS • Metronidazole 400 mg q8h for days *Parenteral Therapy* • Inj Ampicillin 1g q6h for 2 days OR • Inj Ciprofloxacin 500 mg q12h for 2days OR • Inj Ceftriaxone 200 mg q12h for 2 days PLUS • Inj Gentamicin 5 mg/Kg for 3days PLUS • Inj Metronidazole 500 mg q8h for 2days Then switch on to oral medication as: • Amoxicillin 500 mg q8h for 5days OR • Ciprofloxacin 500 mg q12h for 5days PLUS • Metronidazole 400 mg q8h for 5 days

SEXUALLY TRANSMITTED INFECTION

(National Guidelines on Case Management of Sexually Transmitted Infection, July 2009)

Urethral Discharge Syndrome

Causative Pathogens

- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*
- *Mycoplasma genitalium*
- *Ureaplasma urealyticum*
- *Trichomonas vaginalis*
- Non-specific urethritis

Symptoms and signs

- Discomfort on urination
- Discharge from urethra

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Azithromycin 1g stat OR • Doxycycline 100 mg q12h for 7 days PLUS • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat	• Azithromycin 1g stat OR • Doxycycline 100 mg q12h for 7 days PLUS • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat OR • Inj Spectinomycin 2 g IM stat (reserve drug for gonococcal infection)

Scrotal Swelling Syndrome

Causative Pathogens

- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*

Symptoms and signs

- Painful testis
- Dysuria
- Swelling and tenderness of testis and epididymis
- Discharge (occasionally)

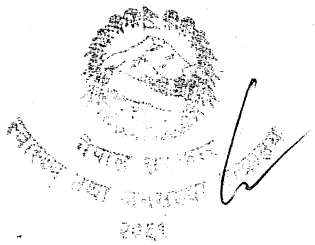
Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Azithromycin 1g stat OR • Doxycycline 100 mg q12h for 7 days PLUS • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat OR • Inj Spectinomycin 2 g IM stat Bed rest, analgesia and scrotal support	• Azithromycin 1g stat OR • Doxycycline 100 mg q12h for 7 days PLUS • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat OR • Inj Spectinomycin 2 g IM stat Bed rest, analgesia and scrotal support

Genital Ulcer Disease Syndrome (GUD)

Causative Pathogens

- *Treponema pallidum (Syphilis)*
- Herpes Simplex Virus (HSV-Genital Herpes)
- *Haemophilus ducreyi* (Chancroid)
- *Klebsiella granulomatosis* (granuloma inguinale)



Symptoms and signs

- Soreness or pain
- Ulcers-single or multiple, superficial or deep, clean or dirty looking in the genitalia
- Unilateral or bilateral, enlarged, tender or non-tender, soft or rubbery lymph nodes.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Inj Benzathine Penicillin 1.2 mU deep IM in each buttock (total 2.4 mU) stat –for syphilis PLUS • Azithromycin 1g stat- for chancroid PLUS • Aciclovir 400 mg q8h for 3 days(if clinical evidence of genital Herpes)	• Inj Benzathine Penicillin 1.2 mU deep IM in each buttock (total 2.4 mU) stat –for syphilis PLUS • Azithromycin 1g stat- for chancroid PLUS • Aciclovir 400 mg q8h for 3 days (if clinical evidence of genital Herpes

Inguinal Swelling (bubo) Syndrome

Causative Pathogens
- *Chlamydia trachomatis*
- *Haemophilus ducreyi* (Chancroid)

Symptoms and signs
- Painful swelling in the groin
- Discharging sinus

Treatment

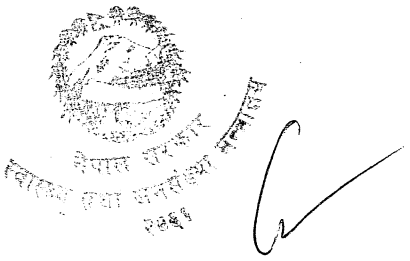
HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Azithromycin 1g stat PLUS • Doxycycline 100 mg q12h for 14 days	• Azithromycin 1g stat PLUS • Doxycycline 100 mg q12h for 14 days

Vaginal discharge Syndrome (cervicitis & vaginitis)

Causative pathogens
- *Candida albicans*
- *Trichomonas vaginalis*
- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*
- Bacterial vaginosis

Symptoms and signs

- Vulvovaginal irritation
- Vaginal soreness and smell
- Pain during intercourse
- Vaginal discharge-thin to thick, clear to purulent, scanty to profuse



Treatment

- Soreness or pain
- Ulcers-single or multiple, superficial or deep, clean or dirty looking in the genitalia
- Unilateral or bilateral, enlarged, tender or non-tender, soft or rubbery lymph nodes.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Inj Benzathine Penicillin 1.2 mU deep IM in each buttock (total 2.4 mU) stat –for syphilis PLUS • Azithromycin 1g stat- for chancroid PLUS • Aciclovir 400 mg q8h for 3 days(if clinical evidence of genital Herpes)	• Inj Benzathine Penicillin 1.2 mU deep IM in each buttock (total 2.4 mU) stat –for syphilis PLUS • Azithromycin 1g stat- for chancroid PLUS • Aciclovir 400 mg q8h for 3 days (if clinical evidence of genital Herpes

Inguinal Swelling (bubo) Syndrome

Causative Pathogens
- *Chlamydia trachomatis*
- *Haemophilus ducreyi* (Chancroid)

Symptoms and signs
- Painful swelling in the groin
- Discharging sinus

Treatment

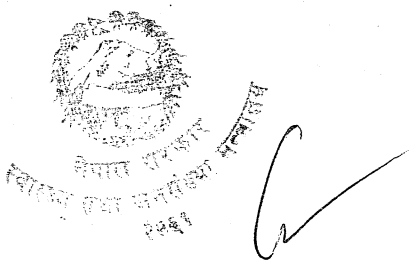
HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Azithromycin 1g stat PLUS • Doxycycline 100 mg q12h for 14 days	• Azithromycin 1g stat PLUS • Doxycycline 100 mg q12h for 14 days

Vaginal discharge Syndrome (cervicitis & vaginitis)

Causative pathogens
- *Candida albicans*
- *Trichomonas vaginalis*
- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*
- Bacterial vaginosis

Symptoms and signs

- Vulvovaginal irritation
- Vaginal soreness and smell
- Pain during intercourse
- Vaginal discharge-thin to thick, clear to purulent, scanty to profuse



Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
Cervicitis • Azithromycin 1g stat OR • Doxycycline 100 mg q12h for 7 days PLUS • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat OR • Spectinomycin 2 g IM stat Vaginitis • Metronidazole 400 mg q8h for 7 days OR • Tinidazole 2 g stat OR PLUS • Fluconazole 150 mg stat OR • Clotrimazole 200 mg vaginal pessary HS for 3 days	Cervicitis • Azithromycin 1g stat OR • Doxycycline 100 mg q12h for 7 days PLUS • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat OR • Inj Spectinomycin 2 g IM stat Vaginitis • Metronidazole 400 mg q8h for 7 days OR • Tinidazole 2 g stat OR PLUS • Fluconazole 150 mg stat OR • Clotrimazole 200 mg vaginal pessary HS for 3 days

Lower Abdominal Pain Syndrome

Causative pathogens

- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*
- Anaerobic bacteria

Symptoms and signs

- Pain and tenderness in lower abdomen-episodic or continuous
- Fever
- Vaginal discharge

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
Mild to moderate PID (OPD basis) • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat PLUS • Doxycycline 100 mg q12h for 14 days PLUS • Metronidazole 400 mg q12h for 14 days Severe PID (In-patient) • Inj Ceftriaxone IV q12h (dose & duration depends upon the severity and clinical judgement) PLUS • Doxycycline 100 mg q12h for 14 days PLUS • Metronidazole 400 mg q8h for 14 days	Mild to moderate PID (OPD basis) • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat PLUS • Doxycycline 100 mg q12h for 14 days PLUS • Metronidazole 400 mg q12h for 14 days Severe PID (In-patient) • Inj Ceftriaxone 1g iv q12h (duration depends upon the severity and clinical judgement) PLUS • Doxycycline 100 mg q12h for 14 days PLUS • Metronidazole 400 mg q8h for 14 days

Neonatal Conjunctivitis (Ophthalmia neonatorum)

Causative pathogens

- *Neisseria gonorrhoeae*
- *Chlamydia trachomatis*

Symptoms and signs

- Swelling and discharge from one or both the eyes within 21 days of birth.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre

• Inj Ceftriaxone 50 mg/kg (max 125 mg) IM stat PLUS • Erythromycin syp 50 mg/kg in 4 divided dose for 14 days Frequent cleaning of eyes with normal saline	• Inj Ceftriaxone 50 mg/kg (max 125 mg) IM stat PLUS • Erythromycin syp 50 mg/kg in 4 divided dose for 14 days Frequent cleaning of eyes with normal saline

Syphilis

Causative pathogens: Treponema pallidum

Classification:

I. Congenital syphilis
- Early syphilis(<2 yrs duration)
- Late syphilis (>2yrs duration)

II. Acquired syphilis
- Early (<2yrs duration)
  - i. Primary syphilis
  - ii. Secondary syphilis
  - iii. Early latent syphils
- Late (>2yrs duration)
  - i. Late latent syphilis
  - ii. Tertiary syphilis
  - iii. Neurosyphilis
  - iv. Cardio-vascular syphilis
  - v. Gummatous syphilis

Treatment

Early syphilis (Primary, secondary, latent syphilis (< 2years duration)	• Benzathine penicillin 2.4 mU IM stat 1.2 mU in each buttock OR • Aqueous Procaine penicillin, 1.2 mU IM for 10 days In penicillin allergic non-pregnant patients • Doxycycline 100 mg q12h for 14days OR • Tetracycline 500 mg q6h for 14 days
Latent syphilis (>2 years duration)	• Benzathine penicillin 2-4 mU IM weekly for 3 weeks OR • Aqueous Procaine penicillin 1.2 mU IM for 20 days
Cardiovascular syphilis	• Aqueous Procaine penicillin 1.2 mU IM for 20 days In penicillin allergic patients • Doxycycline 100 mg q12h for 30 days OR • Tetracycline 500 mg q6h for 30 days
Neurosyphilis	• Aqueous Benzyl penicillin 2 mU IV q4h for 14 days OR • Aqueous Benzyl penicillin 1.2 mU IM for 10-14 days • PLUS • Probenecid 500 mg q6h for 10-14 days • In penicillin allergic non-pregnant patients • Doxycycline 200 mg q12h for 30 days OR • Tetracycline 500 mg q6h for 30 days
Syphilis in pregnancy	• Penicillin as above In penicillin allergic patients Early syphilis • Erythromycin 500 mg q6h for 15 days Late syphilis • Erythromycin 500 mg q6h for 30 days

Infants born to mother who are seroreactive for syphilis	• Benzathine penicillin 50,000 U/Kg IM stat
Congenital syphilis	
Early syphilis with clinical CNS involvement or abnormal CSF	• Aqueous Procaine penicillin 50,000 U/Kg IM for 10 days
Early syphilis with normal CSF	• Benzathine penicillin 50,000 U /Kg stat
Late congenital syphilis (>2yrs duration)	• Aqueous Benzyl penicillin 300,000 U/Kg (max 1.2 mU) IM in divided doses for 10 days
For penicillin allergic children (after 1st month of life)	• Erythromycin 10 mg/Kg q6h for 30 days

Treatment recommended for specific infection

Genital Candidiasis	• Fluconazole 150 mg stat OR • Clotrimazole 100 mg vaginal tablets 1 tablets HS for 6 days
Trichomonas Vaginalis	• Tinidazole 2g stat OR • Metronidazole 400 mg q8h for 7 days
Bacterial Vaginosis (BV)	• Tinidazole 2g stat OR • Metronidazole 400 mg q8h for 7 days
Chlamydia Trachomatis	Uncomplicated ano-genital infections • Azithromycin 1g single dose OR • Doxycycline 100 mg q12h for 7 days OR • Tetracycline 500 mg q6h for 7 days OR • Erythromycin 500 mg q6h for 7 days
	Neonatal Conjunctivitis • Erythromycin syp 50 mg/Kg per day in 4 divided doses for 2 weeks
	Chlamydial Pneumonia • Erythromycin syp 50 mg/Kg per day in 4 divided doses for 3 weeks
Gonococcal infection:	Uncomplicated ano-genital infection • Cefixime 400 mg stat OR • Inj Ceftriaxone 250 mg IM stat Alternate regimen • Inj Spectinomycin 2 g IM stat OR • Inj Cefotaxim 500 mg IM stat OR • Cefpodoxime 400 mg stat
	For Pharyngeal infection and epididymis • Inj Ceftriaxone 250 mg IM stat PLUS • Doxycycline 100 mg q12h for 7 days
	Disseminated infection • Inj Ceftriaxone 1g iv q24h for 2-3 days OR • Inj Spectinomycin 2g IM q12h for 2-3 days OR • Inj Cefotaxim 1g IV q8h for 2-3 days Then switch to oral medication • Cefixime 400 mg q12h for 5 days OR • Cefpodoxime 400 mg q12h for 5 days If meningitis, for 2 weeks If endocarditis, for 4 weeks
	Gonococcal Ophthalmia • In adults- as for ano-genital infection • In neonates- Inj Ceftriaxone 50 mg/Kg (max 125 mg) IM stat

	Infants born to mother with gonococcal infection • Inj Ceftriaxone 50 mg/Kg (max 125mg) IM stat OR • Inj Spectinomycin 25 mg/Kg (max 75mg) IM stat
Lymphogranuloma venerum	• Doxycycline 100 mg q12h for 14 days OR • Erythromycin 500 mg q6h for 14 days
Chancroid	• Ciprofloxacin 500 mg q12h for 3 days OR • Azithromycin 1g stat OR • Inj Ceftriaxone 250 mg IM stat OR • Erythromycin 500 mg q6h for 7 days
Granuloma inguinale (Donovanosis)	• Azithromycin 1g stat then 500 mg q24h till the lesions heal OR • Doxycycline 100 mg q12h till the lesions heal
Genital Herpes	1st Clinical Episode • Aciclovir 200 mg 5times/day for 7 days For recurrence (>6 times/year) • Aciclovir 200 mg 5 times/days for 5 days For suppressive therapy • Aciclovir 200 mg q12h for 6 months to 2 years

OPHTHALMOLOGY

Foreign Body (F.B.) / Corneal Abrasion

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Removal of foreign body if possible • Chloramphenicol eye drop 1 drop q1h and ointment at bedtime OR • Ciprofloxacin eye drops 1 drop q1h and ointment at bed time • Give medication as above and refer to higher centre if the foreign body is not easily removed • If penetrating or perforating injury is suspected cover the eyes with sterile pad, do not put any medications and refer to higher centre	• Foreign body is removed, if needed under the microscope; eye drop and ointment as per district hospital. OR • Ofloxacin eye drops, 1drop q2h OR • Gentamicin eye drops, 1drop q2h • Atropine eye drops, 1 drop q8h If possible according to C/S result, if infection or corneal ulcer is suspected.

Corneal ulcer

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Chloramphenicol eye drop 1 drop q1h and ointment at bedtime OR • Ciprofloxacin eye drops 1 drop q1h and ointment at bed time • Atropine eye drops, 1 drop q8h • Then refer to eye hospital/centre	Before C/S report: • Fortified Gentamicin eye drops (14 mg/ml), 1 drop q1h OR • Fortified Cefazoline (50 mg/ml) 1 drop q1h • Atropine OR Homatropine eye drops, 1 drop q8h Once C/S report available, start antibiotic sensitive Rx.

Conjunctivitis

Symptoms and signs

- Discomfort in one or both eyes, foreign body sensation
- Discharge (watery or purulent) from the eye
- Marked redness of conjunctiva
- Eyelid stickiness.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Wash the eye frequently with water and clean eyelids. • Take eye rest, no eye rub, no exposure to sunlight. • Chloramphenicol eye drops q2h and ointment at bedtime OR • Ciprofloxacin eye drops 1 drop q4h and ointment at bed time • Diclofenac eye drops, 1 drop q2h	• As per District hospital If not responding to Rx, change Rx as per C/S report.

Prevention

By the infected

- Not touching the eyes with finger
- Not rubbing the eye
- Lying on affected side
- Not using the same handkerchief for both eyes

By other family members

- Handkerchief and towel used by patient must be kept separate.

Referral

- If patient does not respond within 7 days of treatment or redness of the eye increases

Trachoma

Etiology: Chlamydia trachomatis.

Diagnostic features

- Involvement of both eyes.
- Lacrimation
- Foreign body sensation
- Mucopurulent discharge from both eyes
- Redness of the conjunctiva
- Appearance of papillae and follicle in the conjunctiva
- Vascularised infiltration in the upper part of cornea: pannus
- Signs of complication e.g. trichiasis, corneal opacities etc.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Wash the eye frequently with water • Chloramphenicol eye drops q4h and ointment at bedtime OR • Ciprofloxacin eye drops 3 drops q4h and ointment at bed time • Then refer to eye hospital/centre	• SAFE (Surgery, Antibiotics, Face washing and Environment improvement) is practiced for trachoma control. • Tetracycline eye ointment X HS X6 weeks • Azithromycin 1 g (20 mg/Kg for children) stat OR • Doxycycline 100 mg q24h for 3-4 weeks

Chemical Burn of the Eye

Symptoms

- Burning sensation
- Pain
- Diminution of vision
- Associated skin lesion of eye lids and face

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Promptly wash the eye with water at least for 30 minutes, remove any particles • Chloramphenicol eye drops, 1 drop q4h and Chloramphenicol eye ointment at bedtime OR • Ciprofloxacin eye drops 1 drop q4h and ointment at bed time OR • Refer to eye hospital/centre • Paracetamol 500 mg SOS	• As per District hospital • Clinical evaluation to grade the severity of the burn • Ofloxacin eye drops, 1 drop q4h OR • Gentamicin eye drops, 1 drop q4h • Atropine eye drops, 1 drop q8h For first 3-4 days: • Dexamethasone OR Prednisolone eye drops, 1drop q2h for 3-4 days After 5-7 days: • Stop topical steroid, continue antibiotics drops • Vitamin C, 500 mg q24h for 2 weeks • Carboxymethyl cellulose OR hydroxypropyl methylcellulose eye drops, 1 drop q4h for 2 weeks.

EAR, NOSE AND OROPHARYNX

Wax

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• No treatment when asymptomatic • Soft wax-remove by syringing • Hard wax-soften by GSB (Glycerin in 10% sodium bicarbonate, 3-4 times a day for 7-10 days, then syringing • Aspirin 300 mg or Paracetamol 500 mg q8h for 3 days (if pain) • Erythromycin 500 mg q6h OR • Amoxicillin 500 mg q8h for 5-7days(if complicated by otitis externa)	• No treatment when asymptomatic • Soft wax-remove by syringing • Hard wax-soften by GSB (Glycerin in 10% sodium bicarbonate, 3-4 times a day for 7-10 days, then syringing • Aspirin 300 mg or Paracetamol 500 mg q8h for 3 days (if pain) • Erythromycin 500 mg q6h OR • Amoxicillin 500 mg q8h for 5-7days (if complicated by otitis externa)

Furunculosis

- bacterial infection of hair follicle usually caused by ear picking.

Symptoms and signs

- Acute pain
- Tenderness when tragus is pressed
- Tender red spot in the hair-bearing area of the canal.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Aspirin 300 mg or paracetamol 500 mg q8h for 3 days (if pain) • I.G. packing (10% ichthammol in glycerin)and changed every 2 days • Erythromycin 500 mg q6h OR • Amoxicillin 500 mg q8h for 5-7days (if not controlled or if the patient is diabetic)	• Excision of granulation tissue • Ear packing under GA/LA • Amoxicillin 500 mg q8h for 5-7days (if not controlled or if the patient is diabetic)

Otomycosis

- fungal infection of the ear

Etiology: Candida albicans and *Aspergillus niger.*

Symptoms and signs

- Itching
- Pain
- Discharge
- Moist dark or wet grayish white debris usually seen

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Suction clearance or syringing with lukewarm water soft wax-remove by syringing • Gentian violet solution OR • Clotrimazole ear drops q8h for 10 days • Keep the ear dry	• Suction clearance or syringing with lukewarm water. Soft wax-remove by syringing • Gentian violet solution OR • Clotrimazole ear drops q8h for 10 days • Keep the ear dry

Acute Otitis Media (Acute Suppurative Otitis Media (ASOM)

Symptoms and signs

- Throbbing earache
- Decreased hearing
- Congestion of tympanic membrane
- Ear discharge
- Usually preceded by common cold
- Sometimes fever

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 40-50 mg/Kg/day in 3 divided dose for 5-7 days OR • Cotrimoxazole 8/40 mg /Kg/ day in 2 divided doses for 5-7 days OR • Azithromycin 500 mg q24h for 5days • Decongestant, antihistamine and Paracetamol can be added as per required	• Amoxicillin 40-50 mg/Kg/day in 3 divided dose for 5-7 days OR • Cotrimoxazole 8/40 mg /Kg/ day in 2 divided doses for 5-7 days OR • Amoxicillin+Clavulanic acid 625mg q8h for 5-7 days OR • Cefixime 400 mg q12h for 5-7 days OR • Azithromycin q24h for 3-5 days OR • Cefaclor 250-500 mg q8h (20-40 mg/Kg/day in 3 divided doses) for 5-7 days • Decongestant, antihistamine and Paracetamol can be added as per required

Otitis Media with effusion (OME)

Symptoms and signs

- More common in the pediatric age group
- Recurrent earache usually at night
- Decreased hearing
- Tympanic membrane is dull and opaque
- No pus in the ear canal
- Persistent unilateral OME (seen in elderly person with nasopharyngeal carcinoma)

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• refer to higher centre	• Conservative OR • Grommet insertion

Chronic Suppurative Otitis Media (CSOM)

- disease of middle ear

-present with a history of frequent ear discharge and impaired hearing

It is of two types

- Tubo-tympanic (safe type)
- Attico-antral (unsafe type)

Tubo-tympanic type of CSOM

Symptoms and signs

- Intermittent profuse mucoid/mucopurulent, non-foul smelling ear discharge
- Tympanic membrane perforated.

Treatment

HP/SHP/PHC/District Hospital	Zonal & above or referral centre
• Avoid entry of water/oil • Cotrimoxazole 160/800 mg q12h for 5-7 days OR • Amoxicillin 500 mg q8h for 5-7 days OR • Ciprofloxacin 500 mg q12h for 5-7 days PLUS • Chloramphenicol/ Ciprofloxacin ear drops 3-4 time a day for 7 days • Finally surgery is required	• Avoid entry of water/oil • Cotrimoxazole 160/800 mg q12h for 5-7 days OR • Amoxicillin 500 mg q8h for 5-7 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5-7 days OR • Cefixime 400 mg q12h for 5-7 days OR • Ciprofloxacin 500 mg q12h for 5-7 days PLUS • Chloramphenicol/ Ciprofloxacin ear drops 3-4 time a day for 7 days • Finally surgery, myringoplasty (if not healed)

Attico-antral type of CSOM

Symptoms and signs

- Continuous scanty and foul smelling discharge
- Hearing loss
- May develop life threatening complications hence requires surgical intervention as early as possible.

If a patient with CSOM presents with pain with or without swelling behind the pinna then diagnosis of acute mastoiditis should be suspected.

High dose of preferably broad-spectrum antibiotics (ampicillin/amoxicillin/chloramphenicol) should be started and referred to the higher centre immediately. If the patient presents with post aural abscess, it should be drained.

Acute Sinusitis

Symptoms and signs

- Usually secondary to viral rhinitis
- Purulent nasal discharge
- facial pain, often associated with malodorous breath
- Tenderness may be over the affected sinuses.

The duration of the antibiotics is ordinarily for 10 days. Oral and nasal decongestants along with antihistamines may give symptomatic relief. Steam inhalation seems to be beneficial during acute episodes.

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Cotrimoxazole 160/800 mg q12h for 7-10 days OR • Amoxicillin 500 mg q8h for 57 days OR • Doxycycline 100-200 mg q12h for 7-10 days (in PHC & District Hospital) • Oral and nasal decongestants with antihistaminic as per required • Steam inhalation	• Cotrimoxazole 160/800 mg q12h for 7-10 days OR • Amoxicillin 500 mg q8h for 57 days OR • Doxycycline 100-200 mg q12h for 7-10 days OR • Amoxicillin+Clavulanic acid 625mg q8h for 7-10 days OR • Cefaclor 500 mg q8h for 7-10 days • Oral and nasal decongestants with antihistaminic as per required

Furunculosis of nasal vestibule

- bacterial infection of the skin of the nasal opening

Symptoms and signs

- Pain
- Swelling
- Redness
- Headache
- Furuncle in the nasal vestibule
- Discharge per nostril

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5-7 days OR • Erythromycin 500 mg q6h for 5-7days OR • Cloxacillin 500 mg q6h for 5-7 days (in PHC & District Hospital)	• Amoxicillin 500 mg q8h for 5-7 days OR • Erythromycin 500 mg q6h for 5-7days OR • Cloxacillin 500 mg q6h for 5-7 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5-7 days • Modify the treatment according to C/S result

Acute Epiglotitis

Symptoms and signs

- An acute life threatening condition
- Difficulty in breathing (especially in children)
- Sore throat
- Muffled voice
- Painful swallowing
- Drooling of saliva
- Cyanosis
- Stridor

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Inj Ampicillin 500 mg q8h for 5-7 days • Hydrocortisone is added if respiratory distress is present

Acute Tonsilitis

Symptoms and signs

- More common in paediatric age group
- Acute sore throat
- Fever
- Painful swallowing
- Inflamed tonsils often with pus points
- Enlarged and tender upper neck nodes

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5-7 days OR • Erythromycin 500 mg q6h for 5-7 days OR • Ciprofloxacin 500 mg q12h for 5-7 days OR • Azithromycin 500 mg q24h for 3-5 days	• Amoxicillin 500 mg q8h for 5-7 days OR • Erythromycin 500 mg q6h for 5-7 days OR • Ciprofloxacin 500 mg q12h for 5-7 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5-7 days OR • Azithromycin 500 mg q24h for 5-7 days OR • Inj Ceftriaxone 1g q12h for 2-3 days the switch to oral medication

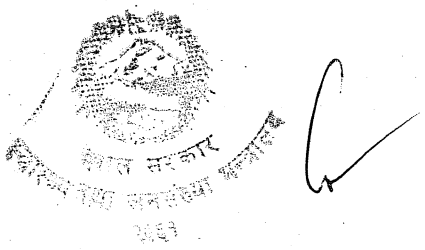
Ludwig's angina

Symptoms and signs

- Acute inflammatory condition involving sublingual and submental space
- Etiology is carious teeth or poor oro-dental hygiene
- Pain and swelling of submandibular space with raised floor of mouth

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5-7 days OR • Cotrimoxazole 160/800 mg q12h for 5-7 days OR • Ciprofloxacin 500 mg q12h for 5-7 days PLUS • Metronidazole 400 mg q8h for 5-7 days • Refer to higher centre	• Amoxicillin 500 mg q8h for 5-7 days OR • Cotrimoxazole 160/800 mg q12h for 5-7 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5-7 days • Ciprofloxacin 500 mg q12h for 5-7 days OR • Inj Ceftriaxome 1g q12h for 5-7 days PLUS • Metronidazole 400 mg q8h for 5-7 days



DENTAL

Acute pulpitis

Symptoms and signs

- Severe pain, more at night on lying, not relieved by analgesics
- Pain with hot and cold food
- May be lymphadenopathy
- Dental caries

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days	• Amoxicillin 500 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5 days

Prevention

- Restoration of decayed teeth before the pain starts
- Regular visit to the dentist

Acute necrotizing ulcerative gingivitis

Symptoms and signs

- Severe pain
- Bad breath, halitosis
- Metallic taste
- Lymphadenopathy
- Ulcerative lesions on the tip and/or margins of gingiva
- Fever, malaise

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Metronidazole 400 mg q8h for 5 days OR • Tinidazole 500 mg q8h for 5 days PLUS • Amoxicillin 500 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days	• Metronidazole 400 mg q8h for 5 days OR • Tinidazole 500 mg q8h for 5 days PLUS • Amoxicillin 500 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5 days

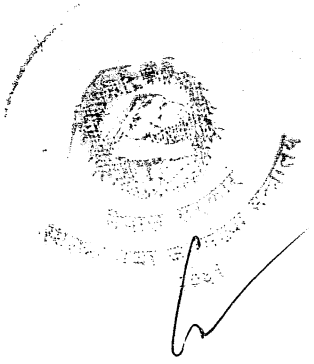
Prevention

- Maintenance of oral hygiene
- Balanced diet

Pericoronitis

Symptoms and signs

- Mostly affecting 17-25 years age
- Severe or mild pain mainly at the posterior wisdom tooth region
- May be pus discharge at the retro molar region
- May be cellulitis, lymphadenopathy
- May be fever, malaise



Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days PLUS • Metronidazole 400 mg q8h for 5 days OR • Tinidazole 500 mg q8h for 5 days	• Amoxicillin 500 mg q8h for 5 days OR • Amoxicillin+Clavulanic acid 625 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days PLUS • Metronidazole 400 mg q8h for 5 days OR • Tinidazole 500 mg q8h for 5 days

Periapical abscess

Symptoms and signs

- Severe pain
- Tender tooth
- May be pus discharge or sinus formation adjacent to involved tooth
- May be cellulitis
- May be fever, malaise

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days	• Amoxicillin 500 mg q8h for 5 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days

Prevention

- Restoration of decayed teeth before the pain starts
- Regular visit to the dentist

Periodontal abscess

Symptoms and signs

- Dull or severe pain
- Tenderness
- Pus discharge from gingival margin of involved tooth

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 500 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days OR • Doxycycline 100 mg q12h for 5 days	• Amoxicillin 500 mg q8h for 5 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days OR • Doxycycline 100 mg q12h for 5 days

Prevention

- Maintenance of oral hygiene
- Regular visit to the dentist

Infective endocarditis prophylaxis

Recommended for surgical procedures like extraction, surgeries as well as oral prophylaxis in oral cavity in patients at risk for infective endocarditis.

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Amoxicillin 2 g 1 hour before procedure OR • Azithromycin 500 mg 1 hour before procedure	• Amoxicillin 2 g 1 hour before procedure OR • Azithromycin 500 mg 1 hour before procedure OR • Inj Clindamycin 600 mg IV within 30 minutes before procedure (must be diluted and injected very slowly) OR • Inj Cefazolin 1g IM or IV within 30 minutes before procedure

Ludwig's angina

Symptoms and signs

- Severe pain and swelling of submandiblular space with raised floor of the mouth
- Tenderness, redness
- Fever, malaise

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Amoxicillin 500 mg q8h for 7 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 7 days OR • Erythromycin 500 mg q6h for 7 days OR • Inj Ceftriaxone 1g q12h IV for 5 days PLUS • Metronidazole 400 mg q8h for 5 days OR • Inj Metronidazole 500 mg q12h IV for 5 days

Trauma

Symptoms and signs

- Severe pain
- Fractured teeth
- Fractured mandible or maxilla
- Tenderness
- May be cellulitis
- May be Fever, malaise

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Tetanus toxoid • Temporary stabilization • Refer to higher centre	• Amoxicillin 500 mg q8h for 5 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 5 days OR • Erythromycin 500 mg q6h for 5 days

Postoperative surgery

- After oral surgical, gingival surgery and endodontic surgery procedures

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
	• Amoxicillin 500 mg q8h for 7 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 7 days OR • Erythromycin 500 mg q6h for 7 days OR • Inj Ciprofloxacin 200 mg q12h for 5-7 days OR • Inj Ceftriaxone 500 mg q12h for 5-7 days PLUS • Inj Metronidazole 500 mg q8h for 5-7 days PLUS • Inj Gentamicin 1 g IV q12h for 5 days OR • Antibiotics, their doses and duration can be changed according to the patient's profile, surgeon's clinical judgement and the hospital facilities.

Aggressive periodontitis

Symptoms and signs

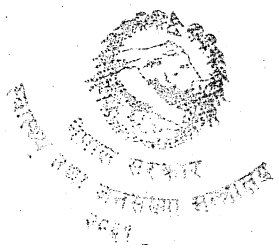
- Mild pain
- Mostly manifest at an early age
- Rapid loosening of teeth

Treatment

HP/SHP PHC/District Hospital	Zonal & above or referral centre
• Refer to higher centre	• Amoxicillin 500 mg q8h for 7 days OR • Amoxicillin+clavulanic acid 625 mg q8h for 7 days PLUS • Metronidazole 400 mg q8h for 7 days

Prevention

- Maintenance of oral hygiene
- Regular visit to the periodontist



Annex I

Antibiotics included in national list of essential medicines, 2011

Antibacterials

Beta-lactam medicines: Penicillins
Amoxicillin capsule or tablet, dispersible tablet, powder for oral liquid
Ampicillin powder for injection
Benzathine benzylpenicillin powder for injection
Benzylpenicillin (Penicillin G) powder for injection
Cloxacillin capsule, powder for oral liquid, powder for injection
Phenoxymethylpenicillin (Penicillin V) tablet, powder for oral liquid
Procaine benzylpenicillin powder for injection

Beta-lactam medicines: Cephalosporins
Cefazolin powder for injection
Cefixime tablet
Ceftriaxone powder for injection

Other Antibacterials
Azithromycin capsule or tablet, oral liquid
Chloramphenicol capsule, oral liquid, powder for injection
Ciprofloxacin tablet
Doxycycline capsule
Erythromycin tablet, oral liquid
Gentamicin injection
Metronidazole tablet, injection, oral liquid
Nalidixic acid tablet
Nitrofurantoin tablet
Sulfamethoxazole+Trimethoprim (Cotrimoxazole) dispersible tablet, tablet, oral liquid
Tetracycline capsule

Antileprosy Medicines
Clofazimine capsule
Dapsone tablet
Rifampicin capsule

Antitubercular Medicines
Ethambutol tablet
Ethambutol + isoniazid tablet
Ethambutol + rifampicin +isoniazid tablet
Ethambutol + rifampicin +isoniazid+ pyrazinamide tablet
Isoniazid tablet
Isoniazid + rifampicin tablet
Isoniazid + rifampicin + pyrazinamide tablet
Rifampicin capsule or tablet
Streptomycin powder for injection

Second-line medicines for MDR-TB
Amoxicillin + clavulanic acid tablet
Capreomycin powder for injection
Clofazimine capsule
Cycloserine capsule
Ethionamide tablet
Kanamycin powder/solution for injection
Ofloxacin tablet
Levofloxacin tablet
Moxyfloxacin tablet
p-aminosalicylic acid (PAS) granules, tablet
Pyrazinamide tablet, 400mg

Antifungal Medicines
Clotrimazole cream, pessary
Fluconazole capsule or tablet
Nystatin lozenge

Antiherpes Medicines
Aciclovir powder for injection, tablet

Ophthalmological and otic anti-infective preparations
Aciclovir ointment
Gentamicin eye drops
Chloramphenicol applicap (ointment)
Ciprofloxacin eye/ear drops, eye ointment
Tetracycline eye ointment
Chloramphenicol ear drops

Dermatological Medicines

Antifungal Medicines
Benzoic acid + Salicylic acid ointment or cream
Clotrimazole cream
Selenium sulfide detergent-based suspension

Anti-infective Medicines
Povidone iodine solution
Silver sulfadiazine cream
Gentian violet aqeous solution

Disinfectants and Antiseptics
Chlorhexidine solution, ointment
Gentian violet (Methylrosanilinium chloride) aqueous solution
Povidone iodine solution
Rectified spirit
Chlorine based compound, powder
Formaldehyde solution
Glutaraldehyde solution
Cetrimide solution

Annex II

Relative safety of antimicrobial agents in pregnancy and lactation

The safety of antimicrobial agents in pregnancy is a frequent cause of concern. Fortunately, most are remarkably safe. Australian Drug Evaluation Committee has categorized antimicrobials according to their relative safety (Table I).

Agents with potentially teratogenic effects are of greatest concern when given in the first trimester, whereas those prone to cause neonatal disease, such as kernicterus, need to be avoided immediately prior to delivery. The comments given in the table II draw attention to the nature of the risk. In some cases, this applies to the pregnant woman rather than directly to the foetus. Those agents with the specific risk of causing haemolysis in the G6PD-deficient foetus are indicated by an asterisk. Adverse effects not particularly related to pregnancy are not included.

Table I. Categories of antimicrobial agent safety in pregnancy

Category A	Drugs that have been taken by large number of women of child bearing age, without any proven increase in the frequency of malformations or other direct or indirect harmful effects on the foetus having being observed.
Category B	Drugs that have been taken by only limited number of pregnant women and women of childbearing age, without an increase in the frequency of malformations or other direct or indirect harmful effects on the foetus having being observed.
Group B1	Studies in animals have not shown evidence of an increased occurrence of foetal damage.
Group B2	Studies in animals are inadequate or may be lacking; however, available data show no evidence of an increased occurrence of foetal damage.
Group B3	Studies in animals have shown evidence of an increased occurrence of foetal damage, the significance of which is considered uncertain in humans.
Category C	Drugs that, because of their pharmacological effects, have caused or may be suspected of causing harmful effects on the human foetus or neonate without causing malformations. These effects may be reversible. Product Information should be consulted for further details.
Category D	Drugs that have caused or are suspected to have caused or may be expected to cause an increased incidence of human foetal malformations or irreversible damage. These drugs may also have adverse pharmacological effects. Product information should be consulted for further details.
Category X	Drugs that have such a high risk of causing permanent damage to the foetus that they should not be used in pregnancy or when there is possibility of pregnancy.

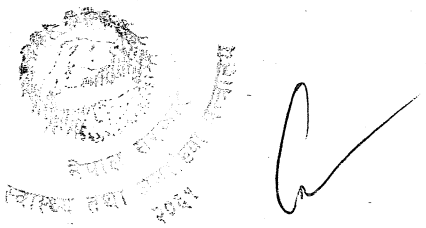
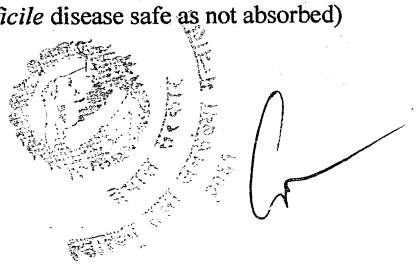


Table II. Relative safety of antimicrobial agents in pregnancy and lactation

Antibacterial agents	Category (pregnancy)	Lactation	Comment
Aminoglycosides			
Amikacin	D	safe	Congenital deafness has followed streptomycin use, therefore use any aminoglycoside during pregnancy only when essential.
Gentamicin	D	safe	
Netilmicin	D	safe	
Spectinomycin	B1	uncertain	Single-dose Spectinomycin appears safe for gonorrhoea in pregnancy.
Tobramycin	D	safe	
Cephalosporins			
Cefaclor	B1	safe	All cephalosporins listed here are regarded as being safe.
Cefepime	B1	safe	
Cefotaxime	B1	safe	
Cefotetan	B1	safe	
Cefoxitin	B1	safe	
Cefpirom	B1	safe	
Cefpodoxine	B1	safe	
Ceftazidin	B1	safe	
Ceftriaxone	B1	safe	
Cefuroxime	B1	safe	
Cephalexin	B1	safe	
Cephalothin	B1	safe	
Cephazoline	B1	safe	
Penicillins			
Amoxicillin	A	safe	All penicillins appear to be safe in pregnancy and lactation. There is limited data for the beta-lactamase inhibitors, but no reason to expect them to be unsafe.
Amoxicillin /clavulanate	B1	safe	
Benzathine penicillin	A	safe	
Benzyl penicillin	A	safe	
Flucloxacillin	B1	safe	
Phenoxymethyl penicillin	A	safe	
Piperacillin	B1	safe	
Piperacillin/ tazobactam	B1	safe	
Procaine penicillin	A	safe	
Ticarcillin	B2	safe	
Ticarcillin/ clavulanate	B2	uncertain	
Other Beta lactams			
Aztreonam	B1	safe	Probably safe in pregnancy but inadequately studied
Imipenem/ cilastatin	B3	safe	Maternal intolerance in some pregnant animals-caution advised.
Meropenem	B2	uncertain	
Macrolides			
Azithromycin	B1	safe	Probably safe but inadequate data
Clarithromycin	B3	uncertain	Clarithromycin has been associated with foetal toxicity in primates

Erythromycin (except estolate)	A	safe	Erythromycin estolate is associated with an increased risk of cholestatic hepatitisin pregnant women. Other Erythromycins are routinely used for chlamydial infection in pregnancy. All are compatible with breastfeeding.
Roxithromycin	B1	safe	
Quinolones			
Ciprofloxacin	B3	avoid	Quinolones cause arthropathy and Fleroxacin B3-X cartilage damage in juvenile experimental animals. Experience with newer fluoroquinolones are relatively, contraindicated probably only because less experience has accrued. High levels are present in milk.
Nalidixic acid	A	uncertain	
Norfloxacin	B3	avoid	
Ofloxacin	B3	avoid	
Tetracyclines			
Doxycycline	D	avoid	All tetracyclines are contraindicated in pregnancy and during breastfeeding because of the possibility of retardation of foetal skeletal development and enamel hypoplasia with discoloration of teeth. IV use is associated especially in those with hepatotoxicity and nephrotoxicity in pregnant women, with renal insufficiency or if overdosed.
Minocycline	D	avoid	
Tetracycline	D	avoid	
Other antibacterial agents			
Chloramphenicol	A	avoid	Possibility of Grey-baby syndrome when given near term, Also idiosyncratic aplastic anaemia.
Clindamycin	A	avoid	Appears safe.
Cotrimoxazole	C	safe	Very large doses of trimethoprim are teratogenic in animals if used consider folate suplementation. Sulphonamides may cause kernicterus when given at term. Avoid during breast feeding if infant is G6PD deficient.
Fusidic acid	C	safe	Risk of kernicterus when given perinatally, otherwise safe
Haxamine (Methanamine)	A	safe	Appears safe
Lincomycin	A	safe	Appears safe
Metronidazole	B2	avoid high Single dose	Mutagenic in bacteria and carcinogenic in mice after long term use, therefore usually avoided in first trimester. A Recent meta-analysis suggests it is safe.
Nimorazole	-	uncertain	Related to metronidazole. Probably safe.
Nitrofurantoin	A	uncertain	Appears safe except at term (neonatal haemolysis may occur due to immature enzyme systems and G6PD deficiency).
Ornidazole	-	uncertain	Related to metronidazole. Probably safe.
Rifampicin	C	safe	Cause of skeletal malformation in animals and of postnatal haemorrhage in humans. If given in late pregnancy give mother and neonate vitamin K.
Sulphonamides	C	safe	Safe for full-term, healthy infants.
Teicoplanin	B3	uncertain	
Tinidazole	B3	uncertain	Related to metronidazole. Probably safe.
Trimethoprim	B3	safe	Avoid in first trimester- see cotrimoxazole.
Vancomycin	B2	safe	No studies: use with caution (oral vancomycin for *Clostridium difficile* disease safe as not absorbed)



Annex III

Antimicrobial agents in breast feeding

Antimicrobials given in therapeutic doses to lactating women are detectable in the milk. Some attain levels in milk that are a significant proportion of the maternal serum concentration, but most reach only a few percent. Even for the former, breast-feeding is not a means of achieving anything approaching therapeutic levels in the infant, and the possibility of overdosing via breast-feeding does not arise. The theoretical possibility of causing subsequent allergic reactions in the newborn has not been convincingly demonstrated. However, in the case of a very few antimicrobial agents, the small amounts ingested via milk can have adverse effects.

Metronidazole and related drugs can give a bitter taste; concerns about their mutagenic potential have not been shown to be justified. Chloramphenicol is presumed capable of causing idiosyncratic bone marrow suppression in very small amounts. Nalidixic acid, nitrofurantoin and sulphonamides in breast milk have been shown to cause haemolysis in infants with G6PD deficiency, and this is presumably a possibility with other oxidant agents. It is postulated that sulphonamides may reach sufficient levels to precipitate kernicterus in the predisposed neonate, but no adverse effects in infants have been reported with cotrimoxazole given to lactating women. Tetracyclines attain significant levels in milk and even though absorption may be slight as the result of chelation with calcium, it seems prudent to avoid these agents as one would in pregnancy or childhood. Aminoglycosides are relatively contraindicated in pregnancy, but achieve low levels in milk and are not absorbed by mouth. Vancomycin is not absorbed by mouth.

Antimicrobial agents regarded as compatible with breast feeding by American Academy of Pediatrics Committee on Drugs include: penicillins, cephalosporins, macrolides, clindamycin, cotrimoxazole, isoniazid, ethambutol, rifampicin, quinine, qunidine and acyclovir. Nalidixic acid and nitrofurantoin are safe in the absence of G6PD deficiency.

Annex IV

Antibiotic prophylaxis in surgery

The purpose of prophylaxis is to prevent postoperative infection. With appropriate agents, a significant reduction in the incidence of wound infection is achievable and, in addition, there may be corresponding reductions in postoperative respiratory and urinary infection rates.

A major determinant of postoperative infection (and, therefore, of the requirement for prophylaxis) is the "category' of the surgical procedure, which classifies incisional wounds according to the extent of microbial contamination:

Clean Procedures: Primarily closed, elective procedures involving no inflammation or antecedent trauma, no break in technique, and no entry into the gastrointestinal, oropharyngeal, genitourinary, biliary, or tracheobronchial tracts.

Clean-Contaminated Procedures: Surgery during which a colonised viscus (e.g. gastrointestinal, tracheobronchial or genitourinary tract) is entered. Inflammation is absent and there is no significant spillage/contamination. Included in this category are: clean procedures in which there are minor breaches in technique; re-operation of clean surgery within 7 days; and procedures following blunt trauma.

Contaminated Procedures: Surgery in the presence of nonpurulent inflammation, or when there is major spillage from a colonised viscus, or there is major breach in aseptic technique. Traumatic wounds less than 4 hours old are included in this category.

"Dirty' Procedures: Surgery in the presence of established infection e.g. perforated viscous, devitalised tissue, and traumatic wounds more than 4 hours old.

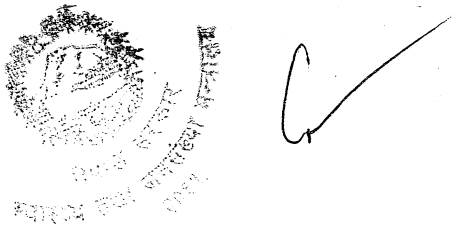
Annex V
Guidelines for prophylaxis

The following guidelines for prophylaxis apply to **clean, clean-contaminated** and **selected contaminated** procedures. The use of antimicrobials in dirty and some contaminated procedures is not classified as prophylaxis but as treatment for presumed infection. The duration of such treatment is commonly 3 to 5 days.

- In situations where postoperative infection rates are low (e.g. following clean surgery), prophylaxis should be given only when: (a) infection would have catastrophic results (e.g. heart valve or joint replacements); or (b) a risk index or some other information indicates an increased probability of postoperative wound infection.
- Antibiotic should be present in the target tissues at the time of incision and when contamination occurs.
- The optimum timing for prophylaxis by parenteral administration is at the time of induction of anaesthesia. The infection rate increases if antibiotics are given more than 2 hours preoperatively or are delayed until after the start of the operation.
- For the majority of procedures lasting for 2 hours or less, a single dose of prophylactic antibiotic is sufficient.
- Excessively long courses of 'prophylactic ' antibiotic, whether before or after surgery, select for resistant organisms and may increase the risk of infection. The practice of continuing antibiotics until such time as surgical drains have been removed is unproven and not recommended.
- For procedures lasting more than 2 hours, or when there is massive blood loss producing antibiotic 'wash-out', 1 or 2 further doses may be required.
- The antibiotic chosen for prophylaxis should have spectra of activity that include those organisms most likely to cause infection following the procedure. It is not necessary for the chosen agent to 'cover' all the likely contaminants.
- The benefits of prophylaxis should outweigh the risks, e.g. the antibiotic should be safe and should not contribute to the emergence of antibiotic-resistant bacteria.
- Since antibiotic prophylaxis accounts for at least one-third of all antibiotics used in hospital practice, the issues of antibiotic costs and cost-effective prophylaxis are becoming increasingly important.
- Prophylactic antibiotics are only one factor that determines the risk of infection. Other factors of equal or even greater importance are surgical technique, the duration of surgery, the duration of preoperative stay, shaving the operation site (if this must be done, shave immediately preoperatively), repeat surgical procedure, obesity, immune compromise and a variety of other host factors.

Annex VI
Topical antibiotics

Topical antibiotics have an established place in the treatment of conjunctivitis, otitis externa, acne and discrete of impetigo. The use of topical antibiotics in most other situations is controversial. Antiseptics, for example povidone iodine, are preferred for minor wounds. It seems reasonable to avoid use of valuable systemic agents for two reasons: the patient may become allergic and the organisms may become resistant. Emergence of resistance is a problem both in hospital and in the community.



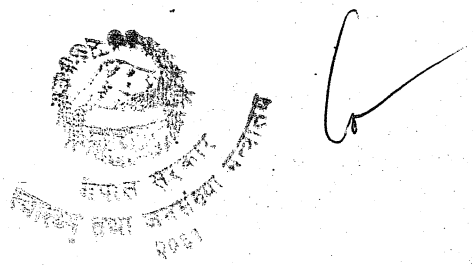
Annex VII

Antimicrobial combinations

Antimicrobial combinations should be avoided unless indicated:

- To extend the spectrum to cover, e.g. empirical therapy of suspected mixed infections such as pelvic inflammatory disease.
- To achieve a bactericidal effect (synergy), e.g. in enterococcal endocarditis.
- To prevent the emergence of resistant organisms, e.g. in the therapy of tuberculosis.

Synergistic combinations of antibiotics are those that show greater activity than would be expected from their individual activities.
Antagonistic combinations have less activity than any one of the components and are fortunately uncommon.



Annex VIII

Guidelines on antibiotics prescription

The basic points that need to be considered for prescribing antibiotics are:

1) Prevent unnecessary use and the promotion of drug resistance
2) Improve safety by avoiding unnecessary drug toxicity
3) Reduce cost

Classification of antimicrobials:

Group 1: Non-restricted prescriptive antibiotics
Group 1A: Non-restricted prescriptive antibiotics (to be prescribed as per national protocol for TB & leprosy)
Group 2: Restricted (to be prescribed at least by medical officer)
Group 3: Very restricted (to be prescribed by faculty, specialist and consultant)

Generic name	Route of administration	Group classification
Penicillins		
Amoxicillin	Oral	1
Amoxicillin + clavulanic acid	Oral	1
Amoxicillin+cloxacillin	Oral, injection	2
Ampicillin	Oral, injection	1
Ampicillin+ cloxacillin	Oral, injection	2
Benzathine penicillin	Injection	1
Benzyl Penicillin	Injection	1
Benzyl Penicillin + Procaine Penicillin	Injection	1
Cloxacillin	Oral, injection	1
Flucloxacillin	Oral, injection	2
Phenoxymethyl penicillin	Oral	1
Procaine penicillin	Injection	1
Cephalosporins		
Cefaclor	Oral	2
Cefadroxil	Oral	1
Cefalexin	Oral	1
Cefazolin	Injection	1
Cefepime	Injection	3
Cefepime + salbactam	Injection	3
Cefixime	Oral	1
Cefixime + clavulanic acid	Oral	2
Cefoperazone	Injection	2
Cefoperzone + sulbactam	Injection	2
Cefotaxime	Injection	2
Cefpodoxime	Oral	1
Cefpodoxime + clavulanic acid	Oral	1
Ceftazidime	Injection	2
Ceftazidime + tazobactam	Injection	2
Ceftriaxone	Injection	1
Cefuroxime	Oral, injection	2
Other beta-lactams		
Doripenem	Injection	3
Imipenem+ Cilastatin	Injection	3
Meropenem	Injection	3
Piperacillin + tazobactam	Injection	2
Other antibiotics		

Amikacin	Injection	2
Azithromycin	Oral	1
Capreomycin	Injection	2
Chloramphenicol	Oral, injection	2
Ciprofloxacin	Oral, injection	1
Clarithromycin	Oral	2
Clindamycin	Oral, injection	2
Clofazimine	Oral	1A
Colistin (Polymyxin E)	Oral, Injection	3
Cycloserine	Oral	2
Dapsone	Oral	1A
Doxycycline	Oral	1
Erythromycin	Oral	1
Etahmbutol	Oral	1A
Ethionamide	Oral	1A
Gentamicin	Injection	2
Isoniazid	Oral	1A
Kanamycin	Injection	2
Levofloxacin	Oral, injection	2
Metronidazole	Oral, injection	1
Minocycline	Oral	2
Moxifloxacin	Oral	2
Nalidixic Acid	Oral	1
Neomycin	topical	1
Nitrofurantoin	Oral	1
Norfloxacin	Oral	1
Ofloxacin	Oral, injection	1
p-aminosalicylic acid	Oral	2
Polymixin B	Topical	1
Pyrazinamide	Oral	1A
Rifampicin	Oral	1A
Rifaximin	Oral	1
Roxithromycin	Oral	2
Streptomycin	Injection	2
Sulfamethoxazole +Trimethoprim	Oral	1
Teicoplanin	Injection	3
Tetracycline	Oral	1
Tigecycline	Injection	3
Tobramycin	Injection	2
Vancomycin	Injection	2
All newer antibiotics	Oral, injection	3

Annex IX

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