الدليل العراقي
لأستعمال المضادات الحياتية

مقاومة البكتيريا للمضادات الحياتية
تمثل أكبر تهديد للصحة العالمية

INAG

IRAQI
National
AntimicRxobial
Guidelines

First Edition
2020

World Health Organization

IRAQI National Antimicrobial Guidelines (INAG)

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First Edition
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In the Name of ALLAH.

Antimicrobial resistance has become a global problem which needs great concern. The main responsible factors for this problem are the use of the antimicrobials whether rationally or irrationally. One of the activities under the main mission of The Ministry of Health and Environment is the promotion of the rational use of antimicrobials. The Ministry has regulations for the use of certain types of these drugs, however the need of guidelines for the rest of antimicrobials remained an important issue and challenge for the Ministry.These national guidelines should be focused to enhance appropriate use of antimicrobials and recommends the antimicrobial treatment for the common infectious diseases in Iraq.

I am happy to note that the clinical pharmacy section in the pharmacy department in collaboration with the department of therapeutics in the directorate of technical affairs has undertaken the opportunity to publish the first and new **IRAQI NATIONAL ANTIMICROBIAL GUIDE (INAG)**, which will pave the way for rationalizing the use of antimicrobials in the health care facilities in the country, thereby reducing the development of antimicrobial resistance. These guidelines were prepared with the excellent cooperation with the consultant committees of different high specialities in the Ministry.

As these guidelines put the appropriate step in the rational use of antimicrobials according to the national list of antimicrobials approved by the national committee for selection of drugs (NCSD), I hope that the clinicians in our country, both in the public and private sectors, would use them to the optimum for the benefit of the patients.

I congratulate the directorate of technical affairs and all the contributors who have worked hardely for preparing this document.

Dr. Jaffar Allawi MD
Minister of Health and Environment

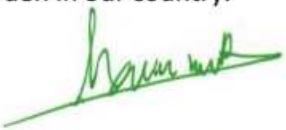
In the Name of ALLAH.

The problem of antimicrobial resistance in pathogens is a threat to all our health system. It is recognized as a global threat to human beings and their health. The problem does not stop at the drug use level, however it is associated with increased morbidity, mortality and hospitalization and healthcare costs. Resistance to antimicrobials started with the simple and widely used antimicrobials, and nowadays even the potent and expensive antimicrobials have been under the same problem. The main cause of this problem is well known to be the irrational use and misuse of these antimicrobials. In Iraq, just like all over the world, it is an important health issue which has, in addition to the aforementioned, its socio-economic impact.

The rational use of antimicrobials needs to be increased by increasing the awareness in all health care team members. The directortate of technical affairs is in charge of the rational use of these drugs by the collaboration between the clinical pharmacy section in the department of pharmacy and departments of therapeutics, laboratories, and consultant committees. The cornerstone for the rational use of antibiotics is preparing a document that should be followed by all the healthcare team. In this regard the clinical pharmacy section in the pharmacy department in collaboration with the department of therapeutics has prepared this document. the **IRAQI NATIONAL ANTIMICROBIAL GUIDE (INAG)** which is under our hands now to be a concise guide for common infectious diseases in Iraq using the national list of antimicrobial drugs prepared by the national committee for selection of drugs (NCSD) which is considered to be the higher authority for drug approvals in the country. These guidelines will definitely help to minimize inappropriate use of antimicrobial agents, optimize selection, to choose the right dose and duration of treatment, to minimize detrimental adverse events, excessive costs and lastely the emergence of resistant strains. It should be put in mind that guidelines do not replace the need for consultation for expert advice. It should also be put in mind that different individual patient needs need full attention when choosing the appropriate

antimicrobial agent within the guidelines and so these guidelines should be used in context of the patient case to reach the best clinical responces.

As antimicrobial drugs are a big field of newly patented drugs and a largely changing sensitivity of microorganisms, we hope that the authors update this guide according to any changes in the national list and according to the accumulated data base of resistance and sensitivity. And here I have to express my deep thanks for the efforts of the authors and contributors and consultant committees who have given their valuable input for the document. We also hope that this document would be helpful to all physicians, pharmacists and the other healthcare professionals both in public and private sectors to lower the AMR burden in our country.



Dr. Hani Moosa Badr
Director General - Directorate of Technical Affairs

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Preface

Rational use of drugs is one of the cornerstones in successful clinical practice. Antimicrobial drugs, unlike other drugs, are agents that achieve their action by targeting microbes that can change their response by mutation leading to resistance which is entitled as one of the greatest healthcare threats globally.

The most important role in rational use of drugs is to give the right drug in the right dose by the right route for the right patient for the right duration (the 5 rights). This document simplifies these points for the health-care professionals by putting the essential information in a tabulated form.

Antimicrobials have saved many lives worldwide since the first antibiotic was discovered. Decades after that many antibiotics have been discovered giving the opportunity to treat a wide variety of infections which otherwise were life-threatening. However, developing new antibiotics is not an easy procedure, and in the last two decades a little of new antibiotics have been discovered leaving us with the old ones, some of have microorganisms developed resistance against them. Antimicrobial resistance has been found to increase and so most of the newly discovered antimicrobials are rendered ineffective leaving the patients with costly treatments or even impossible cure. As a result, many hospital acquired infections are associated with high morbidity and mortality rates, and leading to high health-care costs. Resistance has been found to increase worldwide in new and expensive antibiotics such as imipenem, meropenem, fluoroquinolones and third generation cephalosporins reaching to levels of 50% and above. It has been found that even new resistant strains such as methicillin resistant staph aureus (MRSA) is increasing leading to higher morbidity and mortality rates. This problem depends on different factors such as location, availability of antimicrobials in hospitals, irrational prescribing and dispensing habits, and even high tourism activity which spreads the resistant strains all over the world. Irrational use of antimicrobials, as well as their misuse and self-medication have been considered as the main causes of emergence and spread of resistant strains. From this we can notice the importance of different steps in this long way starting from increasing awareness about the

problem among the different stakeholders, setting guidelines, and stewardship committees.

This document – the **IRAQI NATIONAL ANTIMICROBIAL GUIDE (INAG)** – is one of the important steps in the aforementioned process. It should be kept in mind that information herein are recommendations for paving the way towards the rational use of these drugs, and may not apply to specific patients. Clinical judgment and data from antibiograms as well as specific regulations made by pharmacy and therapeutic committees and antibiotic committees in hospitals may not be overcome putting in mind the goal of rational drug use.

Finally, as this is considered to be the first document in this field, it should be revised according to the updated data of antimicrobials and resistance pattern of the microbes in the country. Any comments or suggestions for improvement are welcomed.

The Authors

Acknowledgment

Our deep thanks are due to Pharmacist Hala Hadi Abdullah – the previous head of the pharmacy department, at her time was most of the work in this document. Her daily followup and encouragement gave us continuous push to continue this hard work.

Many thanks are due to Pharmacist Nawfal Karim Abdulhadi – the present head of the pharmacy department for his encouragement to continue this document and finalize it.

Thanks also to Dr. Faiz AbdulShaheed and Pharmacist Haider Hussein Mutlak, the deputies director general of the Directorate of Technical Affairs for their encouragement to finalize this document.

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The guidelines have been revised by consultant committees in different branches of clinical practice:

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AIMS OF GUIDELINES

- To provide a simple, straight forward approach to the empirical treatment of common infections in Iraq
- To promote the rational (safe, effective and economic) use of antibiotics according to the nationally approved antimicrobial drugs
- To put a concise document under the hands of the healthcare team to delay the emergence of bacterial resistance in the community

PRINCIPLES OF ANTIMICROBIAL PRESCRIBING

The following principles should be highlighted regarding prescribing antimicrobials:

1- They should not be prescribed unless there is clear diagnosis. This needs minimum appropriate investigations for diagnosis and prognosis and follow up done by microbiological samples before starting therapy even when empiric therapy is to be started. These are to done to build up a national data base which could give a clear view of types of microorganisms and resistance patern within a given period.
2- Start with the first line in the treatment group
3- Start with non-drug treatment if the illness does not need the use of antimicrobial agents.
4- Empiric therapy should be considered with a number of limitations (be carefull, study all causes and interactions, attain synergy, review diagnosis in context of available microbiological data, consider the cost of treatment)
5- Consider the risk-benefit balance especially in conditions like pregnancy
6- Obstructive lesions should be treated in ways (opening or drainage) to clear the site from any causes of recurrence.
7- Consider the dose adjustment in cases such as renal impairment, liver dysfunction, pediatrics and geriatrics, and different hemodynamics of patients
8- Consider the availability of drugs and formulary restrictions.
9- Choose the antimicrobial according to local antibiogram in the health-care setting
10- Initiate antibiotics as soon as possible in severe infections
11- Do not prescribe an antibiotic for viral sore throat, simple coughs and colds.

12- Don't prescribe antibiotics for acute self-limiting upper respiratory tract infections, or delay prescription
13- Use simple antibiotics first whenever possible.
14- Combination therapy is to be considered only in cases like preventing bacterial resistance in long term therapy, synergy in cases like infective endocarditis and in mixed infections, or to reduce doses of toxic drugs
15- True penicillin allergy should be considered before prescribing. This should be confirmed by medication history or allergy tests.
16- Avoid broad spectrum antibiotics when narrow spectrum agents are effective, as this increases the risk of MRSA and resistant UTIs.
17- Macrolide antibiotics should be only prescribed in preference to penicillins where the patient is truly allergic.
18- In pregnancy AVOID tetracyclines, aminoglycosides, quinolones, and high dose (> 400mg) metronidazole.
19- In children AVOID tetracyclines and quinolones.
20- Give antibiotics for the SHORTEST time possible.
21- Certain drug interactions may have an impact on anti-microbial drug dosing.
22- Breast feeding is a condition that needs attention when prescribing antimicrobials to nursing mothers.
23- The antimicrobial therapy should be reviewed continuously for changing or stopping.

MONITORING ANTIMICROBIAL USE

According to the WHO reports, the irrational use of antimicrobials is leading to resistance of microbes to their action and hence inability to treat and cure common illnesses caused by infections in the community and hospitals. The highest proportion is amongst microbes that cause common infections throughout the world. This is very common when there is high rate of irrational use of these drugs which could be overuse, underuse, inappropriate choice, and incorrect dose – high or low, and poor compliance with treatment. That is why monitoring antimicrobial use is essential in improving health care programmes in hospitals, health care centers and the community.

Surveillance activities are essential for updating data regarding resistance patterns of bacteria to antimicrobials, updating guidelines and regulations of use. Antibiograms made in drug information centers in collaboration with the antibiotic stewardship committees in the hospitals (clinical pharmacist, physician, and microbiologist) are considered to be regional surverys helping in identifying priorities and types of interventions for this goal.

The Defined Daily Dose (DDD) is the gold standard recommended by the WHO for drug safety assessment and pharmacoepidemiology and for comparing data on drug use at different national and international levels.

THE NATIONAL DRUG LIST OF ANTIMICROBIAL DRUGS

5 A a. Penicillins
Amoxycillin as trihydrate tab or cap 500mg
Amoxycillin as trihydrate 125mg/5ml suspension
Amoxycillin as trihydrate 250mg/5ml (100 ml) suspension
Amoxycillin as trihydrate drop 50mg/ml (20 ml) suspension
Amoxycillin as sodium inj 250mg per vial
Amoxycillin as sodium inj 500mg per vial
Amoxycillin as sodium 1g I.V., I.M inj
Amoxycillin as trihydrate 250mg + clavulanic acid as pot. salt 125mg tab
Amoxycillin as trihydrate 400mg + clavulanic acid as pot. salt 57mg susp (70 ML)
Amoxycillin as trihydrate 600mg + Clavulanic acid as pot. 42.9mg/5ml susp
Amoxycillin as trihydrate 500mg + clavulanic acid as pot. salt 125mg tab
Amoxycillin as trihydrate 875mg + clavulanic acid as pot. 125mg tab
Amoxycillin as trihydrate 125mg + clavulanic acid as pot. salt 31.25mg/5ml susp
Amoxycillin as trihydrate 250mg + clavulanic acid as pot. salt 62.5mg/5ml susp
Amoxycillin as sodium 500mg + clavulanic acid as pot. salt 100mg inj/vial
Amoxycillin as sodium 1000mg + clavulanic acid as pot. salt 200mg inj/vial
Ampicillin as trihydrate cap 250mg
Ampicillin as trihydrate cap 500mg
Ampicillin as trihydrate syrup125mg/5ml
Ampicillin as trihydrate syrup 250mg/5ml
Ampicillin as sodium inj 250mg per vial
Ampicillin as sodium inj 500mg per vial I.V. I.M.
Ampicillin 250 mg + flucloxacillin 250 mg vial
Benzathine penicillin inj 0.6M U per vial
Benzathine penicillin inj 1.2M U per vial
Benzathine penicillin inj 2.4M U per vial
Benzathine penicillin 0.6 M U + procaine penicillin 0.3 M U +benzylpenicillin 0.3 M U inj per vial
Benzylpenicillin (as sod. or pot.) for inj. I.M, slow I.V, & by I.V infusion 1 million unit (1mega unit)
Benzylpenicillin (as sod. or pot.) for inj. I.M, slow I.V, & by I.V infusion 2 million unit (2mega unit)
Benzylpenicillin (as sod. or pot.) for inj. I.M, slow I.V, & by I.V infusion 5 million unit (5mega unit)
Benzylpenicillin (as sod. or pot.) for inj. I.M, slow I.V, & by I.V infusion 10 million unit (10 mega unit)
Clavulanate potentiated ticarcillin inj 800mg
Clavulanate potentiated ticarcillin inj 1.6g
Clavulanate potentiated ticarcillin inj 3.2g
Flucloxacillin as sodium caps 250mg
Flucloxacillin as sodium caps 500mg
Flucloxacillin as sodium syrup 125mg/5ml

Flucloxacillin as magnesium susp. 125mg/5ml
Flucloxacillin as sodium inj 250mg vial
Flucloxacillin as sodium inj 500mg vial I.V
Phenoxymethylpenicillin (Pen V) as pot. tab 250mg
Piperacillin as sodium inj 1g (I.V. & I.M)
Piperacillin as sodium inj 2g (I.V. & I.M)
Piperacillin as sodium salt 3g inj. – vial
Piperacillin as sodium inj 4g (I.V)
Procaine penicillin 300 000U (300mg) + benzyl penicillin sodium 100000 U (60mg)/vial
Procaine benzyl penicillin 600 000U vial
Procaine penicillin 1 MU vial
Procaine penicillin 600 000 U + benzylpenicillin 200 000U/vial
Tazobactam as sodium salt 250mg + Piperacillin as sodium salt 2g inj. vial (I.V Infusion)
Tazobactam as sodium salt 375mg + Piperacillin as sodium salt 3g inj. vial (I.V Infusion)
Tazobactam as sodium salt 500mg + Piperacillin as sodium salt 4g inj. (I.V Infusion).
Tazobactam as sodium salt inj. 250mg/vial
Tazobactam as sodium salt inj. 375mg/vial
Tazobactam as sodium salt inj. 500mg/vial
Ticarcillin inj 1g
5 A b.Cephalosporin
Cefixime (trihydrate) equ .to cefixime 400 mg (anhydrous) cap or tab
Cefixime (trihydrate) equ. to cefixime 200 mg (anhydrous) cap
Cefixime 100mg/5ml susp or cefixime as T.H 100mg/5ml susp
Cefdinir susp. 125mg/5ml
Cefdinir cap. 300mg
Cefaclor as monohydrate 375mg MR tab or (Extend Release) tab
Cefaclor as monohydrate 750mg MR tab or (Extend Release) tab
Cefaclor as monohydrate 250mg. cap.
Cefaclor as monohydrate 500mg. cap.
Cefaclor as monohydrate or Cefaclor unhydrous 125mg/5ml susp.
Cefaclor as monohydrate or Cefaclor unhydrous 250mg/5ml susp.
Cefditoren as pivoxil 200mg tab
Cefepime as Hcl or as Di-HCl monohydrate inj. 500mg/vial I.M , I.V vial + solvent water for injection
Cefepime as Hcl or as Di-HCl monohydrate inj. 500mg/vial I.M + solvent 1% lidocaine Hcl
Cefepime as Hcl or as Di-HCl monohydrate inj. 1g/vial I.M vial + solvent 1% lidocaine
Cefepime as Hcl or as Di-HCl monohydrate inj. 1g/vial I.V vial + solvent water for injection I.V infusion over ½hour
Cefepime as Hcl or as Di-HCl monohydrate inj. 2g/vial I.V or I.V infusion vial + solvent water for injection
Cefotaxime (as sodium salt) inj 0.5g I.V. & I.M. vial + solvent(10ml) water for injection
Cefotaxime (as sodium salt) inj 0.5g I.M. vial + solvent 1% Lidocaine Hcl

Cefotaxime (as sodium salt) inj I.M. 1g vial + solvent 1% lidocaine Hcl
Cefotaxime (as sodium salt) inj I.V. 1g vial + solvent(10ml) water for injection
Cefotaxime (as sodium salt) inj 2g vial+ solvent(10ml). (Slow I.V within 3 -5 min. or I.V Infusion within 10 - 60 min.) + solvent water for injection
Cefpodoxime 100mg as cefpodoxime proxetil tab
Cefpodoxime 200mg as cefpodoxime proxetil tab
Cefpodoxime (as proxetil) 100 mg/ 5 ml powder for suspension
Cephalexin as monohydrate caps 250mg
Cephalexin (as monohydrate) ≡ 500 mg anhydrous cephalexin 500mg cap
Cephalexin as monohydrate susp 125mg/5ml suspension
Cephalexin as monohydrate susp 250mg/5ml suspension
Cephalexin as monohydrate drops 100mg/ml
Cephalothin as sod. salt I.M inj 1g + solvent 1% lidocaine Hcl
Ceftazidime as pentahydrate inj 0.5g I.M , I.V + solvent water for injection
Ceftazidime as pentahydrate inj 0.5g I.M + solvent 1% lidocaine Hcl
Ceftazidime as pentahydrate inj 1g I.V + solvent water for injection
Ceftazidime as pentahydrate inj 1g I.M + solvent 1% lidocaine Hcl
Ceftizoxime as sodium 1g I.M inj + solvent 0.5 –1% lidocain. Hcl
Ceftizoxime as sodium inj I.V, I.M 500mg + solvent water for injection
Ceftizoxime as sodium inj. I.M 500mg + solvent 1% lidocaine Hcl
Ceftizoxime as sodium inj I.V. 1g + solvent water for injection
Ceftizoxime as sodium inj I.M. 1g + solvent 1% lidocaine Hcl
Ceftriaxon as sodium or as di.sod salt or(Disodium sesquarterhydrate) inj I.V, I.M 250mg + solvent(5ml) water for injection
Ceftriaxon as Sodium or as di.sod. salt inj I.V, I.M 500mg + solvent(10ml) water for injection
Ceftriaxon as sodium or as di.sod salt or (disodium sesquarterhydrate) I.M 500mg + solvent 1% lidocaine Hcl
Ceftriaxon as sodium or as di.sod salt or (disodium sesquarterhydrate) inj I.V. 1g + solvent (10ml)water for injection
Ceftriaxon as sodium or as di.sod salt or (disodium sesquarterhydrate) inj I.M. 1g + solvent 1% lidocaine Hcl
Ceftriaxon as sodium (di.sod.) salt or (disodium sesquarterhydrate) powder for reconsitution for infusion(2 gm) vial
Cefuroxime as axetil tab. 125mg
Cefuroxime as axetil tab. 250mg
Cefuroxime as axetil tab. 500mg
Cefuroxime as sod inj: 750mg – vial I.V, I.M, I.V infusion
Cefuroxime as axetil susp. 125mg./5ml
Cefazolin inj 0.5 gm I.M , I.V + solvent water for injection
Cefazolin inj 0.5 gm I.M + solvent1% lidocaine Hcl
Cefazolin inj 1 gm I.M. + solvent 1% lidocaine Hcl
Cefazolin inj 1 gm I.V. + solvent water for injection

Cefadroxil cap or tab 500mg
5 A c. Aminoglycosides
Amikacin as sulphate inj 250mg/ml, (2ml vial)or amp I.M or slow IV or I.V infusion
Amikacin 500 mg amp or vial I.M or slow IV or I.V infusion
Amikacin as sulphate (paed) inj 50mg/ml, (2ml vial),amp I.M , slow I.V ,I.V infusion
Gentamicin as sulphate inj 40mg/ml, (2ml vial) or amp I.M , I.V
Gentamicin as sulphate inj 10mg/ml, (2ml vial or amp) I.M I.V
Neomycin sulphate tab 500mg
Netilmicin as sulphate inj 25mg/ml, (2ml vial)
Netilmicin as sulphate inj 100mg/ml, (1.5ml vial)
Tobramycin as sulphate inj 40mg/ml, (2ml vial)
5 A d.Tetracyclines
Doxycyclin (as hyclate)100 mg tab. or cap
Doxycyclin (as monohydrate) 100 mg dispersable tab or tab
Tetracycline Hcl caps 250mg
Tigecycline I.V. infusion inj: 50mg – vial
Tetracycline as pyrrolidinomethyl inj 250mg vial
5 A e. Chloramphenicol
Chloramphenicol as sod. succinate I.V inj 1g vial
5 A f. Sulphonamide and trimethoprim
Cotrimoxazol tab 480mg
Cotrimoxazol tab 960mg
Cotrimoxazol susp 240mg/5ml
Cotrimoxazol inj I.M 320mg/ml, (3ml amp)
Cotrimoxazol inj I.V. infusion 96mg/ml, (5ml amp)
Sulphadiazine tab 500mg
Trimethoprim tab 100mg
Trimethoprim susp 50mg/5ml
Aztreonam I.V. & I.M. inj 500mg
Aztreonam I.V. & I.M. inj 1g
Azithromycin (as dihydrate)or (as monohydrate) equ. to base anhydrous tab. or cap 250mg
Azithromycin (as dihydrate) or (as monohydrate) equ. to base anhydrous Azithromyci n tab or cap. 500mg
Azithromycin (as dihydrate) or (as monohydrate) or base (anhydrous) 200mg/5ml (22.5- 30ml)
Azithromycin (as dihydrate)or (as monohydrate) or base (anhydrous)100mg kid tab
Ciprofloxacin as Hcl or Ciprofloxacin as Hcl monohydrate tab 250mg
Ciprofloxacin as Hcl or Ciprofloxacin as Hcl monohydrate tab 500mg
Ciprofloxacin as Hcl or Ciprofloxacin as Hcl monohydrate tab 750mg
Ciprofloxacin 1000 mg SR cap. Or tab.
Ciprofloxacin I.V 200mg/20ml vial (1%)
Ciprofloxacin I.V 400mg/40ml vial (1%)

Ciprofloxacin flexible container (0.2%) 200mg/100ml 5% dextrose
Ciprofloxacin flexible container (0.2%) 400mg/200ml 5% dextrose
Ciprofloxacin (as lactate) 2mg/ml I.V infusion 0.9% normal saline containe/ 100 ml (200mg) container
Clarithromycin tab 500mg
Clarithromycin tab 250mg
Clarithromycin tab 500 mg Extended Release(XL)
Clarithromycin susp 125mg/5ml (70 ml) (100 ML)
Clarithromycin susp 250mg/5ml (70 ml) (100 ML)
Clindamycin as Hcl caps 150mg
Clindamycin as palmitate Hcl susp 75mg/5ml
Clindamycin as phosphate inj 150mg/ml, (I.V., I.M) (2ml amp)
Clindamycin as phosphate inj 150mg/ml (I.V., I.M), (4ml amp)
Doripenem as monohydrate I.V Infusion : 500mg-vial
Daptomycin I.V Infusion 500 mg/ vial
Erythromycin as ethylsuccinate drops 100mg/2.5ml
Erythromycin as ethyl succinate enteric coated tab 250mg
Erythromycin as ethyl succinate enteric coated tab 500mg
Erythromycin as stearate film coated tab 250mg
Erythromycin as stearate film coated tab 500mg
Erythromycin as ethylsuccinate caps 250mg
Erythromycin as ethylsuccinate caps or scord tab 500mg
Erythromycin as ethylsuccinate susp 125mg/5ml
Erythromycin as ethylsuccinate susp 250mg/5ml
Erythromycin as lactobionate inj ≡ 1g Erythromycin for IV infusion after dilution
Gemifloxacin as mesylate 320 mg tab
Imipenem as monohydrate or as anhydrous 500mg + Cilastatin as sodium salt 500mg (I.V infusion inj:– vial
Levofloxacin tab or Scored tab 500mg
Levofloxacin Hemihydrate 5.12 mg ≡ to Levofloxacin 5 mg/ ml (100 ml-vial) I.V. Infusion within 1hr
Meropenem (as trihydrate) inj: 500mg vial I.V, I.V infusion
Meropenem (as trihydrate) inj: 1g vial I.V , I.V infusion
Moxifloxacin as Hcl 400 mg tab
Norfloxacin tab 400mg
Ofloxacin tab 200mg
Ofloxacin tab 400mg
Ofloxacin (as Hcl) I.V. infusion 2mg/ml (100ml - bottle)
Roxithromycin tab 150mg
Roxithromycin tab 300mg
Sodium Fusidate 250mg tab
Sodium Fusidate I.V infusion: 500mg-vial

Teicoplanin inj 200mg/ vial
Teicoplanin inj: 400mg/vial
Vancomycin as Hcl cap 125mg
Vancomycin as Hcl inj 500mg - vial
Vancomycin as Hcl 1g –vial
5 A h. Antitubercular drugs
Capreomycin (as sulphate) inj 1g/vial (1 g = 1 Milion unit) IV infusion
Capreomycin (as sulphate) inj 1g/vial (1 g = 1 Milion unit) deep IM
Cycloserine tab or cap 250mg
Ethambutol Hcl tab 100mg film coated tab
Ethambutol Hcl tab 400mg
Ethambutol Hcl tab 500mg
Ethambutol Hcl 300mg + isoniazide 100mg tab
Ethionamid 250mg Tab
Isoniazid Tab 50mg
Isoniazid scored dispersable tab. 50mg
Isoniazid Tab 100mg
Isoniazid Tab 300mg (dose 3 -10mg/kg body wt)
Isoniazid syr 10mg/ml
Kit contains (over 50kg body wt): Tab:R 600mg + H 300mg + Tab: Z 2g Tab: E 1.5g ***Note: Tab or cap is possible***
Kit contains (below 50kg body wt): Tab:R 600mg+ H 300mg+ Tab: Z 1.5g+ Tab: E 1.2g ***Note: Tab or cap is possible***
Tab or cap: R 600mg + H 300mg
Kit contains: Uncoated dispersable tab. :- R 120mg + H 60mg + Z 300mg
R: Rifampicin H: INH Z: Pyrazinamid E: Ethambntol
Para-amino salicylic acid (PAS) 4g/sachet
Prothionamid tab 250mg
Pyrazinamide tab 400 mg
Pyrazinamide tab 500mg
Pyrazinamide scored dispersable Tab 350mg
Rifampicin caps 150mg
Rifampicin caps 300mg
Rifampicin syr 100mg/5ml
Rifampicin 300mg + isoniazid 150mg tab or cap
Rifampicin 100mg + isoniazid 50mg scored dispersable tab or dispersable tab
Rifampicin I.V. inj 300mg
Rifampicin I.V.inj 600mg
Rifampicin 60 mg + Isoniazid 30 mg/tab
Rifampicin 60 mg + Isoniazid 30 mg/uncoated Dispersable tab

Rifampicin 60 mg + Isoniazid 30 mg + Pyrazinamid 150mg/tab
Rifampicin 60 mg + Isoniazid 30 mg + Pyrazinamide 150 mg uncoated Dispersable tab
Rifampicin 150 mg + Isoniazid 75 mg + Ethambutol 275 mg - 3Tab
Rifampicin 150 mg + Isoniazid 75 mg + Ethambutol 275 mg + Pyrazinamid 400 mg(RHEZ) = KIT
Rifampicin 150 mg +Isoniazid 75 mg + Ethambutol 275 mg + Pyrazinamid 400 mg- 4Tab
Rifampicin 150 mg + Isoniazid 75 mg (RH) = KIT
Rifampicin 150 mg + Isoniazid 75 mg/ film coated tab
Rifaximin 200 mg tab
Streptomycin as sulphate inj 500mg
Streptomycin as sulphate inj 750mg
Streptomycin as sulphate inj 1g
Thiacetazone tab 50 mg
Thiacetazone tab 150mg
Thiacetazone 150mg + INH 300mg tab
Kanamycin 1g vial
Bedaquiline 100mg tab
Delamanid 100mg tab
5 A i. Anti leprosy drugs
Clofazimine caps 100mg
Dapsone tab 50mg
Dapsone tab 100mg
Thiambutosine tab 500mg
5 A j. Drugs for UTI
Nalidixic acid susp 300mg/ 5ml
Nitrofurantoin tab/ caps 50mg
Nitrofurantoin tab/ caps 100mg or Retard cap 100mg (macrocrystals)
Nitrofurantoin 25mg / 5ml oral suspension
5 B Antiviral drugs
Acyclovir (as sod. salt) inj I.V. infusion 250mg vial
Acyclovir tab 200mg
Acyclovir tab 400mg
Acyclovir tab 800mg
Acyclovir susp 200mg/5ml
Acyclovir susp 400mg/5ml
Didanosine (DDI) tab: 25mg
Didanosine (DDI) tab or chewable tab: 100mg
Didanosine (DDI) tab: 150mg
Efavirenz (EFZ) 600mg tab. Or cap
Entecavir as (monohydrte) 0.5 mg tab
Entecavir as (monohydrte) 1 mg tab

Entecavir as (monohydrte) oral solution 50µg/ ml
Famciclovir 125mg tab
Famciclovir 250mg tab
Famciclovir 500mg tab
Foscarnet sodium hexahydrate I.V. infusion: 24mg/ml (250ml-bottle)
Ganciclovir I.V. infusion 500mg vial
Indinavir (as sulphate) cap: 400mg (protease inhibitor)
Lopinavir 100mg + Ritonavir 25mg tab
Lopinavir 200 mg + ritonavir 50 mg/ tab
Lamivudine solution 25mg/5ml
Lamivudine solution 10mg/1ml
Lamivudine 100mg tab
Lamivudine (3TC) tab: 150mg
Nevirapine tab 200mg
Oseltamivir as (Phosphate) cap 45mg
Palivizumab inj. 50 mg vial
Palivizumab inj.100 mg vial
Ribavirin (Tribavirin) inhalation: 6g for Reconstitution with 300ml water for inj (vial)+ device for administration (vial 6 gm for inhalation with erosol inhalation or nebulisation (via small partical aerosol generator)
Ribavirin (Tribavirin) cap 200mg
Ribavirin – oral solution 200 mg/ 5ml – 100ml
Stavudine (d4t) cap: 15mg
Stavudine (d4t) cap: 20mg
Valaciclovir as HCl tab. 500mg
Valganciclovir as Hcl tab: 450mg
Vidarabine I.V. inj 200mg/ml, (5ml vial)
Zalcitabine (DDC) tab : 375mcg
Zalcitabine (DDC) tab : 750mcg
Zanamivir: Dry powder for inhalation disk containing blisters of zanamivir 5mg/blister with disk haler device
Zidovudine 300mg + lamivudine 150mg/tab
Zidovudine 50 mg / 5 ml oral solution(as aliquid dosage form)
Ombitasvir 12.5mg + paritaprevir 75mg + ritonavir 50 mg tablet or cap
Ledipasvir 90mg / Sofosbuvir 400mg 1 bottle of film-coated tab
Tenofovir Disoproxil Fumerate 300mg tab
Dasabuvir 250 mg tab or cap for (Genotype 1,4)
5 C Antifungal drugs
Amphotericin I.V. infusion 50mg per vial
Amphotericin lipid complex 100mg/ vial

liposomal Amphotericin B 50mg vial
Amphotericin B lozenges 10mg
Amphotericin tab 100mg
Caspofungin (as acetate) I.V infusion: 50mg – vial (powder for reconstitution)
Micafungin Sodium 50 mg / vial I.V infusion
Fluconazole cap or film coated Tab or plain Tab 50mg
Fluconazole cap or film coated Tab or plain Tab 150mg
Fluconazole cap or film coated Tab or plain Tab 200mg
Fluconazole scored tab or plain Tab 100mg
Fluconazole oral susp 50mg/ 5ml
Fluconazole oral susp 200mg/ 5ml
Fluconazole I.V infusion: 2mg/ml in Nacl I.V infusion 0.9% 25ml bottle, (Electrolyte Na + 15mmol/ 100ml bottle)
Fluconazole I.V infusion: 2mg/ml in Nacl I.V infusion 0.9% 100ml bottle, (Electrolyte Na + 15mmol/ 100ml bottle)
Griseofulvin susp 125mg/5ml
Griseofulvin tab 125mg
Griseofulvin tab 500mg
Itraconazole cap 100mg
Ketoconazole tab 200mg
Ketoconazole syrup 20mg/ml
Miconazole tab 250 mg
Miconazole I.V. inj 10mg/ml
Nystatin tab 500000U
Nystatin susp100000U/ml (30 ml)
Nystatin Pastilles 100000U
Terbinafin as HCl 125mg tab
Terbinafin as HCl 250mg tab
Voriconazole 200mg tab
voriconazole 50mg tab
Voriconazole 200 mg vial: 1 vial powder for solution for infusion ≡ to 10 mg/ml when reconstituted as recommended
Posaconazole 40mg/ml suspension
5 D Antiprotozoal drugs
Artemether 20mg + Lumefantrine120mg/ Tab
Chloroquine phosphate or Chloroquine sulphate º Chloroquine base 150mg-tab
Chloroquine sulphate syr: - 68mg/ 5ml º Chloroquine base 50mg/ 5ml
Chloroquine sulphate inj. 54.5 mg/ ml º Chloroquine base 40 mg/ml (5 ml Amp)
Diloxanide furoate tab 500mg
Dehydroemetine inj

Hydroxychloroquine sulphate tab 200mg
Mefloquine as Hcl tab or Lactab 250mg
Metronidazole coated tab 200mg or 250mg
Metronidazole coated tab 400mg or 500mg
Metronidazole I.V. infusion 5mg/ml, (100ml vial) (0.5%)
Metronidazole as benzoate susp 200mg/5ml
Meglumine antimonate inj º 85mg of pentavalent antimony/ ml
Nimorazole oral 250mg tab
Orindazole 500mg tab
Primaquine as phosphate tab 15mg
Proguanil HCl 100mg tab
Pyrimethamine tab 25mg
Pyrimethamine 25mg + sulphadoxine 500mg tab
Pentamidine isetionate powder for inj 300mg vial I.V. Infusion
Pentamidine isetionate Nebuliser solution 300mg bottle
Quinine inj: 300mg/ ml (2ml – Amp)
Quinine sulphate tablet 200mg
Quinine di-Hcl inj: 300mg/ ml (2ml-Amp)
Sodium stibogluconate inj º pentavalant antimony 100mg/ ml (100ml vial)orsodium antimony gluconate 100mg/ml is the same sodium stibogluconate which is approved previously
Spiramycin tab 1500000 IU º 468. 75mg or 1600000 IU º 500mg
Spiramycin tab 3000000 IU
Spiramycin inj
Tinidazole tab 500mg
5 E Antihelminthic drugs
Albendazole 200 mg chewable or plain tab
Albendazole 400 mg tab
Albendazole suspension 100mg/5ml
Albendazole suspension 200mg/5ml (10ml)
Levamisole 40mg tab. or Levamisole as Hcl 50mg tab
Levamisole syr 40mg-50mg/5ml
Mebendazole chewable or plain tab 100mg
Mebendazole susp 100mg/5ml
Niclosamide chewable tab 500mg
Piperazine as citrate elixir 750mg/5ml (by prescription only & dose for children under 2 year is 50mg 75mg/ kg body wt one single dose for 7 days)
Praziquantel tab 600mg
Pyrvinium pamoate susp 50mg base/5ml
7 C Treatment of vulval and vaginal diseases
Acetic acid 0.92% in buffered base (PH 7.4) with applicator vag. jelly

Chlorhexidine gluconate 5% w/v obstetric cream
Chloramphenicol 250mg+Cloponone 2.5mg + myralact 10mg vag. Tab
Clotrimazole 1% vaginal cream
Clotrimazole vag tab 100mg
Clotrimazole vag tab 500mg
Clotrimazole vag. Cream: 0.5g/5g with applicator. (single dose)
Clindamycin (as phosphate) vag. Cream: 2% with applicators
Diiodohydroxyquinoline 100mg vag tab.with applicator
Furazolidone 0.25% + nifuroxime 0.376%, vag supp
Furazolidone 7.5% + nifuroxime 12mg, vag supp
Isoconazole nitrate vag. tab. 300mg
Metronidazole vag. Gel: 0.75% with applicators
Metronidazole 500 mg for vaginal use
Miconazole nitrate 200mg vag. (ovules or supp or cap or tab)
Miconazole nitrate 400mg vag. (ovules or supp or cap or tab
Miconazole nitrate 1200 mg vag. (ovules or supp. or cap or tab)
Miconazole nitrate 2% cream
Miconazole nitrate 2% intravaginal cream
Nifuratel vag tab 250mg
Nifuratel vag oint 10% (3g/30g)
Nimorazole tab 250mg see 5D
Nystatin 100000 units, vag tab (pessaries) with applicator
Nystatin 100000 units/4g application, vag. cream with applicator
Nystatin 100000 units/g topical oint
Nystatin 100000 units/g cream
Sulphathiazole 3.42%+sulphacetamide 2.86% + sulphabenzamide 3.7% vag cream with applicator
Tetracycline Hcl 100mg + Amphotericin 50mg vag tab
11 DRUGS ACTING ON THE EYE
11 A Anti infective preparations
Acyclovir eye oint 3%
Chloramphenicol eye drops 0.5%
Chloramphenicol eye oint 1%
Clotrimazole eye drop 1%
Ciprofloxacin as Hcl eye drop 0.3%
Flucytosine eye drops 1%
Fusidic acid viscous eye drop 1% gel base liquify on contact with eye
Gentamycin as sulphate eye/ear drops 0.3%
Gentamycin as sulphate eye oint 0.3%
Gatifloxacin as sesiquihydrate 3mg/ ml eye drop
Miconazole eye drop (1- 2%)

Neomycin sulphate + polymixin B sulphate + phenylephrine Hcl + HPM cellulose eye drop
Norfloxacin 0.3% eye/ear drop
Moxifloxacin as Hcl 0.5% (5mg/ ml) eye drop
Levofloxacin as hemihydrate 0.5% eye drop
Ofloxacin eye drop 0.3%
Polymixin B sulphate 5000 I.U + Neomycin sulphate 2.5mg ≡1.75mg Neomycin base + Gramicidin 0.025mg/1ml eye drop
Polymixin B sulphate 16250 I.U + Neomycin sulphate 5mg ≡3.5mg Neomycin base/ml. eye drop
Rifamycin mono sodium eye drops 1%
Rifamycin sod. 10mg/1g. eye oint
Tetracycline Hcl eye oint 1%
Tobramycin eye drops 0.3%
Tobramycin eye oint. 3mg ≡ to 3000 I.U./1g
Trimethoprim 1mg + polymixin B Sulphate 10000 U/ml eye drop
12 EAR, NOSE AND OROPHARYNX
12 A Drugs acting on the ear
Aluminium acetate solution (B.P) ear drop 13%
Chloramphenicol 5% Ear drop. (It was recommended that propylene glycol should not be used as a solvent for chloramphenicol ear drops)
Clotrimazole 1% Otic solution
Dioctyl sodium sulphosuccinate 0.5% ear drops
Dioctyl sodium sulphosuccinate 5% ear drops
Framycetin sulphate ear drop 0.5%
Gentamycin as sulphate 0.3% +hydrocortisone acetate 1% ear drop
Norfloxacin drop
Polymixin B sulphate 10000 units+neomycin sulphate 3400units + hydrocortisone 10mg/ml ear drops
12 C Drugs acting on the oropharynx
Amyl meta cresol 0.5% gargle
Amphotericin B lozenges 10mg
Bisdequalinium chloride 100mg +B glycerrhetinic acid 60mg +hydrocortisone acetate 60mg +tyrothricin 400mg +lidocaine 100mg/100ml (aerosol)
Benzocaine lozenges 10mg
Benzoxonium chloride 1mg + lidocaine Hcl 1mg/Lozenges
Benzydamine Hcl 0.15% oral rinse
Benzydamine Hcl 0.15% oral spray
Carbenoxolone sod. Mouth wash
Chlorhexidine gluconate 0.2%+ Sod. Fluoride 0.05%. (mouth wash)
Chlorhexidine gluconate 1% dental (oral) gel
Chlorhexidine gluconate 0.2% mouth wash
Chlorhexidine gluconate 0.2% oral spray

Ethanol 96% + benzoic acid 0.12% + eucalyptus 0.09% + menthol 0.04% + methyl salicylate 0.05% + thymol 0.06% gargle
Lignocaine 0.6% + cetylpyridinium chloride 0.02% + menthol 0.06% + cineole 0.1% dental gel
Nystatin 100000 units/ml susp,
Miconazole base 2% oral gel
Menthol 0.4g + thymol 0.4g + Tr.Krameria 6ml + glycerin 10ml + alcohol (95%) 20ml/60ml gargle
Povidon – Iodine 1% w/v mouth wash
13 G Antibacterial skin preparations
Chlortetracycline Hcl 3% Skin oint
Clindamycin as phosphate 1% topical solution
Clindamycin as phosphate 10mg/g –topical gel
Duoderm dressing (sheets)
Erythromycin base 2% topical solution in alcohol basis
Erythromycin 4%+ zinc acetate 1.2% - lotion
Framycetin sulphate 0.5% cream
Framycetin sulphate 0.5% oint
Framycetin sulphate 1.5% + gramicidin 0.005% oint
Framycetin sulphate impregnated dressing 1%
Fusidic acid 2% cream
Gentamycin 0.3% cream
Gentamycin 0.3% oint
Mafenide as acetate 8.5% cream
Neomycin sulphate +bacitracin zinc cream
Neomycin sulphate +bacitracin zinc aerosol
Povidone iodine sterile adherent dressing
Polymixin B sulphate topical use
Silver sulphadiazine 1% cream
Sodium fusidate 2% oint
Sodium fusidate 2% cream
Tetracycline Hcl 3% skin oint
Tissue impregrated with the following mixture
Neomycin sulphate 425000 I.U+polymixin B.sulphate 300000 I.U+paraffin Q.S. AD 100gm
Povidon iodine 10 % oniment
13 I Antifungal preparations
Chlorphenesin powder 1%
Chlorquinaldol 5% oint
Clioquinol 3% cream (by prescription only)
Clotrimazole 1% cream
Clotrimazole 1% solution
Clotrimazole 1% (10mg/ ml) spray

Econazole nitrate 1% cream
Econazole nitrate 1% solution
Econazole nitrate 1% lotion
Econazole nitrate 1% spray
Econazole nitrate 1% powder
Econazole base 1% foaming solution
Ketoconazole 2% shampoo
Ketoconazole 2% cream
Miconazole nitrate 2% cream
Miconazole nitrate 2% lotion
Nystatin 100000 units/g oint
Nystatin 100000 units/g cream
Salicylic acid 3%+benzoic acid 6% oint
Sertaconazol 2% cream
Tolnaftate 1% solution
Terbinafine Hcl 1% cream
Terbinafine Hcl 1% Topical spray
Zinc undecenoate 8%+zinc naphthenate (10% zinc) 8%+mesulphen 8% + methyl salicylate 2.5%+ terpineol 2.5% +chlorocresol 0.1% oint

GASTROINTESTINAL & INTRA-ABDOMINAL INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Acute Gastroenteritis	Viral, Entero-toxigenic & Entero-pathogenic E. coli	None			Rehydration (oral / IV) essential
	Refer previously healthy children with acute painful or bloody diarrhoea to exclude *E coli* **Antibiotic therapy is not indicated unless systemically unwell** Initiate treatment, on advice of microbiologist, if the patient is systemically unwell Notify suspected cases of food poisoning. Send stool samples in these cases				
Amoebic dysentery	E. histolytica	Metronidazole	500mg oral 8 hourly	7-10 days	Add diloxanide furoate 500 mg three times daily for 10 days
		OR Tinidazole	2gm oral once daily	3 days	
Bacterial dysentery	Shigella sp., Campylobacter, Non- typhoidal salmonellosis	Ciprofloxacin	15mg/kg orally 12 hourly	3 days	For Campylobacter the drug of choice is azithromycin
		OR Ceftriaxone	50-100mg /kg IM once daily	2-5 days	
		OR Cefixime	10-15mg /kg/day	5 days	
		OR Azithromycin	6-20mg /kg once daily	1-5 days	

	Shiga toxin producing *E. coli*	Antibiotic Treatment not recommended			Antibiotic use associated with development of hemolytic uremic syndrome.
Biliary tract infections (cholangitis, cholecystitis)	Enterobacteriaceae (E.coli, Klebsiella sp.)	Ceftriaxone	2gm IV once daily	7-10 days	Surgical or endoscopic intervention to be considered if there is biliary obstruction. De-escalate therapy once antibiotic susceptibility is known
		OR Piperacillin-Tazobactam	4.5gm IV 8 hourly	7-10 days	
		Second line			
		Imipenem	500mg IV 6 hourly	7-10 days	
		OR Meropenem	1gm IV 8 hourly	7-10 days	
Cholera	V.cholerae	Doxycycline	300mg oral	Single dose	Rehydration (oral/IV) is essential. Antibiotics are adjunctive therapy.
		OR Azithromycin	1gm	Single dose	
		OR Ciprofloxacin	500mg 12 hourly	3 days	
		In children Erythromycin	12.5 mg/kg 6 hourly	3 days	
		OR Azithromycin	20mg/kg (not to exceed 1gm)	Single dose	
		In pregnancy Azithromycin	1gm daily	Single dose	
Diverticulitis Mild- OPD treatment	Gram-Negative Bacteria Anaerobes	Co-amoxiclav	625mg 8hrly	7 days	
		OR Ciprofloxacin	750mg 12 hourly	7 days	
		+ Metronidazole	500mg 8 hourly		

Diverticulitis moderate	Gram- Negative Bacteria Anaerobes	Ceftriaxone	2gm IV once daily		Duration based on improvement
		+ metronidazole	500 mg IV 8 hourly		
		OR Piperacillin-Tazobactam	4.5 gm IV 8 hourly empirically		
Diverticulitis Severe	Gram-Negative Bacteria Anaerobes	Meropenem	1gm IV 8 hourly		Duration based on improvement
		OR Imipenem Cilastatin	500mg IV 6 hourly		
Enteric fever	S.Typhi, S.Paratyphi	Ciprofloxacin	15mg/kg /d	5-7 days	Ceftriaxone to be changed to oral cefixime when patient is afebrile to finish total duration of 14 days.
		OR Cefixime	20mg/kg /d	7-14 days	
		OR Azithromycin	8-10mg /kg/day	7 days	
		OR Ceftriaxone +/- Azithromycin	75mg/kg /d 8-10mg /kg/day	14 days 7 days	
		OR Co-trimoxazole	960mg 12 hourly	14 days	
Eradication of *Helicobacter pylori*		***First line:*** Lansoprazole	30mg 12 hrly	7 days	
		+Amoxicillin	1 g twice daily	7 days	
		+ Clarithromycin	500mg 12 hourly	14 days	
		OR Metronidazole	500mg 12 hourly		
		Penicillin allergic			

		Lansoprazole	30 mg 12 hourly		
		+ Clarithromycin	500mg 12 hourly		
		+ Metronidazole	400mg 12 hourly		
		Treatment failure			
		Lansoprazole	30mg twice daily		
		+Bismuth salt	240mg twice daily		
		+two unused antibiotics:			
		Amoxicillin	1g twice daily		
		Metronidazole	400mg 8 hourly		
		Tetracycline	500mg 6 hourly		
Food poisoning	S. aureus, B. cereus, C. botulinum	None			Rehydration (oral/IV) essential
Giardiasis	Giardia lamblia	Metronidazole	250-500mg 8 hourly	7-10 days	
		Tinidazole	2gm oral	single dose	
Hospital acquired diarrhea	C. difficile	Metronidazole	500mg oral 8 hourly	10-14 days	
		Severe disease: start Vancomycin	125mg oral 6 hourly	10-14 days	

Liver Abscess	Polymicrobial	Co-amoxiclav/ 3rd generation cephalosporin + Metronidazole	500mg IV. 8 hourly 800mg oral 8 hourly	2 weeks	Ultrasound guided drainage indicated in large abscesses, signs of imminent rupture and no response to medical treatment.
		Piperacillin-Tazobactam IV	4.5 gm IV 8 hourly empirically		
Spontaneous bacterial Peritonitis	Enterobacteriaceae (E.coli, Klebsiella sp.)	Cefotaxime	1-2gm 8 hourly		
		OR Piperacillin-Tazobactam	4.5gm 8 hourly		
		Second line			
		Imipenem	500mg 6 hourly	5-7 days after improvement	
		OR Meropenem	1gm 8 hourly		
Pancreatitis Mild-moderate		No antibiotics			
Traveller's Diarrhoea		Limit prescription of antibacterial to be carried abroad and taken if illness develops. (Ciprofloxacin 500mg twice daily for 3 days). Restrict to people travelling to remote areas and for people in whom an episode of infective diarrhoea could be dangerous.			

Oral Candida		Miconazole oral gel. Consider change of use to nystatin if patient taking a statin or warfarin. Antifungal agents absorbed from the gastrointestinal tract prevent oral candidiasis in patients receiving treatment for cancer.	5ml 6 hrly (retain gel in mouth near lesions). Dental prosthesis should be removed at night and brushed with gel.	Continue for 48hrs after lesions have healed. Review with a dental practitioner	Typically presents as white plaques on mucosal surfaces. They can be wiped off to reveal a raw erythematous base that may bleed. Should be distinguished from leukoplakia, a pre-malignant condition where that plaque cannot be wiped off. It is important to treat any pre-disposing factors: - Diabetes mellitus - Corticosteroids (inhaled/oral) - Oral antibiotics should be reviewed - Medication that causes a dry mouth - Denture hygiene should be optimized
Post necrotizing pancreatitisinfected pseudocyst; pancreatic abscess	Entrobacteriaceae, Enterococci, S. aureus, S. epidermidis, anaerobes, Candida sp.	Piperacillin-Tazobactam	4.5 gm IV 8 hourly empirically		Duration of treatment is based on source control and clinical improvement
		In very sick patients, if required, addition of cover for yeast fluconazole	IV 800 mg loading dose day 1, followed by 400 mg 2nd day onwards		
		for Enterococcus vancomycin /teicoplanin		7-10 days	
		Second line Imipenem-Cilastatin	500mg IV 6 hourly		
		OR Meropenem	1gm IV 8 hourly		

Secondary peritonitis, Intra-abdominal abscess/ GI perforation	Enterobacteriaceae (E.coli, Klebsiella sp.), Bacteroides (colonic perforation), Anaerobes	Piperacillin-Tazobactam	4.5gm 8 hourly	If excellent source control – for 5-7 days; otherwise 2-3 weeks suggested	Source control is important to reduce bacterial load.
		+ Metronidazole In very sick patients, if required, addition of cover for yeast (fluconazole IV 800 mg loading dose day 1, followed by 400 mg 2nd day onwards), and for Enterococcus (vancomycin /teicoplanin) may be contemplated	500mg IV 8 hourly		
		Second line Imipenem	1g IV 8 hourly		
		+ Metronidazole	500mg IV 8 hourly		
		OR Meropenem	1gm IV 8 hourly		
		+ Metronidazole	500mg IV 8 hourly		

Threadworm		**First line (> 6 months)** (unlicensed under 2 years) Mebendazole **Second line/ infants under 6 months** hygiene for 6 weeks	100mg	Single dose and repeat after 2 weeks	Treat all household contacts at the same time. Advise morning shower / baths, pants at night and hand hygiene for 2 weeks. PLUS wash sleepwear, bed linen, dust and vacuum on day 1. First trimester of pregnancy – hygiene only

CENTRAL NERVOUS SYSTEM INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Acute bacterial Meningitis	S. pneumoniae, H.influenzae, Neisseria meningititidis	Ceftriaxone	2 g IV 12hourly	10-14 days	Start antibiotics as soon as possibility of bacterial meningitis is evident, within 30 minutes. Do not wait for other investigations. Adjust therapy according to investigations
		OR Cefotaxime	2 g IV 4-6hrly		
		Chloramph-enicol if patient is allergic to penicillin			
Brain abscess, Subdural empyema	Streptococci, Bacteroides, Enterobacteriaceae, S.aureus	Ceftriaxone	2 gm IV 12hourly	Duration of treatment to be decided by clinical & radiological response, minimum two months required.	Exclude TB, Nocardia, Aspergillus, Mucor. If abscess <2.5cm & patient neurologically stable, await response to antibiotics. Otherwise, consider aspiration /surgical drainage and modify antibiotics as per sensitivity of aspirated/ drained secretions
		OR Cefotaxime	2 gm IV 4-6hourly		
		+Metronidaz ole	1 gm IV 12hourly		
		Second line: Meropenem	2gm IV 8hourly		
Meningitis-Post-neurosurgery or Penetrating head trauma	s, Staph. aureus, Pseudomonus aeruginosa, Acinetobacter baumanii	Meropenem	2gm IV 8 hourly	14 days	May need intra ventricular therapy in severe cases
		+ Vancomyci n	15mg/kg IV 8 hourly		

Meningitis with basilar skull fractures	S.pneumoniae, H. influenzae	Ceftriaxone	2gm IV 12 hourly	14 days	+Dexamethasone 0.15mg/kg IV 6 hourly for 2-4days (1st dose with or before first antibiotic dose)
Suspected meningococcal disease	S. pneumonia	<1 week Amoxicillin or ampicillin	50mg/kg 8 hourly	10-14 days	All doses should be IV wherever possible. • Dexamethasone 0.15 mg/kg IV 6 hourly given 10 to 20 minutes *before* the first dose of antimicrobial therapy and continue for 4 days for pneumococcal meningitis (discontinue for all other microorganisms) Transfer all patients to hospital immediately. IF time before admission, and non blanching rash, administer Penicillin G (or cefotaxime) prior to admission, unless allergic. Ideally IV but IM if a vein not found.
		+Cefotaxime	50mg/kg 8 hourly		
		OR gentamicin	2.5mg/kg 12 hourly		
		Age: 1-4 weeks Ampicillin	50mg/kg 6 hourly	10-14 days	
		+Cefotaxime	50mg/kg 6-8 hourly		
		OR gentamicin **OR** tobramycin	2.5mg/kg 8 hourly		
		OR amikacin	10mg/kg 8 hourly		
		1month – 18 years Cefotaxime	75mg/kg 6-8 hourly	10-14 days	
		OR ceftriaxone	50mg/kg 12 hourly		
		+ Vancomycin	10-15mg /kg 6hourly		
		OR Rifampicin	10mg/kg 12 hourly		

		>18 years Cefotaxime	2gm 4-6 hourly	10-14 days	• Obtain lumbar puncture and blood cultures prior to starting therapy • Narrow therapy based on CSF culture results • Repeat lumbar puncture if no improvement in 48 hours and consider viral panel
		OR ceftriaxone	2gm 12 hrly		
		+ Vancomycin	10-20mg/kg 8-12hourly		
		OR Rifampicin	300mg 12 hourly		
	N. meningitidis	Amoxicillin **OR** ampicillin **OR** cefotaxime **OR** ceftriaxone (same as above)		7 days	
	H. influenza	Amoxicillin **OR** ampicillin **OR** cefotaxime **OR** ceftriaxone (same as above) + meropenem		7-10 days	
	S. aureus	Flucloxacillin **OR** vancomycin		14 days	

CARDIOVASCULAR INFECTIONS

Condition	Likely Causative Organism)	Drug(s)	Dose	Duration	Comments and clinical considerations
Infective Endocarditis: Native valve (awaiting cultures)	Viridans Streptococci, other Streptococci, Enterococci	Penicillin G	20MU IV divided doses, 4 hrly	4-6 weeks	If patient is stable, ideally wait blood cultures. Antibiotic choice according to sensitivity results.
		OR Ampicillin	2gm iv 4 hrly		
		+ Gentamicin	1mg/kg IM or IV 8 hrly		
		Vancomycin	15mg/kg IV 12 hourly (max. 1g 12 hrly)	4-6 weeks	
		OR Teicoplanin	12mg/kg IV 12 hourly x 3 doses followed by 6 -12 mg once daily IV depending on severity		
		+ Gentamicin	1mg/kg IM or IV 8 hourly		
		OR Daptomycin	6mg/kg IV once a day		

Infective Endocarditis: In Severe Sepsis	*S.aureus* (MSSA or MRSA) Risk for gram-negative bacilli	Vancomycin	25-30 mg/kg loading followed by 15-20 mg/kg IV 12 hrly (max. 1gm 12 hrly)	4-6 weeks	Modify antibiotics based on culture results.
		OR teicoplanin	12mg/kg IV 12 hourly x 3 doses followed by 6 -12 mg once daily IV dependin g upon severity		
		+ Meropenem	1gm IV 8 hrly		
		Daptomycin	6mg/kg IV once a day		
		+ Meropenem	1gm IV 8 hrly		

Infective Endocarditis: Prosthetic Valve awaiting Cultures		Vancomycin	15mg/kg IV 12 hrly (max. 1gm 12 hrly)	4-6 weeks	Antibiotic choice according to sensitivity.
		OR Teicoplanin	12mg/kg IV 12 hrly x 3 doses followed by 6 -12 mg once daily IV dependin g upon severity		
		+ Gentamicin	1mg/kg 12 hourly IV		

RESPIRATORY TRACT INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Acute bronchitis	Viral	Antibiotics not required			
Acute cough, Bronchitis		Amoxicillin	500mg 8 hrly	5 days	**Antibiotic little benefit if no co-morbidity** Consider immediate antibiotics if > 80years and ONE of: - hospitalisation in last year - oral steroids - diabetic - CCF - > 65 years with 2 of above
		If penicillin allergic Adult & child over 12 years: Doxycycline	200mg starting dose then 100mg once daily		
		CHILD: Clarithromycin			
Community acquired Pneumonia	S.pneumoniae, H.influenzae, Legionella, E.coli, Klebsiella sp., S.aureus	Mild to moderate cases Amoxycillin	500mg-1g 8 hrly oral.	5-8 days	If MRSA is a concern, add Linezolid 600mg IV/Oral two times daily If atypical pneumonia suspected, Doxycycline 100mg two times daily or Azithromycin 500 mg oral/IV once daily
		OR co-amoxiclav	If IV indicated 1.2 g IV 8 hrly		
		OR Ceftriaxone	2g IV once daily		

		If allergic to penicillin: Doxycycline	100mg 12 hourly		
		For Severe cases Co-amoxiclav	1.2 g IV 8 hrly **OR** 2g IV once daily		
		Piperacillin-Tazobactam	4.5gm IV 6 hourly		
		OR Imipenem	1g IV 6 hourly		
Exacerbation of COPD					
mild	-H.influenzae, -S.pneumoniae -M.catarrhalis, -Chlamydia, -pneumoniae, -Viruses	***First line:*** Doxycycline	100 mg 12 hrly	3 days	**Consider whether antibiotics are needed.** 30% is viral, 30-50% is bacterial Consider a sputum sample in non-responders
		OR Cefuroxime	500 mg 12 hrly		
		Second line/ penicillin allergic Azithromycin	500 mg oral once daily		
moderate	-Mild plus presence of resistant organisms (β-lactamase producing, penicillin resistant S.	***First line:*** Co-amoxiclav	1gm oral 12 hourly	7 days	
		Second line/ penicillin allergic Doxycycline	200mg first dose then 100mg once daily	5 days	

	pneumoniae) - Enterobacteriace (K. pneumoniae, E. coli, Proteus, Enterobacter, etc)	**OR** Azithromycin	500 mg oral once daily	3 days	
severe	Moderate plus **no** risk factors for Pseudomonas aeruginosa	Ceftriaxone	1 gram IV every 24 hours		
		Severe β-lactam allergy Levofloxacin	750 mg oral or IV every 24 hours		
	Moderate plus risk factors for Pseudomonas aeruginosa	***First line*** Cefepime	1 gram IV 6 hourly		
		Second line Piperacillin-tazobactam	4.5 grams IV 8 hourly		
		Severe β-lactam allergy Aztreonam	2 grams IV 8 hourly		
		+ levofloxacin	750 mg oral or IV every 24 hours		

Lung abscess, Empyema	S.pneumoniae, E.coli, Klebsiella sp., Pseudomonas aeruginosa, S.aureus, anaerobes	Piperacillin-Tazobactam + Clindamycin	4.5gm IV 6 hourly 600-900mg IV 8 hourly	3-4 weeks	
Ludwig's angina Vincent's angina	Polymicrobial (Cover oral anaerobes)	Clindamycin **OR** Co-amoxiclav Piperacillin-Tazobactam	600 mg IV 8 hourly 1.2gm IV 4.5gm IV 6 hourly		Duration based on improvement

URINARY TRACT INFECTIONS

a- No need for treating asymptomatic bacteriuria except in pregnant women and immunocompromised patients.

b- Amoxicillin resistance is common therefore only use if culture confirms susceptibility

c- In the presence of a catheter only treat if systemically unwell or evidence of pyelonephritis. *Do not use prophylactic antibiotics for catheter changes unless history of catheter-change-associated UTI or trauma*

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Acute uncomplicated Cystitis	E.coli, Staphylococcus saphrophyticus (in sexually active young women), Klebsiella pneumoniae	Nitrofurantoin	100 mg 12 hrly	7 days	Get urine cultures before antibiotics; then modify therapy accordingly.
		OR Cotrimoxazole	960mg 12 hrly	3-5 days	
		OR Ciprofloxacin	500 mg 12 hrly		
		OR Cefuroxime	250 mg 12 hrly		
Acute uncomplicated Pyelonephritis	E.coli, Staphylococcus saphrophyticus (in sexually active young women), Klebsiella pneumoniae, Proteus mirabilis	Amikacin	1 g once daily IM/IV	14 days	Get urine cultures before antibiotics; then modify therapy accordingly. Monitor renal function if aminoglycoside is used
		OR Gentamicin	7 mg /kg/d once daily		
		Piperacillin-Tazobactam	4.5g IV 6 hourly		
Genital herpes		**First line** Aciclovir	200mg 5 times daily	5 days	Higher doses in: - severe infection - immunocompromised Longer courses if: - new lesions appear healing is incomplete
		OR Aciclovir	400mg 8 hourly	5 days	

Complicated Pyelonephritis	pneumonia, Proteus mirabilis, Pseudomonas aeruginosa, Enterococcus sp. Frequently multi-drug resistant organisms are	Piperacillin-Tazobactam	4.5gm IV 6 hourly	10-14 days	Get urine cultures before antibiotics; then modify therapy accordingly. Used narrow spectrum agent based on sensitivities. Monitor renal function if aminoglycoside is used.
		OR Amikacin	1 g once daily IV		
		Imipenem	1g IV 8 hrly		
		OR Meropenem	1gm IV 8 hrly		
Acute prostatitis	Enterobacteriaceae (E.coli, Klebsiella sp.)	Doxycline	100 mg 12 hrly	3-4 weeks.	Anti-microbial therapy need adjusted according to microbiology.
		OR Co-trimoxazole	960 mg 12 hrly		
		In severe cases, Piperacillin-Tazobactam	4.5gm IV 6 hourly		
		OR Ciprofloxacin	500mg 12 hrly		
		OR Imipenem	1g IV 8 hourly		
		OR Meropenem	1gm IV 8 hourly		
Epididymo-orchitis		*Gonococcal:* Ceftriaxone	500mg IM	14 days	
		OR Cefixime	400mg once daily		
		+ Doxycycline	100mg 12 hrly		
		Chlamydial: Doxycycline	100mg 12 hrly	14 days (or longer)	
		Gram negative: 1st line (if sensitive) Trimethoprim	200mg 12 hrly		
		2nd line / culture negative : Ciprofloxacin	500mg 12 hrly	14 days or longer	

Genital warts		**Treatments include:** Podophyllotoxin solution or cream	Twice daily for 3 days (then 4 day break) Three times a week, at night.	Repeat weekly until lesions resolve. (max of 4 weeks) Until lesions resolve (max 16 weeks)	**Treatment depends on site, character and area involved.** Cryotherapy is first line treatment for some cases. Avoid in pregnancy / breast feeding.
Pelvic Inflammatory Disease		**First line** Ceftriaxone	500mg IM	Single dose	**These regimens are not for use in pregnancy.**
		+ Metronidazole	500 mg 12 hrly	14 days	
		+ Doxycycline	100 mg 12 hrly	14 days	
		Second line Ofloxacin	400mg 12 hrly	14 days	
		+ Metronidazole	500mg 12 hrly	14 days	
Recurrent UTI in women ≥ 3 UTIs / year		***First line*** Nitrofurantoin	100mg once daily or 50mg 12 hrly	3-6 months then review recurrence rate	Educate patient on hygiene, lifestyle, diet measures likely to reduce risk of recurrence
		Second line Trimethoprim	200mg once daily		
		Alternative regimes are not recommended except on according microbiology result			

Uncomplicated UTI		Trimethoprim	200 mg 12 hrly	Women: 3 days Men: 7 days	(If GFR < 45ml/min/1.73m^2 use trimethoprim OR one of the 2nd line options) Perform cultures in all treatment failures OR when risk of resistance is considered high
		OR Nitrofurantoin	100mg 12 hrly **OR** 50mg 6 hrly		
		Second line Amoxicillin (Only use if isolate known to be sensitive)	500mg 8 hourly		
UTI and asymptomatic bacteruria in pregnancy		***First Line*** 1st /2nd trimester: Nitrofurantoin (avoid if GFR < 45ml/min/1.73m^2)	100mg 12 hrly **OR** 50mg 6 hourly	7 days	Nitrofurantoin: recommend avoiding at term (due to fetal haemolysis)
		3rd trimester: Trimethoprim	200mg 12 hourly		
		Second line Amoxicillin (if sensitive)	500mg 8 hourly		
		OR Cefalexin	500mg 8 hourly		
UTI in Children		***First line*** Trimethoprim	See BNFC for dosage	3 days	
		OR Nitrofurantoin			
		Second line Amoxicillin (if sensitive)			
		OR Cefalexin	500mg 6 hourly	7-10 days	

Uncomplicated Chlamydia trachomatis in men and women		**First line** Azithromycin	1 g Single dose	7 days	
		Second line Doxycycline	100mg 12 hrly		
		Pregnancy or breastfeeding **First line** Azithromycin	1 g Single dose	14 days	
		Second line Erythromycin	500mg 6 hrly		

OBSTETRICS AND GYNAECOLOGICAL INFECTIONS

a- Fluoroquinolones and co-trimoxazole are contraindicated in 1st trimester.

b- Doxycycline is not recommended in nursing mothers. If need to administer doxycycline discontinue nursing.

Condition	Likely Causative Organism)	Drug(s)	Dose	Duration	Comments and clinical considerations
Asymptomatic Bacteriuria		Nitrofurantoin	100 mg Oral 12 hrly	7 days	Choose according to microbiology results. Can cause pylonephritis in up to 25% of pregnant women. 30% Chance of recurrence after empirical therapy.
		OR Amoxicillin	500 mg Oral 8 hrly	7-10 days	
		OR cephalosporins		7-10 days	
		OR Co-trimoxazole	960mg 12 hrly	7-10 days	
Acute Toxoplasmosis in pregnancy		<18 weeks gestation at diagnosis Spiramycin	1 gm Oral 6 hourly	until 16-18 weeks	
		Pyrimathamine + sulphadizine	Alternate every two weeks		
		>18 weeks gestation and documented fetal infection by positive amniotic fluid PCR. Pyremethamine	50 mg Oral 12 hrly x 2 days then 50 mg once daily		
		+Sulphadiazine	75 mg/kg Oral x 1 dose then 50mg/kg twice daily		

		+ Folinic Acid	10-20 mg Oral daily	Min. of 4weeks or for duration of pregnancy	
Bacterial vaginosis	Polymicrobial	First line: Metronidazole	500mg Oral 12 hrly	7 days	Topical treatment gives similar cure rates but is more expensive. Metronidazole vaginal gel is not recommended during menstruation. Treat the partner
		OR Tinidazole	2 g oral 12 hrly	3 days	
		Second Line Metronidazole 0.75% vag gel	5 g applicator full once daily	5 nights	
		OR Clindamycin 2% cream		7 nights	
Candidiasis	Candida species	Fluconazole	150 mg single oral dose		Non-pregnant- If recurrent candidiasis, (4 or more episodes/year) 6 months suppressive treatment with fluconazole 150 mg oral once a week or clotrimazole vaginal suppositories 500 mg once a week.
		For milder cases- Intravaginal agents as creams or suppositories clotrimazole, miconazole, nystatin.	single dose to 7-14 days		
Group B streptococcal Disease, Prophylaxis and Treatment	Group B Streptococci	Penicillin G	5 MU Loading dose then 2.5 -3 MU IV 6 hrly	until delivery	Prevalance very low so the prophylaxis may be required only on culture documented report Associated with high risk of pre-term labour,still birth, neonatal sepsis
		OR Ampicillin	2 gm IV Loading then 1gm 6 hrly	until delivery	

		Cefazolin	2 gm IV Loading then 1gm 8 hrly		
		Clindamycin	900 mg IV 8 hrly		
		OR vancomycin **OR** teicoplanin in penicillin allergy	IV		
Chorioamnionitis	Group B streptococcus, Gram -ve bacilli, chlamydiae, ureaplasma and anaerobes, usually Polymicrobial	Clindamycin			If patient is not in sepsis then IV Ampicillin
		OR vancomycin			
		OR teicoplanin			
/Urethritis Mucopurulent gonoccocal	Polymicrobial	Ceftriaxone	250 mg IM	Single dose	
		+ Azithromycin	1 gm	single dose	
		OR Doxycycline	100mg 12 hrly	7 day	
Influenza In pregnancy (seasonal And H1N1)		Oseltamivir	75 mg Oral 12 hrly	5 days	The best preventive strategy is administration of single dose of killed vaccine. Treatment should begin within 48 hrs of onset of symptoms.

Mastitis without abscess	S. aureus	Co-amoxiclav Or Cephalexin	500 mg 6 hourly		
		OR Ceftriaxone	2 g once daily		
		OR MRSA- based on sensitivities			
		+ Clindamycin	300 mg 6 hourly		
		OR Vancomycin	I gm IV 12 hrly		
		OR teicoplanin	12mg/kg IV 12hrly x 3 doses then 6mg once daily IV		
Mastitis with abscess		Drainage with antibiotic cover for MRSA			
		Clindamycin	300mg 6 hrly		
		OR Vancomycin	15mg/kg IV 12 hourly max. 1g 12 hrly		
		OR teicoplanin	12mg/kg IV 12hrly x 3 doses then 6mg once daily IV		

Obstetric Sepsis during pregnancy	Group A beta-haemolytic Streptococcus, E.coli, anaerobes	If patient has only fever, with no features of severe sepsis start co-amoxiclav	625mg oral 8 hourly or IV 1.2 gm 8 hourly		If patient is in shock, start Piperacillin-Tazobactam till the blood sensitivity report is available and change accordingly. If admission needed, MRSA cover with (Vancomycin/ Teicoplanin) may be required if suspected or colonized.
		OR Ceftriaxone	2gm IV once daily		
		+ Metronidazole	500mg IV 8 hrly		
		+/-gentamicin	7mg/kg/ d once daily		
Obstetric Sepsis following pregnancy	S. pyogenes, E. coli, S. aureus S. pneumoniae, Meticillin-resistant S. aureus (MRSA), C. septicum & Morganella morganii	Same as above			
Pelvic Inflammatory Disease (Salpingitis & tubo-ovarian abscess)	S. aureus, Enterobacteriacae, gonococci, gardenella	**Out patient treatment**	Drainage of tubo-ovarian abscess wherever indicated. Evaluate and treat sex partner		
		Ceftriaxone	250 mg IM/IV	single dose	-
		+/- Metronidazole	500 mg 12 hrly	14 days	
		+ Doxycycline	100 mg 12 hrly	14 days	

		Inpatient Treatment			
		Clindamycin +ceftriaxone then change to outpatient treatment			
Septic abortion and **Endomyometritis and Septic Pelvic Vein Phlebitis**	Bacteroides, Prevotella bivius, Group B, Group A Streptococcus, Enterobactereaceae, C. trachomatis, Clostridium perfringens	Ampicillin	500 mg 6 hourly		- If patient has not taken any prior antibiotic (start antibiotic after sending cultures) - If patient has been partially treated with antibiotics, send blood cultures and start Piperacillin-Tazobactam or Cefoperazone-sulbactam till the sensitivity report is available.
		+ Metronidazole	500mg IV 8 hrly		
		Ceftriaxone	2g IV once daily		

Tuberculosis in pregnancy	Similar to NON PREGNANT population with some exceptions				Small chance of transmission of infection to fetus. **WHO**: All first line drugs, except streptomycin, are safe in pregnancy. Pyrazinamide not recommended by US FDA. Mother and baby should stay together and the baby should continue to breastfeed. B6 supplement recommended for all pregnant or breastfeeding women taking INH as well as to neonate who are being breast fed by mothers taking INH.
Trichimoniasis	Trichomonas vaginalis	Metronidazole	2 gm	single dose	Treat sexual partner with metronidazole 2gm single dose Avoid 2g single dose of metronidazole in pregnancy or breast feeding
			OR 500 mg Oral 12 hrly	7 days	
		OR Tinidazole	2 gm Oral	single dose	
		In failure, retreat with Metronidazole	500 mg Oral 12 hourly	7 Days	
		if 2nd failure Metronidazole	2 gm Oral once daily	3-5 days	
		Clotrimazole	100 mg vag. Suppos once daily	6 days	

Vaginal candidiasis		**First line** Clotrimazole vag suppositories	500mg	Single dose	Topical and oral azoles give 75% cure. If extensive, or unresponsive to first line treatment consider oral therapy. Add clotrimazole cream, 2-3 times daily for symptomatic relief. **In pregnancy avoid fluconazole.**
		Second line Fluconazole (oral)	150mg	Single dose	
		Pregnancy (if symptomatic) Clotrimazole vag. suppository	100mg once daily	6 nights	
		OR Miconazole 2% cream	5g Intravaginally twice daily	7 days	
VIRAL INFECTIONS	(NO ANTIBIOTICS TO BE GIVEN)				

BONES AND JOINT INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Acute osteomyelitis OR Septic arthritis	S.aureus, Streptococcus pyogenes Enterobacteriaceae	Ceftriaxone	2g IV once daily	4-6 weeks from initiation or last major debridement	Treat based on blood/synovial fluid/bone biopsy culture. Surgical debridement is essential.
		Followed by Flucloxacillin	500mg 8 hrly orally		
		OR Cephalexin	500mg 6hourly		
		Piperacillin-tazobactam +Clindamycin	4.5gm IV 6hourly 600-900mg IV 8 hrly		
Chronic osteomyelitis OR Chronic synovitis		No empiric therapy. Choose antibiotic based on sensitivity.		Total duration of treatment depends on the joint and the organism	Definitive treatment guided by bone/synovial biopsy culture. Treat for 6 weeks minimum Investigate for TB, Nocardia, fungi. Extensive surgical debridement.
	Methicillin sensitive staph. aureus (MSSA)	Cefazolin + gentamicin	1-1.5gm 6 hrly 5mg/kg every 24 hours	IV for 2 weeks	

		Then if patient shows improvement by IV treatment start:		Oral For 4 weeks	
		Clindamycin	300-450 mg 6 hrly		
		OR ciprofloxacin	750mg 12 hrly		
		OR co-trimoxazole	960mg 12 hrly		
		+ Rifampicin	300mg 12hrly		
		Then clindamycin **OR** ciprofloxacin **OR** co-trimoxazole	As above	Oral For 6 weeks	
	Methicillin resistant staph. aureus (MRSA)	Vancomycin	1gm 12 hourly	IV for 2 weeks	
		OR teicoplanin	400mg 12 hrly		
		+ gentamicin	5mg/kg 24hrly		
		Then if patient shows improvement by IV treatment start:		Oral For **4** weeks	
		Clindamycin **OR** co-trimoxazole + Rifampicin	As above		
		Then Clindamycin **OR** co-trimoxazole	As above	Oral For **6** weeks	

	Coagulase-negative Staphylococcus, Staphylococcus epidermidis (most common)	Vancomycin	1gm 12 hrly	IV for 2 weeks	
		+Gentamicin	5mg/kg every 24hours		
		OR clindamycin	600mg 6 hourly		
	Streptococcus spp or Enterococcus Faecium	Amoxicillin Or Ampicillin	2g 4-6 hourly	IV for 2 weeks	
		+ Gentamicin	5mg/kg 24hourly		
		Then if patient shows improvement by IV treatment start:		Oral for **4** weeks	
		Amoxicillin	2g 4-6 hrly		
		Then Amoxicillin **OR** Co-Amoxiclav		Oral for **6** weeks	
	Enterobactiriaceae (e.coli, klebsiella spp. Proteus mirabilis) {sensitive to 3rd generation cephalosporins)	Ceftriaxone	2gm 24hourly	IV for 2 weeks	
		+ amikacin	15mg/kg 24hourly		
		Then Ciprofloxacin	750mg 12 hrly	Oral for 10 weeks	
		OR Co-trimoxazole	960mg 12 hrly		
		OR Ceftriaxone	1-2gm 24 hrly	IV for 10 weeks	

	Enterobactiriaceae (e.coli, klebsiella spp. Proteus mirabilis) (not sensitive to 3rd generation cephalosporins)	Imipenem	500mg 6hourly	For 2 weeks	
		+ amikacin	15mg/kg 24hourly		
		Then Imipenem	500mg 6hourly	For 4 weeks	
	Enterobact iriaceae (others)	Cefazolin	2gm 8hourly	For 2 weeks	
		+ amikacin	15mg/kg 24hrly		
		Then if patient shows improvement by IV treatment start:			
		Ciprofloxacin	750mg 12 hrly	Oral for 10 weeks	
		OR Co-trimoxazole	960mg 12 hrly		
	Pseudomonous aureginosa	ceftazidime	2gm 8hourly	IV for 2 weeks	
		OR Imipenem	500mg 6 hrly		
		+ amikacin	15mg/kg 24hourly		
		Then if patient shows improvement by IV treatment start:		IV for 4 weeks	
		ceftazidime	2gm 8hourly		
		OR Imipenem	500mg 6 hourly		
		+ ciprofloxacin	750mg 12 hrly	Oral for 4 weeks	
		then ciprofloxacin	750mg 12 hrly	Oral for 6 weeks	

	Acinetobacter bomanii	Piperacillin-tazobactam	3.375gm 6hourly	IV for 2 weeks	
		OR Imipenem	500mg 6hourly		
		+ amikacin	15mg/kg 24 hrly		
		Then if patient shows improvement by IV treatment start:			
		Piperacillin-tazobactam	3.375gm 6hourly	IV for 4 weeks	
		OR Imipenem	500mg 6hourly		
		+ ciprofloxacin	750mg 12 hrly	Oral for 4 weeks	
		Then Piperacillin-tazobactam	3.375gm 6 hrly	IV for 6 weeks	
		OR Imipenem	500mg 6 hrly		
		OR ciprofloxacin	750mg 12 hrly	Oral for 6 weeks	
Prosthetic joint infection	Coagulase negative staphylococci, Staphylococcus aureus, Streptococci Gram-negative bacilli, Enterococcus, Anaerobes	Ceftriaxone.	2g IV once daily		
		+Vancomycin	1gm IV 12 hrly		
		OR Teicoplanin	800mg x 3 doses then 400mg Once daily		

EAR, NOSE, and THROAT INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Acute Mastoiditis	S.pneumoniae S.aureus H.influenzae P.aeruginosa	Cefotaxime	1-2 gm IV 4-8 hourly		Modify as per culture Unusual causes- Nocardia, TB, Actinomyces.
		Ceftriaxone	2 gm IV once daily		
Chronic Mastoiditis	Polymicrobial	Piperacillin-tazobactam	4.5g IV 8hrly		
		Meropenem	1 gm IV 8hrly		
Acute Pharyngitis/tonsillitis	Viral	None required			
Acute Pharyngitis/tonsillitis Exudative/ Diffuse Erythema	Group A, C, G Streptococcus, Infectious mononucleosis,	Penicillin V	500mg oral 12 hourly	10 days	
		OR Amoxicillin	500mg oral 8 hourly		
		OR Benzathine Penicillin	1.2 MU IM	Single dose	
		OR Cefdinir	300mg oral 12 hourly	5 days	
		OR cefpodoxime	200mg oral 12 hourly		

		Penicillin allergic, Clindamycin	300-450 mg oral 6-8 hrly	5 days	
		OR Azithromycin	500 mg oral once daily		
Acute Pharyngitis/tonsillitis Membranous pharyngitis	C.diptheriae,	Erythromycin	500 mg IV 6 hourly		Diptheria antitoxin: Horse serum. <48 hrs:20,000-40,000 units, Nasopharyngeal membranes:40,000 -60,000 units >3 days & bull neck : 80,000-1,20,000 units
		OR Penicillin G	50,000 u/kg IV 12 hourly		
Acute Pharyngitis/tonsillitis Epiglotitis (Supraglotis)	Children: H.influenzae , S.pyogenes, S.pneumoniae, S.aureus. Adult: Group A Streptococcus, H.influenzae	Cefotaxime	50 mg/kg IV 8 hrly		
		OR ceftriaxone	50 mg/kg IV 24 hrly		
		Levofloxacin	10 mg/kg IV 24 hrly		
		+ clindamycin	7.5 mg/kg IV 6 hrly.		

Acute sore throat		***First line*** Penicillin-V	500 mg 6 hrly Child: see BNFC	10 days	**Avoid antibiotics** as 90% resolve in 7 days Use **Fever PAIN Score:** **Score 0-1**: NO antibiotic; **2-3:** 3 day back-up antibiotic; **4 or more:** immediate antibiotic
		Second line / penicillin allergic Clarithromycin	Adults: 500mg 12 hourly	5 days	
Rhinosinusitis	Viral, S. pneumoniae, H.influenzae, M. catarrhalis	***First line*** Amoxicillin	Adult: 500mg 8 hourly	7 days	**Avoid antibiotics** as 80% resolve in 14 days without antibiotics. Only use for persistent symptoms and purulent discharge lasting at least 7 days or if severe symptoms, or high risk of serious complications (e.g. immunocompromised, cystic fibrosis). **Use adequate analgesia**
		C0-Amoxicilav	1gm oral 12 hourly	7 days	
		Second line /penicllin allergic CHILD: Clarithromycin		7 days	
		ADULT & CHILD over 12 years: Doxycycline	200 mg first day Then 100 mg once daily	7 days	
		OR Moxifloxacin	400mg once daily	5-7days	
Laryngitis (hoarseness)	Viral (90%)	No antibiotic indicated			

Otitis externa		***First line (12 years and over)*** Acetic acid 2%.	1 spray 8 hourly	7 days	**Use analgesia and topical preparations first line.** Consider oral antibiotics if spreading cellulitis, extending outside of ear canal or systemically unwell
		Second line (any age) *gentamicin 0.3% ear drops*	2-4 drops, 3-4 times daily, and at night	7-14 days	
Malignant otitis externa	P. aeruginosa (in >90% cases	Piperacilin/ Tazobactam	4.5gm IV 6hourly	Do CT or MRI, If bone involved, treat for 4-6 wks.	Debridement usually required. Rule out osteomyelitis.
		OR Imipenem /Meropenem			
		Ciprofloxacin			
		Ceftazidime			
Otitis media (Acute)	S. pneumonia, H. influenza, Morexella catarrahalis	***First line*** Amoxicillin	Adult: 500mg 8 hourly	If age <2 years: 10 days If age >2 years : 5-7 days	**Optimise analgesia Avoid antibiotics** as 60% are better in 24 hours without: they only reduce pain at 2 days **and do not prevent deafness** If >2 years, afebrile and no ear pain- consider analgesics and defer antibiotics
		OR Co-amoxiclav	90/6.4mg /kg/day 12 hrly		
		OR cefpodoxime/ cefuroxime axetil	250mg 12 hrly		
		OR Ceftriaxone	50mg/kg IM		
		Second line/penicillin allergic CHILD: Clarithromycin			
		ADULT & CHILD over 12 years: Doxycycline	200 mg first day Then 100 mg once daily		

INFECTIONS IN BURN PATIENTS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
For burns wound that is clinically or microbiologically not infected					Prophylactic parenteral antibiotics in burns are NOT indicated Topical antibiotics to be given after debridement
Prophylaxis in Plastic Surgery	Surgical prophylaxsis: Inj Cefuroxime 1.5 g/ Cefazolin IV just before incision single dose				
For burns wound that are clinically or microbiologically infected	Strep pyogenes, Enterobacter sp., S. aureus, S. epidermidis, Pseudomonas, fungi (rare)	**Burn wound sepsis** (if there is suspicion for MRSA) Pipercillin-tazobactam **OR** With or without: Vancomycin **OR** Teicoplanin When extensive burns and patient not responding to antibiotics, antifungal therapy indicated: fluconazole			Antibiotic choices are dependent on the antibiogram of the individual institution. Surgical debridement as necessary. Amphotericin B is toxic to all burn patient as renal system compromised, hence Caspofungin may be used.

		Burn wound cellulitis Cefazolin **OR** Clindamycin **OR** Vancomycin If there is suspicion for MRSA With and without (burns involving the lower extremity or feet or burns in patients with diabetes) Pipercillin-tazobactam **OR** Imipenem **OR** Meropenem +/- Vancomycin / Teicoplanin			

SKIN / SOFT TISSUE INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Bites Animal bite Or Human bite		First line: co-amoxiclav	625mg 8 hourly	Review at 24 & 48hrs Treatment -7 days Prophylaxis – 5 days	Thorough irrigation is important. Assess tetanus, rabies, HIV/hepatitis B & C risk Antibiotic prophylaxis for: puncture wounds, bite involving hand, face, foot, joint, tendon or ligament, at risk patients e.g. diabetic, asplenic, immunosuppressed, cirrhotic, prosthetic valve or joint.
		Penicillin allergic/adults: metronidazole	500mg 8 hourly		
		+ doxycycline	100mg 12 hourly		
		Penicillin allergic/ Children: clindamycin			
Cellulitis	Streptococcus pyogenes (common), S.aureus	First line Flucloxacillin	500 mg – 1g 6hourly	5-7 days 7 days. If slow response give for further 7 days	If patient afebrile and healthy, other than cellulitis, flucloxacillin may be used as single drug treatment.
		OR Ceftriaxone	2gm IV once daily		
		Second line /penicillin allergic: Clarithromycin	500mg 12 hourly		
		OR Clindamycin	600-900mg IV 8 hourly		
		If Facial Co-amoxiclav	625mg 8 hourly		
		Diabetic foot: First line Flucloxacillin	500 mg – 1g 6 hourly		
		Second line /penicillin allergic: Doxycycline	100mg 12 hourly		

Conjunctivitis		**1st line** chloramphenicol 0.5% drops +1% ointment	2 hrly for 2 days then reduce to 6 hrly+ at night	All for 48 hours after resolution	Bacterial, usually unilateral and yellow-white mucopurulent discharge. Most bacterial infections are self limiting
		2nd line fusidic acid 1% gel	12 hourly		
Eczema	Using antibiotics or adding them to steroids in eczema does not improve healing unless there are visible signs of infection. Where treatment indicated treat as per Impetigo				
Furunculosis	S.aureus	Co-amoxiclav	1.2gm IV 8 hourly or 625 mg oral 8 hrly	5-7 days	Get pus cultures before starting antibiotics
		OR Ceftriaxone	2gm IV once daily		
		Clindamycin (in penicillin sensitive patients)	600-900mg IV 8 hourly		
Fungal infection of the proximal fingernail or toenail		terbinafine	250 mg once daily	Fingers: 6–12 weeks Toes : 3–6months	Caution in hepatic or renal impairment If patient develops signs of liver dysfunction stop treatment immediately
		Itraconazole	200 mg twice daily	Give 7days Repeat monthly. Fingers: 2 Cycles Toes: 3 Cycles	

Fungal infection of the skin		Topical terbinafine	Twice daily	1-2 weeks	If intractable, use skin scrapings and if infection confirmed, use oral therapy. Advice patients about general hygiene to improve healing and reduce the risk of spread of infection.
		OR Topical Clotrimazole 1%	Apply 2-3 times/ day	4–6 weeks (i.e. 1-2 weeks after healing)	
		OR Miconazole 2% cream	Apply twice daily	Max 1week	
		With significant inflammation Clotrimazole 1% + hydrocortisone 1% ***OR*** *Miconazole 2% + hydrocortisone 1%*	Apply twice daily	Max 1 week	
Infected wound, including post-op wound infections		First line Flucloxacillin	500mg – 1g 6hourly	5 days then review	For severe infections, MRSA skin/soft tissue infections or if patients not improving within 48-72 hours – refer to specialist team. For tetanus prone wound assess and treat/refer for vaccine or immunoglobulin.
		+ metronidazole if abdominal / pelvic wound	500mg 8hourly		
		Second line /penicillin allergic: Doyxcycline	200mg starting dose then 100mg once daily	7 days then review	
		+ metronidazole if abdominal / pelvic wound)	500mg 8hourly		

Impetigo & other minor skin infections		For lesions suitable for topical use: Fusidic acid cream	Topically 3 times daily	5 days	As resistance is increasing topical antibacterials should be reserved for very localised skin infections For extensive, severe or bullous impetigo, use oral antibiotics.
		Systemic treatment First line Flucloxacillin	500mg 6hourly	7 days	
		Second line / penicillin allergic: Clarithromycin	500mg 12 hourly	7 days	
Leg ulcers	Antibiotics are only indicated if cellulitis is present, and do not improve healing. Cultures / swabs are only indicated if diabetic or there is evidence of clinical infection, e.g. inflammation or redness / cellulitis, increased pain, purulent exudates, rapid deterioration of ulcer or pyrexia. If active infection, treat as cellulitis (as above).				
Necrotizing fasciitis	Streptococcus pyogenes, S. aureus, anaerobes, Enterobacteriaceae (polymicrobial)	Piperacillin-Tazobactam	4.5gm IV 6hourly	Duration depends on the progress	Early surgical intervention crucial
		+ Clindamycin	600-900mg IV 8 hourly		
		Imipenem	1g IV 8 hourly		
		OR Meropenem	1g IV 8 hourly		
		+ Clindamycin	600-900mg IV 8 hourly		
		OR linezolid **OR** Daptomycin	6mg/kg/d		

MRSA / MSSA Skin colonisation		Chlorhexidine 4% Aqeous Solution	Wash **DAILY** including 2 hair washes	10 days	If patient not decolonised – seek specialist advice
MRSA active infection		doxycycline (>12yrs only)	100mg 12 hourly	7 days	MRSA confirmed with **lab** results
PVL producing - *Staphylococcus aureus*	Panton-Valentine Leukocidin (PVL) is a toxin produced by 4.9% of S. aureus. Can rarely cause severe invasive infections in healthy people. Send swabs if recurrent boils/ abscesses.				
Scabies		permethrin 5% cream **OR** malathion 0.5% aqueous solution	2 applications one week apart.		Treat whole body including scalp, face, neck, ears, under nails. Treat all household and sexual contacts within 24 hours

VIRAL INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Cold sores	Cold sores resolve after 7-10 days without treatment. Topical antivirals such as aciclovir 5% cream 5 times a day for 5 days reduce duration by 12-24 hours				
Herpes zoster/ Chicken pox		aciclovir *If indicated*	800 mg five times a day	7 days	Treat **ONLY IF** > 14 years or severe pain, dense oral rash, secondary household case, on steroids or smoker and **IF** can start within 24 hours of rash.
Varicella zoster/ Shingles		aciclovir *If indicated*	800 mg five times a day	7 days	Treat **ONLY IF** over 50 years and within 72 hours of rash; or if active ophthalmic or Ramsey Hunt or eczema.

DENTAL INFECTIONS

Condition	Likely Causative Organism	Drug(s)	Dose	Duration	Comments and clinical considerations
Acute necrotising ulcerative gingivitis		Metronidazole	500 mg 8hourly	3 days Until oral hygiene possible	Commence metronidazole and refer for scaling and advice.
		+ Chlorhexidine **OR** hydrogen peroxide			
Dental abscess	- Repeated courses of antibiotics for abscess are not appropriate; - Repeated antibiotics alone, without drainage are ineffective in preventing spread of infection. - Antibiotics are recommended if there are signs of severe infection, systemic symptoms or high risk of complications. - Severe odontogenic infections; defined as cellulitis plus signs of sepsis, difficulty in swallowing, impending airway obstruction, Ludwigs angina. Refer urgently for admission to protect airway, achieve surgical drainage and IV antibiotics - The empirical use of cephalosporins, co-amoxiclav, clarithromycin, and clindamycin do not offer advantage for most dental patients and should only be used if no response to first line drugs when referral is the preferred option.				
		Amoxicillin	500 mg 8hourly	Up to 5 days review at 3d	*If pus:* drain by incision, tooth extraction or via root canal.
		OR Penicillin-V	500 mg – 1g 6hrly		
		True penicillin allergy: Clarithromycin	500 mg 12hrly	5 days	
		Severe infection add Metronidazole	500 mg 8hourly	5 days	
		or if allergy Clindamycin	300mg 6hourly		

Mucosal ulceration and inflammation (simple gingivitis)		Saline mouthwash.			For temporary pain and swelling relief
		antiseptic mouthwash			- If more severe & pain limits oral hygiene. - To treat or prevent secondary infection.
Pericoronitis		Amoxicillin	500 mg 8 hourly	3 days	Refer to dentist for irrigation & debridement
		+ Metronidazole	500mg 8 hourly	3 days Until oral hygiene possible	
		+ Chlorhexidine **OR** hydrogen peroxide			

GENERAL PRINCIPLES OF ANTIBIOTICS USE IN SURGERY

Treatment and prevention of infection is a cardinal responsibility of the surgical team.
Favorable outcome of surgeries were recorded with appropriate use of antibiotics.
SSI increase mortality, morbidity, hospital stay and cost of treatment.

SELECTION OF ANTIBIOTICS

- Require Knowledge of:
  1- organisms identity and its sensitivity to a particular agent.
  2- sites of the infection (CNS, bone, GI, UT).
  3- safety of the agent.
  4- patients factors (age, pregnancy, lactation, systemic illnesses)
  5- availability, accessability, affordability of the drug.

INDICATIONS FOR PROPHYLAXIS IN SURGERY.

1- clean contaminated and contaminated wound.
2- clean wound in which implants or prosthesis are inserted.
3- animal or human bite.
4- Open fracture.
5- delay to cleaning more than 6 hrs.
6- foot/hand wounds.
7- Wound length more than 5cm.
8- crush.
9- wound involving body cavity/perineum.
10- immuno-suppressed patient
11- burns.

GENERAL CONSIDERATIONS

- Not a substitute or alternative to aseptic practice and good surgical technique.
- Necessary only in high - risk cases of bacterial contamination.
- Preoperative selection of antibiotics should consider the normal flora in clean cases and the likely contaminant in dirty cases.

Anatomical sites	Normal flora
Skin	Staph, strep. propionibacteria.
Oral cavity	Above, anaerobes and gram negative rods
Nasopharynxs	Staph, strept. H influenzae and anaerobes
Oesophagus-jejunum	Flora of nasopharynxs and enterobacteria
Large bowel	Gram –ve rods,enerococci and anaerobic
Female genital tract	Flora of large bowel, staph, strept., and H influenaza
Urinary tract	Normally sterile
Limbs	Staph, strept, propionibacteria,
Thorax	Staph, strep, and propionibacteria

RECOMMENDED DRUGS FOR SOME PROCEDURES

Procedure	Likely pathogen(s)	Recommended Drug	Alternative Regimen
Cardiothoracic	Staph epy, staph aueus, streptococcus, corynebacteria, enteric-gram-negative bacili	Cefazolin	Clindamycin
General surgery			
Appendectomy (no- perforated)	Enteric Gram (-) bacili	Cefazolin + Metronidazole	Clindamycin + Aminoglycoside
colorectal surgery	Enterococcus, anaerobes.	Cefazolin + Metronidazole	Clindamycin + Aminoglycoside
High-risk esophageal, gasto – duodenal, or biliary surgery	Enteric Gram(-) bacili, Gram(+) cocci	Cefazolin	Clindamycin + Aminoglycoside
penetrating abdominal trauma	Enteric Gram(-) bacili, enterococcus, anaerobes	Cefazolin + Metronidazole	Clindamycin + Aminoglycoside
Gynecologic Surgery			
• c-section (after cord-clamping)	Staph epi, staph aureus, Group B strep, Enterococcus	Cefazolin	Clindamycin + Aminoglycoside
• Hysterectomy	Enteric Gram(-) bacili, Group Bstrep, Enterococcus	Cefazolin	Clindamycin + Aminoglycoside
Head and Neck Surgery	Anaerobes, staph aureus, Gram(-) bacili	Clindamycin	Cefazolin + Metronidazole
Neuro Surgery			
• clean	staph aureus, staph epi, Anaerobes,	Cefuroxim Cefazolin	Clindamycin
• skull fracture	staph aureus, staph	Cefazolin	Clindamycin

	epi,		
• penetrating trauma	Staph, strep, Gram(-) bacili, anaerobes	Ceftriaxone, Clindamycin	N \ A
• spine	staph aureus, staph epi,	Cefazolin	Clindamycin
Orthropedic surgery			
• closed fracture	staph aureus, staph epi,	Cefuroxime Cefazolin	Clindamycin + Gentamycin
• open fracture	Staph, strep, Gram(-) bacili, anaerobes	Ceftriaxone + Clindamycin	Clindamycin
Urologic surgery			
• Genitourinary (high risk only)	Gram(-) bacilli, Enterococcus	Cefazolin	Clindamycin + Gentamycin
Vascular surgery	Staph epi, staph, strep, Gram(-) bacili, anaerobes	Cefazolin	Clindamycin

PERIOPERATIVE TREATMENT

- It should start with premedication.
- Should be administered 30 min to 1 hour before the surgery.
- Should be intravenous.
- Aiming at saturated tissue concentration above MIC at the time of surgery or manipulation.
- Re-administer at 1-2 t ½ of the antibiotics for prolonged surgery.
- 24-48 hr is as effective as administration for 7 days.

THERAPEUTIC ANTIBIOTIC USE

1. Establish a clinical diagnosis and the need for Antibiotics base on history and physical examination.
2. Determine the Urgency of the situation.
   - Non-urgent situation: mild infection or chronic infection.
   - Urgent situation: suspected severe infection.
3. Obtain an appropriate clinical specimen for examination, culture and sensitivity.
4. Remove barrier to cure by:
   - Debridement.
   - Sequstrectomy.
   - Good wound care.
5. Determine the most likely organism causing the infection.
   - Focus of infection.
   - Age.
   - Epidemiologic features.
   - Prior culture data.
6. If multiple antibiotics are available to treat pathogen, choose the best agent.
   - Prior antibiotic allergies.
   - Antibiotic penetration.
   - Potential side effects.
   - Medical condition of the patient.
7. Antibiotic combination can be considered to achieve Synergism.
8. Assess effectiveness of antibiotic therapy.
   - Clinical assessment: Temperature - 48 hrs 4 BC antibiotics, 3-4 days 4 BS drugs
   - Inflammatory markers- signif. CPR < 25% from the baseline within 24 hrs.
   - Contagiousness of patient – BC 24hrs. BS 5 days
9. Initial therapy may need modification after culture results are available.
   - Modification not necessary if there is significant relief of symptoms.
   - Narrow spectrum of antibiotics should be used (to decrease the risk of colonization).
   - Negative cultures.

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