ANTIBIOTIC POLICY

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Index

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Introduction

AIMS OF ANTIMICROBIAL THERAPY

1. To provide a simple, best empirical/specific treatment of common infections

2. To promote the safe, effective, economic and rational use of antibiotics

3. Tominimize the emergence of bacterial resistance in the community

PRINCIPLES OF TREATMENT

1. These guidelines are based on the best available evidence.

2. A dose and duration of treatment is suggested but can be modified by consultants based on clinical scenarios

3. Prescribe an antibiotic only when there is likely to be a clear clinical benefit.

4. Do not prescribe an antibiotic for viral sore throat, simple coughs and colds and viral diarrhoea.

5. Use simple generic antibiotics first whenever possible. Avoid broad spectrum antibiotics (e.g. Amoxycillin+Clavulanate, quinolones and cephalosporins) when standard and less expensive antibiotics remain effective, as theyincrease risk of *Clostridium difficile*, MRSA and resistant UTIs.

6. Avoid widespread use of topical antibiotics (especially those agents also available as systemic preparations).

7. Clarithromycin is an acceptable alternative in those who are unable to tolerate erythromycin because of side effects.

8. Test dose to be given for beta-lactam antibiotics.

STEPS TO FOLLOW THE PROTOCOLS

1. Identify thetype of infection — bloodstream, respiratory, intra-abdominal or urinary tract,

2. Define thelocation — OPD, ICU or ward patient

3. Wait for atleast 48hrs of antimicrobial therapy before labeling patient as non-responding to

the therapy and to switch to the higher next line of therapy. Also consider if patient condition deteriorates.

4. Send respective cultures and or primary set of investigations before starting antibiotic therapy

5. Once culture / sensitivity report available initiate specific antimicrobial therapy. Antimicrobial may require to be changed/de-escalated

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GASTROINTESTINAL & INTRA-ABDOMINAL INFECTIONS

Condition	LikelyCausative Organisms	Empiric (presumptive) antibiotics/FirstLine	Alternative antibiotics/Second Line	Comments
Acute Gastroenteritis Foodpoisoning	Viral, Entero-toxigenic& Entero-pathogenic E.coli S.aureus, B. cereus, C.botulinum	None	None	Rehydration(oral/ IV)essential
Cholera	V.cholerae	Doxycycline300mg Oral stat AzithromycinOralin children(20mg/kg) andpregnantwomen (1g)	Azithromycin1gmOral stat Or Ciprofloxacin500mgBD for3days	Rehydration(oral/IV) isessential Antibiotics are adjunctivetherapy.
Bacterialdysentery	Shigella sp.,Campylobacter, Non-typhoidal salmonellosis	Ceftriaxone 2gm IV ODfor5days ororal cefixime 8 mg/kg/day x 5days	Azithromycin1g OD x3days	ForCampylobacter the drug of choice is azithromycin.
	Shiga toxin ProducingE.coli	AntibioticTreatment Not recommended.		Antibiotic Useassociated Withdevelopment of hemolytic uremicsyndrome.
Amoebicdysentery	E.histolytica	Metronidazole400mg Oral TDS for7- 10days	Tinidazole2gm OralOD for 3days	Adddiloxanide furoate500mg TDS for 10d
Giardiasis	Giardialamblia	Metronidazole200-400mg oral TIDx7-10 d	Tinidazole2gm oral x1dose	
Entericfever	S.Typhi, S.ParatyphiA	Outpatients:Cefixime20mg/kg/day for 14 days or Azithromycin 500 mg BD for 7days. Inpatients:Ceftriaxone 2gIVBDfor2weeks +/-Azithromycin 500mgBDfor7days	Cotrimoxazole800/160 mgBD for 2 weeks	Majorityofstrains are nalidixic acid resistant. Ceftriaxone to be changed to oral cefixime when patientis afebrileto finishtotalduration of 14 days.

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Biliiarytractinfections (cholangitis, cholecystitis)	Enterobacteriacea (E.coli,Klebsiellasp.)	Ceftriaxone2gmIV OD or Piperacillin-Tazobactam4.5gmIV 8 hourly Or Cefoperazone Sulbactam3gmIV 12 hourly For7-10days	Imipenem 500 mg IV6 hourly or Meropenem1gm IV8hourly For7-10days	Surgical or endoscopic intervention to be considered if there is biliary obstruction. There is High prevalence of ESBL producing E.coli, Klebsiella sp. s trains. De- escalate therapy once antibiotic susceptibility is known.
Hospital acquired diarrhea	C. difficile	Metronidazole400mg oral TDS for 10 days	Severe disease: start Vancomycin250mgoral 6 h empirically.	
Spontaneous bacterial Peritonitis	S.pneumoniae E.coli Klebsiella Enterococcus	Cefotaxime1-2gmIV TDS Or Piperacillin-Tazobactam4.5gmIV 8 hourly Or Cefoperazone- Sulbactam 3 gm IV12h	Imipenem500mgIV 6hourlyor Meropenem1gmIV 8hourly	Descalateto Ertapenem1gm IV ODfor5-7days Oncethepatient improves
Secondary peritonitis,Intra-abdominal abscess/GIperforation	Enterobacteriaceae (E.coli,Klebsiellasp.), Bacteroides (colonic perforation), Anaerobes	Piperacillin-Tazobactam4.5gmIV 8 hourly Or Cefoperazone-Sulbactam3gmIV 12 hourly in severeinfections In very sick patients,ifrequired ,additionof cover for yeast (fluconazole iv800mg loading dose day1, followed by 400mg 2nddayonwards& for Enterococcus (vancomycin /teicoplanin)may be contemplated	Imipenem1gIV8hourly Or Meropenem1gmIV 8hourly or Ertapenem1gmIVOD	Source control is importanttoreduce bacterial load. If excellentsource control– for 5-7days;otherwise2-3weekssuggested.
Pancreatitis Mild-moderate		No antibiotics		

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Post necrotizing pancreatitis: infected pseudo cyst; pancreatic abscess	Entero bacteriaceae, Enterococci, S.aureus, S. epidermidis, anaerobes, Candida sp.	Piperacillin- Tazobactam4.5gm IV8hourly empirically or Cefopera zone- Sulbactam3gmIV 8hourly in severe infections In very sick patients, if required, addition of cover for yeast (fluconazoleiv800mg loading dose day1, followed by 400mg 2ndday onwards) &and for Enterococcus (vancomycin /teicoplanin)maybe contemplated for7-10days	Imipenem-Cilastatin500mg IV 6 hourly or Meropenem1gmIV 8 hourly	Duration of treatment Is based on source control and clinical improvement
Diverticulitis Mild-OPD treatment	Gram-NegativeBacteria Anaerobes	Co-trimoxazole DS 800/160mgBD for 7-10 days	Ciprofloxacin+ Metronidazolefor7days	
Diverticulitismoderate	Gram-Negative Bacteria Anaerobes	Ceftriaxone 2 gm IV OD + metronidazole 500 mg IV TDS or Piperacillin- Tazobactam4.5gmIV 8hourly empirically or Cefoperazone- Sulbactam3gmIV 8 hourly		BL-BLIagents haveverygood Anaerobic cover, so noneedtoadd metronidazole.
Diverticulitis Severe	Gram-Negative Bacteria Anaerobes	Meropenem1gmIV 8hrlyorImipenem-Cilastatin500 mgIV 6hourly		Duration based on improvement
LiverAbscess	Polymicrobial	Amoxycillin- clavulanate/	Piperacillin-Tazobactam	
				Ultra sound guided
			4.5gmIV8hourly	Drainage indicated

		3rdgeneration cephalosporin + Metronida zole 500mg IVTID/800 MgoralTIDfor2 weeks		In large abscesses, signs of imminent Rupture and no Response to Medical treatment.

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CENTRALNERVOUSSYSTEMINFECTIONS

Condition	Likely Causative Organisms	Empiric antibiotics (presumptive antibiotics)	Alternative antibiotics	Comments
Acute bacterial Meningitis	Streptococcus pneumoniae, Haemophilus influenzae, Neisseria Meningitidis	Ceftriaxone 2gIV 12 hourly 10-14 days treatment	Meropenem1 gm 8 Hourly 7-14 days+ Vancomycin1gm BDx14 days	Antibiotics should be started as soon as the possibility of bacterial meningitis becomes evident, ideally within 30minutes. Do not wait for CT scan or LP results. No need to add Vancomycin as primary agent, as ceftriaxone resistant Pneumococcus is not common in India. Listeria is also rare in India and so ampicillin is also not indicated Adjust therapy once pathogen and susceptibilities are known.
Acute bacterial Meningitis in Elderly (>55 yrs), alcoholics, Immune compromised	Listeria monocytogenes	Inj. Ampicillin 2 gm IV4hrly Duration 2 weeks		
Meningitis-Post- neurosurgery or Penetrating head trauma	S. epidermidis, S. aureus, P.acnes, P.aeruginosa, A.baumanii	Meropenem2gmIV 8hourly And Vancomycin15mg/kg IV 8hourly		May need intraventricular therapy in severe cases
Meningitis with basilar Skull fractures	S. pneumoniae, H.influenzae	Ceftriaxone2gmIV 12hourly For14 days		Dexamethasone 0.15mg/kg IV 6 hourly

				For 2-4days (1stdose with or before first antibiotic dose)

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Brain abscess, Sub- dural empyema	Streptococci, Bacteroides, Enterobacteriaceae, S.aureus	Ceftriaxone2gm IV 12 hourly or Cefotaxime2 gm IV 4-6hourly AND Metronidazole800mg IV 8hourly Duration of treatment to be decided by clinical & radiological response, minimum two months required.	2nd line Meropenem 2gm IV 8 hourly Add Vancomycin 2gm/ day IV , 12hrly if MRSA suspected	Exclude TB, Nocardia, Aspergillus, Mucor (If fungaletiology confirmed, Add Amphotericin B/ Voriconazole) If abscess <2.5cm & patient neurologically stable, a wait response to antibiotics. Other wise, consider aspiration/surgical drainage and modify antibiotics as per sensitivity of aspirated/ drained secretions.
Neurocysticercosis	Taenia solium	Albendazole400mg/Kg PO BD +Prednisolone1mg/Kg PO OD Duration15 days		Consider antiepileptic therapy for seizures

SKIN & SOFT TISSUE INFECTIONS

Condition	Likely Causative Organisms	Empiric antibiotics (presumptive antibiotics)	Alternative antibiotics	Comments
Cellulitis	Streptococcus pyogenes (common),S.aureus	Amoxicillin- Clavulanate 1.2gmIV TDS/625mgoral TDS or Ceftriaxone2gm IVOD	Clindamycin 600-900mg IV TDS	Treatfor5-7days.
Furunculosis	S.aureus	Amoxicillin-Clavulanate1.2gmIV/Oral 625TDS or Ceftriaxone2gm IVOD Duration–5- 7days	Clindamycin 600-900mg IV TDS	Get pus cultures before starting antibiotics

Necrotizing fasciitis	Streptococcuspyogenes, S.aureus, anaerobes, Enterobacteriaceae (polymicrobial)	Piperacillin- Tazobactam 4.5gmIV 6hourlyOr Cefoperazone- Sulbactam3gm IV 12 hourly & Clindamycin 600-900mgIV 8 hourly Duration dependsonthe progress	Imipenem1g IV 8 hourly or Meropenem1gm IV 8 hourly AND Clindamycin 600-900mg IV TDS /linezolid600 mg IV BD/daptomycin 6mg/kg/day	Early surgical intervention crucial

RESPIRATORY TRACT INFECTIONS

Condition	LikelyCausative Organisms	Empiric antibiotics (presumptive antibiotics)	2nd line antibiotics	Comments
Community acquired Pneumonia	S. pneumoniae, H.influenzae,Legionella, E.coli,Klebsiella sp., S. aureus	Mild cases:Amoxycillin-clavulanicacid Moderatetoseverecases If IV indicated, amoxycillin-clavulanate1.2g IV TDS or Ceftriaxone1gIV BD + Levofloxacin 500mgODx5-7 Days	Piperacillin-Tazobactam4.5gm IV 6hourly or Imipenem 1g IV 6hourly or Cefoperazone-Sulbactam3gm IV 12hourly	Reservedrugs:Linezolid+ Vancomycin IfMRSAisaconcern,add Vancomycin If atypical pneumonia suspected,Azithromycin500 mg oral/IV OD OrDoxycycline 100mg BD
Lungabscess, Empyema	S.pneumoniae, E.coli, Klebsiella sp.,Pseudomonas aeruginosa, S.aureus,anaerobes	Piperacillin-Tazobactam4.5gm IV6hourly Or Cefoperazone-Sulbactam3gmIV 12hourly	AddClindamycin 600-900mg IV 8hourly	3-4weekstreatmentrequired
Acutepharyngitis	Viral	None required		Asmostcasesareviralno Antimicrobialtherapyrequired

	Group Aß-hemolyticStreptococci (GABHS), Group C, G Streptococcus,	Oral Penicillinv 500mg BD or Amoxicillin500mg Oral TDS for 10days	In case of penicillinallergy: Azithromycin 500mg OD for 5 days Or Benzathine Penicillin12 lac units IM	Antibiotics are recommended to reduce transmission rates and prevention of long term sequaelae such as rheumatic fever
Ludwig' sangina Vincent's angina	Poly microbial (Cover oralanaerobes)	Clindamycin 600mg IV 8hourly or Amoxicillin-Clavulanate1.2 Gm IV	Piperacillin-Tazobactam4.5gm IV 6hourly	Duration based on improvement
Acute bacterial Rhino-sinusitis	S. pneumoniae, H. influenzae, M.catarrhalis	Amoxicillin-Clavulanate1gm OralBDfor7days	Moxifloxacin 400mgODfor5-7days	
Acute bronchitis	Viral	Antibiotics not Required	-	-
Acute bacterial exacerbation of COPD	S. pneumoniae H. influenzae M.catarrhalis	Amoxicillin-clavulanate 1gm oralBDfor7days	Azithromycin 500mgoralOD× 3days	Treated as community acquired pneumonia
Ventilator associated pneumonia		Piperacillin+ Tazobactam 4.5gm6hourly	Meropenem 1gm 8hourly+colistin 3million IU every 12 hours.	Check for Multiple organ failure Nephro toxic

URINARY TRACT INFECTIONS

Asymptomatic bacteriuria NOT to be treated except pregnant women and immuno compromised patients. All cases of dysuria may not be UTI. Refer to Obstetrics and gynecology infections for treatment of asymptomatic bacteriuria in pregnant women.

Condition	Likely Causative Organisms	Empiric antibiotics (presumptive antibiotics)	Alternative antibiotics	Comments

Acuteun complicated Cystitis	E. coli, Staphylococcus saphrophyticus (in sexually active young women), Klebsiella pneumonia	Nitro furantoin 100mgBDfor7 days or Cotrimoxazole 800/160 mgBDx3-5 days or Ciprofloxacin 500mgBDfor3-5 days	Cefuroxime 250mgBDfor 3-5days	Get urine cultures before antibiotics &modify therapy based on sensitivities.

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Acute uncomplicated Pyelonephritis	E.coli, Staphylococcu s saphrophyticus(in sexually activeyoung women), Klebsiella pneumoniae,Proteus mirabilis	Amikacin1gOD I M/IV Or Gentamycin 5-7 mg/kg/day OD (Monitor renal function closely and rationalize according to culture report)	Piperacillin-Tazobactam4.5g IV 6 hourly Or Cefoperazone-Sulbactam3g IV 12hourly or Ertapenem1gIV OD	Urine culture and susceptibilities need to be collected before starting antimicrobial treatment to guide treatment.
Complicated Pyelonephritis	Escherichia coli,Klebsiellapneumonia , Proteus mirabilis, Pseudomonas aeruginosa, Enterococcus sp. Frequently multi-drug resistantorganismsare present	Piperacillin- Tazobactam4.5 gmIV 6 hourly or Amikacin1gOD IV Or Cefoperazone-Sulbactam3gm IV 12hourly	Imipenem1gIV 8hourly or Meropenem1gm IV8hourly	Get urine cultures before antibiotics & switch to a narrow spectrum agent based on sensitivities. Treat for 10-14days. De-escalate to Ertapenem 1gmIVOD,if Imipenem/ meropenem initiated. Monitor renal function if aminoglyco side is used.
Acuteprostatitis	Enterobacteriaceae (E.coli,Klebsiellasp.)	Doxycline100mg BD or Co-trimoxazole800/160mg BD.	In severecases, Piperacillin- Tazobactam 4.5gmIV6hourly or Cefoperazone-sulbactam3gmIV 12hourly or Ertapenem1gm IV OD or Imipenem1gIV 8hourly or Meropenem1gm IV 8hourly	Get urine and prostatic massage cultures before antibiotics &switch tonarrow spectrum agent based on sensitivities and then treat total for 3-4 weeks. Use Ciprofloxacin (if sensitive)

OBSTETRICSANDGYNAECOLOGICALINFECTIONS

Fluoroquinolonesarecontraindicatedin1st trimester.

Cotrimoxazoleiscontraindicatedin1st trimester.

Doxy cycline is not recommended in nursing mothers. If needtoadministerdoxycyclinediscontinuationof nursing may be contemplated.

Infections	Likely organism	Primary treatment (presumptive antibiotics)	Alternate treatment	Remarks
Asymptomatic Bacteriuria >1,00,000cfu/ml of bacteria of same species in 2 urine culturesobtained2-7 days apart. Treat as per sensitivityresultfor7 days.		Nitrofurantoin100mg Oral, BD for 7days OrAmoxicillin500mg Oral BD x7-10days.	Oralcephalosporins, TMP-SMXorTMP alone	Screen in 1st trimester. Can cause pyelonephritisin upto25%ofall pregnant women. 30% chance of recurrence after empirical therapy. Few direct effects, uterine hypoperfusion due to maternal anemia dehydration,may cause fetal cerebral hypoperfusion. 2. LBW,
Group B Streptococcal Disease, Prophylaxis and Treatment	Group B Streptococci	IV Penicillin G 5 million units.(Loading dose)then 2.5-3 million units IV QID until delivery. or Ampicillin 2gm IV (Loading dose)then1gm QID until delivery	Cefazolin 2 gm IV (Loading Dose)and then 1gm TID Clindamycin 900mg IVTID or vancomycin IV or teicoplan in for penicillin allergy	Prevalence very low so the prophylaxis may be required only on culture documented report Associated with high risk of pre-term labor, still birth, neonatal sepsis
Chorio-amnionitis	Group B streptococcus, Gram negative bacilli, chlamydiae, urea plasma and anaerobes, usually Poly microbial		Clindamycin/ vancomycin/ teicoplaninand cefoperazone-sulbactum If patient is not in Sepsis then IV Ampicillin	Preterm Birth, 9-11% death rate in pre term infant's un favorable neurologic outcome,
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Septic abortion	Bacteroides, Prevotellabivius, GroupB ,Group A Streptococcus, Entero bactereaceae, C. trachomatis, Clostridium perfringens.	Ampicillin 500 mg QID+ Metronidazole 500 mg IV TDS if patient has not taken any prior antibiotic (start antibiotic after sending cultures)	Ceftriaxone 2g IV OD	
		Partially treated with antibiotics, send blood cultures and start Piperacillin- Tazobactam or Cefoperazone- sulbactam till the sensitivity report is available		
Endomyometritis and Septic Pelvic Vein Phlebitis	Bacteroides ,Prevotellabivius, GroupB, Group A Streptococcus, Enterobactereaceae, *C.trachomatis, Clostridium perfringens*		Same as above.	
Obstetric Sepsis During pregnancy	Group A beta-haemolytic Streptococcus, *E.coli*, anaerobes.	If patient is in shock and Blood culture reports are pending, then start Piperacillin- Tazobactam or Cefoperazone- Sulbactam till the Sensitivity report is available and modify as per the report. If patient has only fever, with no features of severe sepsis Start amoxicillin clavulanate oral 625 TDS/IV 1.2 gmTDSor Ceftriaxone 2gm IV OD + Metronidazole 500 mg IV TDS+/- Gentamicin7mg /kg /day OD if admission needed. MRSA cover maybe required if suspected or colonized (Vancomycin/ Teicoplanin)		

Obstetric Sepsis following pregnancy	S.pyogenes, E.coli, S.aureusS. pneumoniae, Methicillin-resistant S.aureus(MRSA), C.septicum& Morganellamorganii.	Same as above		Sources of sepsis outside Genital tract Mastitis UTI Pneumonia Skin and soft tissue (IV site, surgical site, drainsite etc.)
Syphillis				Refer to STD program guidelines
Tuberculosis in pregnancy	Similar to NON PREGNANT Population with TB	PleasereferNTEPguideline WHOhasadvocatedthat,allthe4firstline drugs- INH, Rifampicin, Ethambutol, Pyrazinamide are safe		Very small chance of transmission fin fection to fetus.
	Some exceptions	Safe in pregnancy and can be used except Streptomycin. SM causes significant o to toxicity to the fetus (Pyrazinamidenot Recommended by USFDA) Mother and baby should stay together and the baby should continue to breastfeed. Pyridoxine supplementation is recommended for all pregnant or breast feeding women taking is on iazid as well as toneonate who are being breastfedby mothers taking INH.		Late diagnoses can pred is poseto LBW, prematurity.

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VIRALINFECTIONS(NOANTIBIOTICSTOBEGIVEN)				
Influenza In pregnancy (seasonal And H1N1)	Tendency for severe including premature labor &delivery. Treatment should begin within48 hrs of onset of symptoms. Higher doses commonly used in non pregnant population (150mg) are not recommended in pregnancy due to safety concerns. 4. Chemoprophylaxis can be used in significant exposures. 5. Live(nasal Vaccine) is contraindicated in pregnancy.	Oseltamivir75mg OralBDfor5days	Nebulization with Zanamvir respules(2) 5mg each, BD For5days	Direct fetal infection rare Preterm delivery and pregnancy loss. The best preventive strategy is administration of single dose of killed vaccine.
Varicella	>20 wks of gestation, presenting within 24 hours of the onset of the rash, >24hrsfromtheonsetof rash, anti virals are not found to be useful.	Acyclovir800mgOral5timesaday IV acyclovir commended for the treatment of severe complications, VZIG should be offered to susceptibility women <10days of the exposure. VZIG has no role in treatment once their shappears. ThedoseofVZIGis125units/10kgnotexceeding 625 units, IM.		Chickenpox during pregnancy does not justify termination without prior prenatal diagnosis as only a minority of fetuses infected develop fetal varicella syndrome.

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PARASITIC INFECTIONS			
Acute Toxoplasmosis in pregnancy	<18 weeks gestation at diagnosis	Spiramycin 1gm Oral qid until 16-18weeks/ Pyrimathamine+ sulphadizine. Alternate every two weeks	
	>18weeks gestation and documented fetal infection by positive ammiotic fluid PCR.	If PCR Positive - Pyremethamine 50 mg Oral BDx 2days then 50 mg OD + Sulphadiazine75 mg/kg Oral x 1dose then 50mg/kg bd + Folinic Acid (10-20 mg Oral daily) for minimum of 4 weeks or for duration ofregnancy	
Malaria In pregnancy	As per national program		
GENITAL TRACT INFECTIONS			
Candidiasi	Candida species	Fluconazole oral 150 mg single dose For milder cases- Intra vaginal agents as creams or suppositories clotrimazole, miconazole, nystatin. Intra vaginal azoles, single dose to 7-14days	Non-pregnant-If recurrent candidiasis, (4 or more episodes/year) 6 months suppressive treatment with fluconazole 150mg oral once a week or clotrimazole vaginal suppositories 500mg once a week.
Bacterial vaginosis	Poly microbial	Metronidazole 500mg Oral BD x 7days Or metronidazole vaginal gel 1HS x 5days Or Tinidazole 2g orally ODx 3days Or 2% Clindamycin Vaginal cream 5gm HS x5 days	Treat the partner
Trichimoniasis	Trichomonas vaginalis	Metronidazole 2gm single dose or 500mg Oral BD x 7days or Tinidazole 2gm Oral single dose For treatment failure –retreat with Metronidazole 500mg Oral BD x7Days, if 2nd failure Metronidazole 2gm Oral OD x3-5days	Treat sexual partner with metronidazole 2gm single dose

Cervicitis /Urethritis Mucopurulent gonoccocal	Polymicrobial Polymicrobial	Ceftriaxone 250mg IM Ceftriaxone 250mg IM Single dose + Single dose + Azithromycin Azithromycin 1gm single dose OR 1gm single dose OR Doxycycline 100mg BD x7day Doxycycline 100mg BD x7day	
Pelvic Inflammatory ~~Disease~~ (~~Salpingitis~~ &tubo-ovarian abscess)	S.aureus, Entero bacteriacae, gonococci, ~~Gardenella~~	Out patient treatment Ceftriaxone 250mg IM/IV single dose plus+/- Metronidazole 500mg BD x14days Plus Doxycycline 100mg BD x 14Days ~~In patient Treatment Clindamycin~~ + ceftriaxone till patient admitted then change to OPD treatment	Drainage of tubo-ovarian abscess wherever indicated Evaluate and treat sex partner

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Mastitis without abscess	S. aureus	Amoxycillincl avulunate/Cephalexin500mgQID/OR Ceftriaxone 2gm OD OR MRSA-based on sensitivities Add Clindamycin 300QID or Vancomycin 1gmIV12hourly/teicoplanin12mg/kg IV 12hourly x3 doses followed by 6 mg once daily IV	
Mastitis with abscess		Drainage with antibiotic cover for MRSA Clindamycin300QIDor Vancomycin 15mg/kgIV12hourly (maximum 1gm 12hourly)/teicoplanin12mg/kgIV12hourlyx3doses followed by 6 mg once daily IV	

BONES AND JOINT INFECTIONS

Condition	Likely causative Organisms	Empiric antibiotics	Alternative antibiotics	Comments
Acuteosteomyelitis OR Septic arthritis	S.aureus, Streptococcus pyogenes Entero bacteriaceae	Ceftriaxone2gIVOD FollowedbyOraltherapybyCloxacillin500mg8h Or Cephalexin500mg6h	Piperacillin-tazobactam4.5g mIVq6hor Cefoperazone-sulbactam3gmIV q12h AND Clindamycin600-900mgIVTDS	Treat based on culture of blood/ synovial fluid/ bone biopsy Orthopedic Consultation is essential for surgical debridement Duration: 4-6 weeks (From initiation or last major debridement)
Chronic Osteomyelitis OR Chronic sinusitis		No empiric therapy		Definitive treatment guided by bone/ Synovial biopsy culture. Treat for 6 weeks minimum Investigate for TB, No cardia, fungi. Extensive surgical debridement. Total duration of treatment depends on the joint and the organism. Choose antibiotic based on sensitivity.
Prosthetic joint Infection	Coagulase negative Staphylococci, Staphylococcus	Ceftriaxone2gIVOD.Add Vancomycin1gmIVBDor Teicoplanin800mg x3		4 weeks

	aureus,Streptococci Gram-negative bacilli, Enterococcus, Anaerobes	Doses followed by400mg Once daily		

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OPHTHALMIC INFECTIONS

Disease/Condition	Treatment	Remarks
	Eyelid	
Blepharitis	a)Lid margin care with warm compresses/lid massage/lids crubs b) Topical Medications: Chloramphenicol+/-DexamethasoneOintment over lids. c)Tearsubstitutes:4-6 times a day □Refractory cases:a) +c)+Oral doxycycline 100mg 12	
HORDEOLUM	□Hot Fomentation/Lid massage with Ocupoleye ointment □Systemic antibiotics a)Levofloxacin 500mg/dayX5 day sb)Amoxicillin250mg 8hourlyX5dayc)Ciprofloxacin500mg 12hourlyX5 days d)If severe,Augmentin625mg BDX5 days	
MEIBOMIAN GLAND DYSFUNCTION(MGD)	Hot fomentation and lid massage twice a day with Azithromycin/Chloramphenicol Eye ointment at bed timefor2 weeks In Refractory cases add oralDoxycycline100mg BD X 2 weeks and100mg ODX4 weeks	
DACRYOCYSTITIS	□Local warm compresses □Systemic antibiotics- Tab. Amoxi clav 500/Augmentin625mg BD7days □+/- Systemic Steroids □NSAID:TabCombiflam12hourly X5days	
	Cornea	
BACTERIAL CONJUCTIVITIS	Ophthalmic Solution a)Moxifloxacin 0.5%6times per dayfor7 to10 days b)Ciprofloxacin/Chlorampheni coleye ointment atnightfor7days	
VIRAL CONJUCTIVITIS	Coldcompresses+tearsubstitute4-6times/day +steroid antibiotic combination eye dropsin severe cases	

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Disease/Condition		Treatment	Remarks
Bacterial Keratitis		□Gatifloxacin0.5%/Moxifloxacin0.5% 1 hourly around the clock till signs of improvement / Tobramycin □Ciprofloxacin eye ointment/Chloramphenicol ointment □Fortified antibiotic eye drops-case dependent □Systemic antibiotic-case dependent	
Fungal Keratitis		□Natamycin5%,1 hourly round the clock till positive clinical response/Voriconazole/ Itraconazole Ointment □Amphotericin-B Eye drops -selected cases □Systemicantifungal-selected cases	
Viral Keratitis HSV Keratitis		□Acyclovir ointment 3%,5times/day for14-21 days □Systemic anti virals–case dependant	
a	Stromal component with out epithelial ulceration	□Prednisolone Acetate1%, 6-8 times/day tapered overmorethan10weeks+Acyclovir 400mg BD	
b	Keratitis with epithelial ulceration	□Acyclovirointment 5%,5 times/daytillthe ulceration heals. Then start steroids +Tab Acyclovir400mg	
c	Endothelial Keratitis	□Prednisolone Acetate1%, 6-8 times + Acyclovir400mg 3-5times/day for 7-10days	
Cataract/Refractive			
Pre-operative Care		1.Broadspectrumantibiotic drops (Moxifloxacin0.5%eyedrops ,4 times a day, 3 days prior to surgery 2.Anti-inflammatory(Nepafenac eye drops 0.1%twotimes a day, to be started 3 days prior to surgery 3.1 drop 5% Betadine in the culdesac for8-10minbeforetheinitiation of the surgery	

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Post –Operative care	1.5% Betadinein Culdesac after the conclusion of surgery 2.Antibioticeyedrops(Moxifloxacin0.5%)4 times adayfor2weeks 3. Steroideye drop (predforte1%) intapering dosefor4-6 4.Nepatence 0.1.1 eye drops twice a day for 4-6 weeks 5.Lubricants 4times a day for 4 weeks	
Vitreo-Retinal Cases		
Disease/Condition	Treatment	Remarks
Antibiotic Prophylaxis for Vitreo-retinalprocedures	□BETADINE PROPHYLAXIS(2.5%)for all cases except OPENGLOBE INJURIES o1 drop 5% Betadine in the cul desac at the time of block o1 drop 2.5-5.0% Betadinetoremain 8-10minutes in the cul desac beforethe initiation of surgery o1 drop 5% Betadine in the culdesac after conclusion of surgery Moxifloxacin /Gafifloxacin eye drops 1 drops 4 times 1 day 2 days	
Routine postvitreo-retinal surgeries	□Moxifloxacin/Gatifloxacin eye drops 1 drops 4 times/dayX2 week	
TraumaCases	□Inj.Ciprofloxacin200mg IVBD be forethe surgery	
Post-operativeTrauma cases	□Inj.Ciprofloxacin200mg IV BDorOral Ciprofloxacin750mg BDX1 week post operatively □Moxifloxacin/Gatifloxacin eyedrops 1 drop4 times/ dayX2 week □Tochangebasedonantibioticsensitivityon culturereports	

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Endophthalmitis Cases	□Moxifloxacin/Gatifloxacin eye drops- after diagnosis o1 drop every1min- first10 minutes □ Every 5 mins– thenext½hour □ Every 10 mins –thenext1 hour □ Every 15 mins –thenext2 hours □ Every 30 mins -thenext4hours □ Hourly thereafter □Fortified Vancomycin QID depending upon the clinical presentation and response to routine topic alagents □Intra vitreal Vancomycin (1mg in0.1ml), Dexame thasone(0.4mg in 0.1ml) & Ceftazidime (2.25mg in0.1ml)	
Post-Operative Endophthalmitis Cases	□Moxifloxacin/Gatifloxacin eye drops 1 drop □ 6 times/dayX2week □Tab.Ciprofloxacin750mg BDX5 days post-operative lyin Diabetic and other high risk cases. □Fortified antibiotic eye drops continue depending on the PCR& culture reports	
1.	**INTRAVITREALANTIBIOTIC ANDANTIFUNGAL**	
a ANTIBIOTICS	**□Vancomycin1mgin0.1ml** **□Ceftazidime/Cefazoline2.25mgin0.1ml□Amikacin400µgin 0.1ml** **□Gentamycin200µgin0.1ml**	
b ANTIFUNGALS	**□AmphotericinB5µgin0.1ml** **□Voriconazole50-100µgin0.1ml**	
2.	**Prophylaxisfor IntravitrealAntiVEGF/STEROIDS(ACCENTRIX/LUCENTIS/RHAZUMAB/EYELEA/AVASTIN/OZURDEX/IVTA)**	
INTRAVITREAL	**□Moxifloxacin/Gatifloxacineyedrops–4times/day** oStat.48hrs prior to the scheduled procedures o QID X5daysafter the procedure	

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EAR NOSE &THROAT INFECTIONS

Ear infection	Likely Etiology/	Suggested Regimen	Alternate	Remarks
Malignantotiti sexterna	P.aeruginosa(in >90% cases)	Piperacilin+Tazobactam 4.5gm IV 6h Or Imipenem/Meropenem Ciprofloxacin	Ceftazidime	Debridementusually required. Rule out osteo myelitis; DoCTorMRI,Ifbone involved,treatfor4-6 wks.
Acuteotitis media	S.pneumoniae H.influenzae Morexella catarrahalis	Amoxicillin+clavulanate 90/6.4mg/kg/daybidor cefpodoxim/cefuroxime axetil250mgBD	Ceftriaxone 50mg/kgI/M For3days	Treat children<2years If>2years,afebrileand Noearpain-consider Analgesicsanddefer antibiotics Durationof treatment Ifage<2 years:10days Ifage>2years:5-7 Days
Mastoiditis				
Acute	S. pneumoniae S. aureus H. infiuenzae P. aeruginosa	Cefotaxime1-2gmiv4-8 Hourly Ceftriaxone2gmivOD		Modify as per culture Unusual causes- Nocardia, TB, Actinomyces.
Chronic	Poly microbial	Piperacillin-tazobactam4.5g IV8h Meropenem1gmiv8h		
AcutePharyngitis/ tonsillitis				
Exudative/ Diffuse Erythema	Mostly viral Group A,C,G Streptococcus, Infectious mononucleosis,	PenicillinVoralx10daysor Benzathine Penicillin1.2 MUIM x1doseor Cefdiniror cefpodoxime x5days		Penicillinallergic, Clindamycin300-450 mgorally6-8hourlyx5days. Azithromycin clarithromycinare alternatives.

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Membranous pharyngitis	C. diptheriae,	Erythromycin500mgIVQIDorPenicillinG50,000units /kgIV12hourly. Diphtheria anti toxin: Horse serum. <48hrs:20,000-40,000units,Nasopharyngeal membranes:40,000- 60,000units >3days&bull neck:80,000- 1,20,000units		
Epiglotitis(Supraglotis)	Children: H.influenzae, S. pyogenes, S.pneumoniae ,S.aureus.	Cefotaxime50mg/kgIV 8hourly or ceftriaxone 50mg/kg IV 24 hourly	Levofloxacin 10mg/kg IV 24hourly+ clindamycin 7.5mg/kgIV6hourly.	
Laryngitis(hoarseness)	Viral (90%)	No antibiotic indicated		

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FUNGAL INFECTIONS

Routine antifungal prophylactic therapy in critically ill patients is NOT recommended. Fungal therapy is usually started based on positive cultures or systemic evidence of fungal infection. It is advised to take paired cultures if fungal infection is suspected. Evidence includes persistent sepsis / SIRS despite broad spectrum antibiotic (exclude sepsis, abscess, drug fever, DVT etc). Treat according to identification and antifungal sensitivity of Candida isolate.

Fluconazole IV/oral 800 mg OD first day (12mg/kg) and then 400 mg OD (6mg/kg from second day) if fluconazole naïve or sensitive

Or

2nd line Liposomal Amphotericin B (for Candida krusei and C.glabrata as inherently resistant to Fluconazole.) or Caspofungin (As Caspofungin is inherently inactive against Zygomycetes, Cryptococcus, Fusarium and TrichosporonSpp) Liposomal Amphotericin B IV3mg/kgODorCaspofungindose:IV7 0mgon Day1 (loading),50mgOD(<80kg)or70mg OD(if>80kg) thereafter. Moderate to severe hepatic dys function: reduce the subs equent daily

doseto35mgOD. Check for drug interactions.

To be decided by Microbiologist/ID physician based on patient's hepatic / renal functions. Severity of infection /drug interactions e.g. rifampicin, carbamazepine, phenytoin, efavirenz, nevirapine, cyclosporin, dexamethasone, tacrolimus etc.

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FEBRILE NEUTROPENIA

FebrileNeutropenia-definition

- Neutropenia-ANC<500/mm^{3}andexpectedtofallbelow500/mm^{3}in48hrs
- Fever-single oral temperature of38.3°C(101^{0}F)ononeoccasionor38°C(100.4^{0}F)onatleast2 occasions (1 hour apart)
- Neutropenicpatientsmaynothaveusualsignsofinfection.Redness, tenderness and fever may be the only signs.

Protocol:

- Critical examination of areas usually harboring infections ,including but not limited to, oral cavity, axillary region, scalp, groin, perineal region.
- SendbloodCultures2 sets(eachbottle10mlx4bottles)
- Otherrelevantinvestigations:urea,creatinine,ALT,urineculture,ChestXray,separateculturefrom central line, etc.

Patient-Haemodynamicallystable

- Bloodculture2 sets
- StartIVCeftazidime1gmIV8hourly
- Noneedtoaddglycopeptidesintheinitialregimen(exceptinspecificsituations,givenbelow)

Patient-Haemodynamicallyunstable

- StartBL-BLIagent(Cefoperazone-Sulbactam1.2gm IV 8 hourly/ piperacillin- tazobactam 4.5gm IV 8 hourly) OR
  Carbapenem(meropenem1gmIV8hourly/imipenem500mgIV6hourly/doripenem500mgIV6hourly)
- Noneedtoaddglycopeptidesintheinitialregimen(exceptinspecificsituations,givenbelow)

Reassessafter48hours:

If blood culturesare negative, haemodynamically stable but still febrile

- Re culture blood
- Add Amikacin 500mgIVBDfor3days

- Addcolistin(instead of amikacin)ifindicated(seebelow)

If blood culture sare negative, haemodynamically unstable buts till febrile

- InjColistin(+/-Carbapenem)+glycopeptides+Echinocandin/L-AmphoB

Blood culture growing Gram negative bacilli

- Patient afebrile-continue the empirical antibiotic till antibiotic sensitivity is available.
- Rationalise as per susceptibility profiles

When to addglyco peptides?

1. Haemodynamicinstability,orotherevidenceofseveresepsis,septicshockorpneumonia
2. Colonisation with MRSA or penicillin-resistant *S.pneumonia*
3. Suspicionofseriouscatheter-relatedinfectione.g.chillsorrigourswithinfusionthroughcatheter and cellulitis around *the catheter exit site*
4. Skin or soft-tissue infection atany site. Positivebloodcultureforgram-positivebacteria,beforefinalidentificationandsusceptibilitytesting is available
5. Severe mucositis

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When to add empirical colistin in febrile neutropenic patients?

1. Heamo dynamic in stability.
2. Colonisation with carbapenem resistant gram-negative bacteria.
3. Previous infection with carbapenem resistant gram-negative bacteria.
4. GNB in blood, sensitivity pending, persistent fever with haemodynamic instability.

Empirical Anti fungal Therapy

- Noresponsetobroadspectrumantibiotics(3-5days)-addL-AmphoB/echinocandin
- Whenapatientislocatedataremoteareaandmaynothaveaccesstoemergencyhealthcareservices, febrile neutropenia can be life threatening. Under such circumstances, availability of broad-spectrum oral antibiotics with the patient can help them gain time to reach emergency healthcare service.

Usefultip

- Febrileafter72hrs-CTchestandconsiderempiricalantifungal.
- If fever persists on empirical antibiotics, send two sets blood cultures/dayfor2days
- Send further culture sifclinic aldeterioration
- Unexplainedpersistentfeverinotherwisestablepatientdoesn'trequirechangeinempiricalantibiotic regimen.

Continue the regimentill ANCis>500cells/mm^3

- Ifglycopeptidesstartedasapartofempiricalregimen,STOPafter48hrs,ifnoevidence of Gram positive infection
- Antibiotictreatmentshouldbegivenforatleastsevendayswithanapparentlyeffectiveantibiotic, with at least four days without fever.
- Once Neutrophilc ounthas recovered ,with no culture positivity and heamodynamically stable; antibiotics can be stopped and patient observed, even if remains febrile. Evaluate for fungal infection, if atrisk.

Antibiotic Prophylaxis

ThoughquinoloneprophylaxisisrecommendedbyInternationalguidleines,it is notusefulinIndianscenario due to high resistance.

Anti viral prophylaxis

- For HSV IgG positive patient sunder goingallo-HSCT orleukemiainductionneedsacyclovir prophylaxis
- Allpatientsbeingtreatedforcancerneedtoreceiveannualinfluenzavaccinationwithaninactivated

vaccine.

- Neutropenic patients presenting within fluenza like illness should receive empiric altreatment with neuraminidase inhibitor.

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Anti fungal prophylaxis

Induction chemotherapy of Acute Leukemia: Posoconazole

Postallo BMT

Pre-engraftment:

Voriconazole/echinocandin Post -engraftment:

Posoconazole

SURGICAL ANTIMICROBIAL PROPHYLAXIS

To be administered within 1hr before the surgical incision.

Single dose is recommended. Consider for second intra-operative dose in pro long surgery based on the choice of antibiotic used for prophylaxis.

Prophylaxis should not be given beyond surgery duration (except for cardio thoracic surgery, up to 48 hours permissible)

SURGERY	MEDICATION
Breast	Inj.Cefazolin2gmorInj.Cefuroxime1.5gmIVstat
Gastro-duodenal & biliary	Inj.Ceftriaxone1gmIV BDfor24hrs(maximum)
ERCP	Inj.Piperacillin-Tazobactum4.5gmorInj.Cefaperazone-Sulbactam2gmIVstat
Cardiothoracic	Inj.Cefuroxime1.5gmIVstat&BDfor48hrs
Colonic surgery	Inj. Ceftriaxone 1gmIV and Inj. Metronidazole for 5-7 days
Abdominal surgery(hernia)	Inj.Cefazolin2gmorInj.Cefuroxime1.5gmIVstat
Head &Neck/ENT	Inj.Cefazolin2gmIVstat
Neurosurgery	Inj.Cefazolin2gmorInj.Cefuroxime1.5gmIVstat
Obstetrics & Gynecology	Inj.Cefuroxime1.5gmIVstat
Orthopaedic	Inj.Cefuroxime1.5gmIVstat&BDfor24hrs (maximum) S Openreductionofclosedfracturewithinternalfixation-Inj.Cefuroxime1.5gmIV stat and q12 h or Inj. Cefazolin 2gm IV stat and q12 h for 24hrs

	Closed long bone fracture fixation - – Inj Cefuroxime 1.5gmIV Single dose 1 hour before surgery,1.5gm single dose intra operative, 1.5gmIV after 3 hours in prolonged procedure, Inj. Cefuroxime 1.5gm IV BD for 2 days, Inj. Amikacin 500mg BD for 2 days Open fractures – Inj Cefuroxime 1.5gmIV Single dose 1 hour before surgery,1.5gm single dose intra operative, 1.5gmIV after 3 hours in prolonged procedure and Inj.Cefuroxime 1.5gm IV BD for 3 days, Inj. Amikacin 500mg BD for 2 days, Inj. Metrogyl 500mg TID for 3 days Spine surgeries - Inj Cefuroxime 1.5gmIV Single dose 1 hour before surgery,1.5gm single dose intraoperative, 1.5gmIV after 3 hours in prolonged procedure , Inj.Cefuroxime 1.5gm IV BD for days ,Inj. Amikacin 500mg BD for 2 days Arthroplasty - - Inj Cefuroxime 1.5gmIV Single dose 1 hour before surgery,1.5gm single dose intraoperative, 1.5gmIV after 3 hours in prolonged procedure, Inj.Cefuroxime 1.5gm IV BD for days ,Inj. Amikacin 500mg BD for 2 days Arthroscopy- Inj Cefuroxime 1.5gmIV Single dose 1 hour before surgery,1.5gmIV single dose intraoperative, 1.5gmIV after 3 hours in prolonged procedure and Inj.Cefuroxime 1.5gm IV BD for 2 days
Trauma	Inj.Cefuroxime1.5gmIVstat and q12h(for24hrs) Or Inj.Ceftriaxone2gmIVOD
Urologic procedures	Antibiotics only to patients with documented bacteriuria
Trans-rectal prostatic surgery	Inj.Cefaperazone-Sulbactam2gmIVstat

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Pediatric Infections

Diseases /Conditions	1st line Antibiotics (Who did not receive Antibiotic for the present condition)	1st line antibiotics (Received oral antibiotics for < 5 days)	2nd lineAntibiotics (Received multiple or prolonged antibiotics)
Central Nervous System Infection			
Acute Bacterial Meningitis	Ceftriaxone±Vancomycin (in Shock)	Ceftriaxone±Vancomycin (in Shock)	Meropenem/Cefepim e + Vancomycin/ Teicoplanin
Brain abscess	Ceftriaxone+Vancomycin+ Metronidazole	Ceftriaxone+Vancomycin+ Metronidazole	Cefepimeor Meropenem+ Vancomycin
Shunt infection	Ceftriaxone+Vancomycin	Ceftriaxone+Vancomycin	Cefepime or Meropenem+ Vancomycin
Acute encephalitis syndrome	Ceftriaxone±Vancomycin+ Acyclovir	Ceftriaxone±Vancomycin+ Acyclovir	Meropenem/Cefepime + Vancomycin/ Teicoplanin (addAzithromycinif atypical organisms suspected)
Respiratory Tract Infections			
Community acquired pneumonia Evidence of staph infection(±Shock)	Ceftriaxone+Amoxicillin-clavulanate Ceftriaxone+Vancomycin	Ceftriaxone+Amoxicillin-clavulanate Ceftriaxone+Vancomycin	Piperacillin- tazobactam+ Vancomycin
Atypical Pneumonia	Azithromycin	Azithromycin	Fluoroquinolones
Empyema	Amoxicillin-clavulanate	Amoxicillin-clavulanate (ifalreadyreceivedinIV dose)thenstartVancomycin+ Ceftriaxone	Vancomycin + Cefoperazone- sulbactam
Cystic Fibrosis (CF)-pulmonary exacerbation	Cefoperazone-sulbactam/ Piperacillin-tazobactam+	Cefoperazone-sulbactam/ Piperacillin-tazobactam+	Meropenem OR Ofloxacin OR Colistin +

	Amikacin	Amikacin	VancomycinOR Linezolid
Suppurative lung disease	Cefoperazone-sulbactam+ Amikacin	Cefoperazone-sulbactam+ Amikacin	Piperacillin- tazobactam+ Vancomycin
Immunodeficiency condition + LRTI	Cefoperazone-sulbactam+ Amikacin	Cefoperazone-sulbactam+ Amikacin	Piperacillin-tazobactam+ Vancomycin
Infection related to KidneyandUrinaryTract			
Nephrotic syndrome with peritonitis	Ceftriaxone±Vancomycin (in Shock)	Ceftriaxone±Vancomycin (in Shock)	Teicoplanin+ Piperacillin-tazobactam
Nephrotic syndrome with cellulitis	Amoxicillin-clavulanic acid ORCloxacillin+Cefotaxime	Amoxicillin-clavulanic acid ORCloxacillin+Cefotaxime	Teicoplanin+ Piperacillin-tazobactam
Nephrotic Syndrome with	Ceftriaxone±Vancomycin (inShock)	Ceftriaxone ±Vancomycin (inShock)	Teicoplanin+ Piperacillin-

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neumonia			tazobactam
Haemodialysis with suspected catheter related bloodstream infection	Ceftazidime+Vancomycin	Ceftazidime+Vancomycin	Remove line (place another after48hr; preferred) Piperacillin- tazobactam + Vancomycin
UTI (complicated)	Ceftriaxone	Ceftriaxone	Culture and sensitivity guided
Infection of Bone and Joints			
Acute Bacterial Osteomyelitis (Empirical) MSSA MRSA	Ceftriaxone+Vancomycin Cefazolin/Cloxacillin/Nafcillin Vancomycin or Clindamycin(If no Bacteremia and child is not severely ill)		Ceftazidime/Piperacillin-tazobactam + Vancomycin
Septic Arthritis (Empirical) MSSA MRSA	Ceftriaxone+Vancomycin Cefazolin/Cloxacillin/Nafcillin Vancomycin or Clindamycin		Ceftazidime/Piperacillin-tazobactam + Vancomycin
Infections of Skin and Soft Tissues			
Cellulitis	Oral Amoxicillin-Clavulanate/Cephalosporin/Clindamycin	Ceftriaxone/Cefazolin/Amoxicillin-Clavulanate /Clindamycin(IV)	Vancomycin+ Piperacillin – tazobactam
Infection of Gastro intestinal System			
Liverabscess	Cefazolin+Ceftriaxone	Vancomycin+Ceftriaxone	Teicoplanin+ Meropenem
AcuteCholangitis	Piperacillin–tazobactam	Piperacillin–tazobactam	Meropenem
Infected pancreatic collection	Piperacillin–tazobactam	Piperacillin–tazobactam	Meropenem
Infection in Pediatric Intensive Care Unit(PICU)			
Sepsi without focus (community acquired)	Ceftriaxone	Ceftriaxone	Piperacillin- tazobactam+ Vancomycin
Nosocomial Sepsis	Piperacillin-tazobactam+	NA	Colistin + Vancomycin

(Without focus)	vancomycin		
Septic shock	Ceftriaxone+Vancomycin	Piperacillin-tazobactam+ Vancomycin	Piperacillin- tazobactam /Cefoperazone- sulbactam +Vancomycin
Ventilator Associated Pneumonia	Piperacillin-tazobactam+ Vancomycin	NA	Colistin ±/ Vancomycin

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Suspected fungal pneumonia			Add fluconazole or AmphotericinB
DKA with suspected sepsis	Ceftriaxone	Ceftriaxone	Piperacillin- Tazobactam+ Vancomycin
Meningococcal sepsis	Ceftriaxone	Ceftriaxone	Piperacillin- Tazobactam+ Vancomycin
Central line Associated Blood stream Infection	Vancomycin	Meropenem	Colistin±vancomycin
Infection in Immuno compromised Children			
Febrile Neutropenia (No focus)	Cefoperazone-sulbactam/ Piperacillin-tazobactam+ Amikacin	NA	Add/increase gram positive cover (Vancomycin/Linezo lid)
FN-Pneumonia	Amoxicillin-clavulanate+ Amikacin	Cefoperazone-sulbactam+ Amikacin ± Vancomycin/Linezolid	Meropenem + Vancomycin/Linezol id Add anti fungals if fever persists>5-7 days
FB-GIT	Cefoperazone-sulbactam+ Ofloxacin/ Metronidazole	Add gram positive cover (Vancomycin/Linezolid)	Meropenem + Vancomycin/Linezol id Add antifungals if feverpersists>5-7 days
Febrile neutropenia with shock	Cefoperazone-sulbactam/ Piperacillin-tazobactam+ Vancomycin	NA	Meropenem+ Vancomycin Add Amphotericin B (if fever persists>5-7 days)
FN-meningitis	Ceftriaxone+Vancomycin	NA	Meropenem+ Vancomycin
Sepsis	Piperacillin-tazobactam+ vancomycin Add Amphotericin-B in case of strong suspicion of fungal infection.	Piperacillin-tazobactam+ vancomycin Add Amphotericin-B in case of strong suspicion of fungal infection	Colistin + Vancomycin Add Amphotericin-B
PCP Pneumonitis	Cotrimoxazole	Cotrimoxazole	
Infection in Neonatal Intensive Care Unit(NICU)			
Early-on set sepsis	Ciprofloxacin+ Amikacin	NA	Piperacillin- tazobactam+

			Amikacin
Late-on set sepsis	Ciprofloxacin+ Amikacin	NA	Piperacillin- tazobactam+ Amikacin
Meningitis	Piperacillin- tazobactam+ Amikacin	NA	Meropenem+ Amikacin
Sepsis	Cefotaxime+ Amikacin	NA	Piperacillin-tazobactam +Amikacin

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(Community Acquired)			
Osteomyelitis	Cefotaxime + Cloxacillin In MRSA replace Cloxacillin with Vancomycin		
Septic Arthritis	Cefotaxime+Cloxacillin In MRSA replace Cloxacillin with Vancomycin		

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