GUIDELINES FOR ANTIMICROBIAL THERAPY AND PROPHYLAXIS

Break the Cycle of Drug Resistance

Right Patient
Right Antimicrobial
Right Dose
Right Route
Right Duration

Reviewed 2018

Seth G.S Medical College and K.E.M Hospital

Version 1.3

Version 2018 (1.3)

Supported by :

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Version 1.1 and 1.2 Heads of Departments of Municipal Medical Colleges or their designates from various disciplines such as Cardiology, Chest Medicine, CVTS, Dermatology, E.N.T, Gastroenterology, G.I surgery, General Medicine, General Surgery, Microbiology, Neonatology, Nephrology, Neurology, Neurosurgery, Obstetrics and Gynaecology, Ophthalmology, Orthopaedics, Paediatrics, Pediatrics, Surgery, Pharmacology and Therapeutics, Plastic Surgery, Urology.

Version 1.3 – Heads of clinical departments or their designates at seth G.S Medical College ad K.E.M Hospital

Disclaimer

These guidelines have been prepared by consensus based on standard practices, published evidence, updated information, available data and individual experience of the experts. These guidelines are not exhaustive by themselves. Medicine is an ever changing science and users of this guideline are encouraged to refer to latest information. The final decision on the choice and use of antimicrobials rests with the treating clinician.

Next Review : June 2020/21

Version 2018 (1.3)

1. Guidelines for Respiratory Tract Infections

Sr. No.	Conditions/ Expected pathogens	Revised MCGM recommendations
1.	**Acute pharyngitis** Majority viral, Suspect bacterial – Grp A Streptococci	None indicated in viral infections **Amoxycillin 500** mg PO TDS Or **Azithromycin** 500 mg PO OD **Duration**: 5- 7 days **Alternative options** **Doxycycline** 100 mg BD Or **Cefuroxime axetil** 500 mg BD
2.	**Acute bronchitis** Viral – ILI	**OPD patients** **Oseltamivir** 75 mg PO BD **Duration**: 5 days For pregnant women in epidemic setting with pharyngitis and for severely ill patients with ARDS **Oseltamivir** 150 mg PO BD **Duration**: 5 days
3.	**Acute bacterial exacerbation of COPD** Most likely -Atypical bacterial pathogens and viruses Occasional -Streptococci, Hemophilus spp, Moraxella	**Co-amoxiclav** 625 mg PO TDS **Duration:**7 days **Alternatives** **Azithromycin** 500 mg oral OD × **3 days** **Or** **Doxycycline*** 100 mg PO BD Or

		Cefuroxime axetil* 500 mg PO BD ***Duration: 5-7 days** **Fluoroquinolones not to be used in outpatient settings**
4.	**Community Acquired Pneumonia** *S. pneumoniae*,,Legionella,Enterobacteriaceae, Viral (high risk) (S. aureus also mentioned in NG)	**OPD patients** **Coamoxyclav** 625 mg TDS **Duration:** 7 days **+/-** **Azithromycin** 500 mg OD **Duration:** 5 days **IPD patients** **Ceftriaxone** 1 gm IV BD Or **Co-amoxiclav** 1.2 gm IV TDS **Duration** - 7 days + **Azithromycin** 500 mg IVOD **Duration** - 5 days ***In epidemic settings:*** **Oseltamivir** 75 mg PO BD Duration: 5 days Remarks: If no response in 72 hrs, then upgrade as per Culture and sensitivity report

5.	**Nosocomial pneumonia (VAP)** Gram negative Bacilli, *E.coli*, Klebsiella ,Enterobacter, *P. aeruginosa*	**Empiric therapy:** **Piperacillin-Tazobactam** 4.5 gm IV TDS +/- **Amikacin** 500 mg IV OD **Remarks:** If no response in 72 hrs, then upgrade as per Culture and sensitivity report
6	**Pneumonia in transplant recipients** *S. pneumoniae, H. influenzae* Legionella	**Piperacillin + tazobactam** 4.5 gm IV QDS Or **Meropenem** 1 gm IV TDS Or **Ceftazidime** 1 gm IV TDS **Duration:** 14 days (with renal correction) **Remarks:** If no response in 72 hrs, then upgrade as per Culture and sensitivity report *If Pneumocystis jiroveci pneumonia is suspected add,* **Trimethoprim- Sulfamethaxazole** 960 mg 2 tablets TDS **Duration:** 10-14 days
7.	**Empyema** **(lung abscess/ empyema as per NG)** *S. aureus, H. influenzae* Grp A Strep, *S. pneumoniae,* Oral anaerobes	**Primary treatment is intercostal drainage with concurrent antibiotics** **The intercostal drainage fluid should be sent for culture sensitivity** **Piperacillin-Tazobactam** 4.5gm IV 6hourly or

		Cefoperazone-Sulbactam 1.5 gm IV 8 hourly **+/-** **Clindamycin** 600-900mg IV 8hourly **Duration of treatment:** Minimum 6 weeks **Remarks:** If no response in 72 hrs, then upgrade as per Culture and sensitivity report
8.	**Pneumocystis jiroveci Pneumonia**	Cotrimoxazole **DS** (800+160) PO 2 TDS **Duration**: 14 days In patients with associated hypoxia parenteral corticosteroids indicated
9.	**Anaerobic pneumonia**	**Piperacillin + tazobactam** 4.5 gm IV QDS + **Metronidazole** 500 mg IV TDS **Duration:** 14 days
10.	**Bronchiectasis with infective exacerbation** *H. influenzae, P. aeruginosa*	**Co-amoxiclav** 625 mg PO TDS *If no response then,* **Ceftriaxone** 1 gm IV BD + **Amikacin** 500 mg IV OD **Duration:** 7-10 days **Remarks:** Upgrade antibiotics as per culture and sensitivity report

11.	**Pulmonary tuberculosis** MTB complex	As per RNTCP guidelines
12.	**Invasive Broncho Pulmonary Aspergillus pneumonia** **(Immuno- compromised patient)**	**Itraconazole** 200 mg BD **Duration**: 3 weeks **Alternatives:** **Voricanazole** 6 mg/kg IV BD day 1 followed by 4mg /kg IV BD Duration : 2- 3 weeks Voriconazole to be reserved for non responsive cases

2. CNS Infections

Conditions/ Expected	Revised MCGM recommendations

Sr. No.	pathogens	
1.	**Acute Bacterial Meningitis** S.pneumoniae N.meningitidis H.influenzae	**Crystalline Penicillin** – 20 lakh units / IV / 2 hourly or **Ceftriaxone**2gm / IV / BD +/- **Vancomycin** 1g (15 mg/kg) / IV / BD Duration: 10-14 days + **InjDecadron** 8 mg stat followed by 4mg IV 8 hrly Duration : 5 days **Remarks:** Penicillins to be administered only after test dose. Indications for Vancomycin use: 1.diabetics with skin & soft tissue infection 2. patients with acute osteomyelitis 3. neurosurgery/ shunt
2.	**Acute Bacterial Meningitis (Elderly, alcoholics, immunocompromised)** *Listeria mono-* *cytogenes*	**Inj Ampicillin** 2gm IV 4 hrly Duration : 2 weeks
3.	**Brain Abscess** *S.Aureus, a*naerobes, Streptococci, Gram neg. bacilli, CoNS	**Cefotaxime** 2 gm IV 4-6 hrly **Or** **Ceftriaxone**2g / IV / BD **plusMetronidazole** 500 mg IV / TDS

		2nd line: **Meropenem**2gm IV TDS **Duration-** 2-4 weeks **Alternative/Remarks:** Add Vancomycin if MRSA suspected If fungal etiology confirmed, add Amphotericin B/ Voriconazole Consult neurosurgery for abscess aspiration/ excision
4.	**Neurocysticercosis** Taenia solium	**Albendazole**400 mg PO BD + **Prednisone 1** mg/kg PO OD **Duration:** 15 days **Remarks:** Consider antiepileptic therapy for seizures
5.	**Spinal epidural abscess** *S.aureus,* Streptococcus spp., anaerobes, Gram negative organisms	***1st line:*** **Ceftriaxone** 2gm /day IV BD + **Metronidazole** 1500-2000 mg/day, IV 6 hrly intervals + **Vancomycin** 1 gm /day IV BD ***2nd line:*** **Meropenem** 2 gm IV 8 hrly

		+/- **Vancomycin** 1 gm /day IV BD **Duration :**3-4 weeks after surgical drainage **Remarks:** Consider Meropenem to be added as per C/S report.
6.	**Subdural empyema** Oral anaerobes, *H. influenzae*	***1st line:*** **Ceftriaxone** 2gm /day IV BD **+** **Metronidazole** 1500-2000 mg/day, IV 6 hrly intervals **+** **Vancomycin** 1 gm /day IV BD ***2nd line:*** **Meropenem** 2 gm IV 8 hrly **+/-** **Vancomycin** 1 gm /day IV BD **Duration :**3-4 weeks after surgical drainage **Remarks:** Consider Meropenem to be added as per C/S report
7	**Cavernous or sagittal sinus thrombosis, Intracranial suppuration, thrombophlebitis** *S.aureus*, Grp A Streptococci, *H.influenzae*	***1st line:*** **Ceftriaxone** 2gm IV BD **+** **Metronidazole**500 mg IV 8 hrly ***2nd line:***

		Meropenem 2gm IV 8 hrly + **Vancomycin** 1gm/day IV/BD **Duration**: for 6 weeks or until there is radiographic evidence of resolution of thrombosis. **Alternatives:** ***1st line:*** **Cefotaxime** 12 gm/ day IV 4 hrly + **Metronidazole**500 mg IV 8 hrly
8.	**Meningitis-Post-neurosurgery or Penetrating head trauma** S. epidermidis, S. aureus, Propionibacterium acnes, P. aeruginosa, A.baumanii	**Meropenem** 2gm IV 8 hourly + **Vancomycin** 15mg/kg IV 8 hourly For 14 days. **Remarks:** May need intra ventricular therapy in severe cases

3. ENT infections

Sr. No.	Conditions/ Expected pathogens	Revised MCGM recommendations
1.	**Acute Sinusitis** *S. pneumoniae, H.influenzae* *M. catarrhalis*	**Co-amoxiclav** 625 mg PO BD **Duration:** 10-14 days **Alternative:** **Levofloxacin** 500 mg PO OD Duration: 7 days Levofloxacin not indicated in children

2.	**Acute pharyngitis** Majority viral Suspect bacterial- Grp A Streptococcus	**None indicated in viral** **Bacterial:** **Co-amoxiclav**625 mg PO BD +/- **Azithromycin** 500 mg PO OD **Duration**: 5- 7 days **Alternative:** **Cotrimoxazole** (DS) 800/160 mg OD Or **Doxycycline** 100 mg BD Or **Cefuroxime axetil**500 mg BD Or **Cefpodoxime**
3.	**Acute epiglottitis** *H. influenzae,* Anaerobes Polymicrobial	**Co-amoxiclav** 625 mg POBD Duration : 10 days + **Metronidazole** 500 mg PO TDS **Duration**: 2-3 weeks **Alternative:** **Ceftriaxone** 2g IV. BD Duration: 7-10 days
4.	**Oral Candidiasis** Candida spp	**Gentian violet** for LA Till improvement

		For severe cases – Fluconazole LA and 100-200 mg PO **Duration:** 2 weeks **Remarks:** Local Nystatin application for mild cases. Correct factors predisposing to oral thrush. For prophylaxis, once weekly oral dose of fluconazole is given.
5.	**Ludwig's Angina, Vincent's angina** Polymicrobial (Oral Anaerobes	**Co-amoxiclav** 1.2 gm IV BD **Duration:** 5–7 days + **Metronidazol**e 500 mg PO TDS **Duration** : 2-3 weeks (please check if duration for both is appropriate)
6.	**Acute Otitis Media** *S. pneumoniae, H.influenzae* *M. catarrhalis*	**Co-amoxiclav** 625 mg PO BD **Duration**: uncomplicated - 5-7 days severe complicated / <2 yrs for 10 days **Remarks:** Indications for antimicrobial therapy: -High risk patients -Patients with complicated disease

		-Patients who do not improve after 48-72 hrs -Newborns -Severely ill immunodeficiency
7.	**Prophylaxis for recurrent Otitis Media**	**Co-amoxiclav** 625 mg PO BD/ 375mg PO TDS/ 1 gm PO BD depending upon age and body weight **Duration**: 7 days **Alternatives:** **Levofloxacin** 500 to 750 mg/ day Or **Cefpodoxime** 200 mg BD Or **Cefpodoxime with Clavulanic acid** (200 /125) BD. Avoid 3rd gen cephalosporins if possible, as they are excellent ESBL inducers
8.	**Chronic Otitis Media** *S.aureus*,Enterobacteriaceae. Pseudomonas Spp, anaerobes	Topical antibiotics during drainage **Ciprofloxacin** 500 mg PO BD Or **Ofloxacin** 200 mg PO BD **Duration** : 7 days **Alternative:** **Ceftazidime** 30-50 mg/kg IV TDS *(in proven Pseudomonas infection)* not to exceed 6 g/day .

		In children, use **Cefixime.** Role of systemic antibiotics not proven. In complicated cases, **PiperacillinTazobactam** 2.25/4.5 gm BD, or even TDS, or in some cases Meropenem if sensitive as per culture sensitivity report.
9.	**Otomycosis** Candida spp	Fungal Otitis Externa **Itraconazole** 200mg BD daily **Duration**: 2 weeks **Clotrimazole** ear drops + **Topical 2% salicylic acid** Suction evacuation **Remarks:** Recommended to do culture
10.	**Otitis externa** *S. aureus*	**Co-amoxiclav** 625 mg PO BD/ 375mg PO TDS/ 1 gm PO BD depending upon age and body weight **And** **Topical Ciprofloxacin ear drops** **Duration**: 7 days **Alternative/Remarks:** **Doxycycline** 100 mg PO BD Or **Ciprofloxacin** 500 mg PO BD

		Cleansing external ear canal.
11.	**Invasive/ Necrotising Otitis Externa** **Pseudomonas spp**	**Ceftazidime** 1 g TDS **Or** **Ciprofloxacin** 500 mg PO BD or 200 mg IV BD Early cases – oral & topical quinolones Duration to be adjusted based on severity and underlying condition such as Diabetes mellitus Diabetic – **Piperacillin** IV for 10-14 days **Alternative:** **Piperacillin-Tazobactam** 4.5 g IV TDS + **Aminoglycosides** 500mg IV OD + Local **Ciprofloxacin drops** **Duration**:7 days *If severe,* **Quinolone + Beta lactam beta lactamase inhibitor** **Duration:** 6 weeks If diagnosed fungal aetiology, Fluconazole (Candida spp) and Itraconazole (Aspergillus spp)

12.	**Diphtheria** C. diphtheria	**Erythromycin** 40 mg/kg /day IV (max) OR 2gm/day + **Penicillin G IV** 300000 IU/day (<10kg wt)/ 600000 IU/day (>10kg wt) + **Anti-diphtheria serum** **Duration**: 14 days or Until patient is able to swallow **Remarks:** **Penicillin should be administered only after test dose.** **Anti-diphtheria serum** For children: Laryngeal: 20-40,000 U Nasopharyngeal: 40-60,000 U Extensive disease: 60-80,000 U
13.	**Laryngitis** Viral (mainly), Rarely Bacterial- Streptococcus, Moraxella	**Co-amoxiclav** 625 mg PO TDS **Duration:**7 days **Remarks:** Antibiotics are not recommended unless Grp A Strep is isolated.

14.	**Laryngotracheobronchitis**	**Co-amoxiclav** 625 mg PO TDS **Duration:**7 days **Remarks:** **Levofloxacin** 400 mg PO BD
15.	Pre op prophylaxis – Major head and neck surgery including implant surgeries	**Inj Cefazolin** 2 gms (IV) 1st dose at induction **or** **Inj Cefuroxime** sodium 1.5 gm (IV) 2nd dose within 24 hrs

4. Ophthalmic infections

Sr. No.	Conditions/ Expected pathogens	Revised MCGM recommendations
1.	**Blepharitis (Anterior and posterior**) *S. aureus, S. epidermidis,* Non infective causes	**Anterior :** **Chloramphenicol** e/d or e/o (1%w/w) ; **Duration** - 4 to 6 weeks **Posterior blepharitis:**

		above + **Doxycycline** 100mg PO BD **(Not given to pregnant women)** **Duration**: 1 week. **Or** **Azithromycin** 500 mg PO OD **Duration** : 3 days In addition - 1. Warm wet compress to the lid with 1:4 baby shampoo or with warm 3 % bicarbonate of soda lotion. 2.Eyelid hygiene. 3. Artificial tears if associated with dry eye. Alternative: - **Topical sodium fusidic acid (1%)**
2.	**Hordeolum (Stye)** *S. aureus*	**Amoxicillin** 500 mg PO QDS **Duration**: 5 days + **Oral NSAIDs** In addition 1.Warm compresses 2. Some cases require incision and drainage of the stye. **Alternatives** **Ampiclox** (250 mg each)PO TDS **Duration**: 5 days

		If associated conjunctivitis- **Gatiflox** 0.3%/ **Moxifloxacin 0.5%** e/d QDS **Duration:** 1week
3.	**Purulent Conjunctivitis** Viral – Adenovirus	**(Antibiotics prescribed to prevent secondary bacterial infection)** **Povidone Iodine** e/d 5% solution QDS + **Steroid (if pupillary area is involved)** **e/d Fluorometholone 0.1% 1 drop 4 times a day in tapering fashion** + Topical **Moxifloxacin 0.5% 1 hrly** + Oral NSAID **Duration:** Approximate 1 week In addition 1.Lid hygiene 2.Protective glasses 3. Artificial tears
4.	**Purulent Conjunctivitis** Bacterial –Chlamydia, *S. aureus, N. gonorrhoeae, S. pneumoniae*	**Povidone Iodine** e/d 5% solution QDS **+** Topical **Moxifloxacin 0.5% 1 hrly** **Duration:** Approximate 1 week. **In addition,** Remarks: 1.Lid hygiene 2.Protective glasses

		3. Artificial tears if associated with dry eye. **Alternatives** **Bacterial:** **Gatifloxacin** 0.3% **Or** **Levofloxacin** 0.5%, Dose: 1-2 drops every 2hrs while awake during the first 2 days, then every 4-8hrs **Duration:** 7 days
5.	**Inclusion Conjunctivitis** **(Trachoma)** Chlamydia trachomatis	**Topical Antibiotic** e/o erythromycin 0.5% TDS e/o tetracycline 1%TDS + **Tab Azithromycin** 1000 mg POOD; repeat after 1 week **Duration: 3-4 weeks** **Alternative:** **Erythromycin** 250 mg PO BD or **Ofloxacin** 400 mg PO OD or **Doxycycline** 100 mg PO BD or **Tetracycline**250 mg PO QDS (avoid in pregnant women and in children)

		Duration: 3-4 weeks
6.	**Orbital Cellulitis** *S.pneumoniae, H.influenza, M.catarrhalis* *S.aureus, a*naerobes, Grp A Streptococci, Gram Negative bacilli, Post Trauma	Start organism specific treatment after culture and sensitivity report. Consider fungal culture **Vancomycin** 1gm iv BD + **Levofloxacin** 750 mg IV once daily + **Metronidazole** 500mg IV TDS infusion **Duration –** 7 to 14 days **Remarks:** **Cloxacillin** 2 gm IV 4 hrly + **Ceftriaxone** 2gm IV 24 hrly + **Metronidazole** 500mg IV TDS infusion **Duration –** 7 to 14 days
7.	**Corneal Ulcer/ Keratitis** HSV	Viral- **Topical Acyclovir 0.3% e/o** 5 times a day + **Acyclovir** 400 mg PO 5 times if accompanied by iritis **Or** **Ganciclovir** 0.15% ophthalmic gel 5 times a day until

		corneal ulcer heals, followed by one drop three times daily for 7 days **Duration** :3 weeks ***Acyclovir*** *400 mg PO BD in recurrent herpetic eye disease* **Trifluridine ophthalmic soln** 1drop 2 hourly, up to 9times/day until reepithilealised, then 1 drop 4 hourly upto 5 times/day **Total duration:** 21 days Corneal scraping and Culture should be done whenever possible. Artificial eye drops to be used in case of dry eye Oral NSAID and e/d Homatropine may be added in selected cases.
8.	**Corneal Ulcer/ Keratitis** Varicella zoster	Viral- **TopicalAcyclovir 0.3% e/o** 5 times a day + **Acyclovir** 800 mg PO 5 times a day if accompanied by iritis **Duration** :3 weeks **Acyclovir 400 mg PO BD in recurrent herpetic eye disease** **<u>Alternative/Remarks:</u>** **Famciclovir** 500mg BD/TID **Or** **Valacyclovir** 1gm oral TID **Duration:** 10 days. Corneal scraping and

		Culture should be done whenever possible. Oral NSAID and e/d Homatropine (2% TDS) may be added in selected cases for 2 weeks
9.	**Corneal Ulcer/ Keratitis** **Bacterial -** *S.aureus, H.influenza, S.pyogenes*	***Bacterial-*** **Amikacin 3% / Moxifloxacin 0.5%** 1 drop hourlye/d which is tapered according to response **Or** **Tobramycin** e/d 1.3% (fortified) 1 drop hourly **And** **e/d Homatropine** 2% TDS **Duration:** 7-14 days **Gatifloxacin 0.3%** ophthalmic Solution 1 drop 1 hourly for 1st 48hrs then reduce *In cases of virulent corneal ulcer:* **Fortified Cefazolin5%** e/d one drop every half hour + **Fortified Tobramycin 1.3%** e/d1 drop hrly for the first 48 hrs and then reduce as per symptoms **Duration:** 2 weeks
10.	**Corneal Ulcer/ Keratitis** Fungal	**Fungal-** 1. ***For filamentous fungi:*** **Natamycin** 5% e/d half hourly for the first two days after which it is reduced to one drop every hour 2. ***For yeasts:*** **Amphotericin** B 0.15% e/d **Homatropine** e/d 2 % TDS to be added in both cases **Duration:** 4 weeks **Remarks:** **Voriconazole e/d 1% 1 drop hrly** and gradually tapered

		over 8 weeks **Duration**: 8 weeks (Tapered as infection resolves) If liver function tests are within normal limits then add, Oral Ketoconazole 200 mg BD – dose to be titrated as per response as well as liver function tests **Duration:** 3-4 weeks Use artificial tears in case of dry eye
11.	**Eye infection in Contact Lens Users** Acanthamoeba spp	**PHMB** (0.02%) hourly + **Chlorhexidine** (0.02%) hourly + **Homatropine e/d** 2% TDS **Duration**: 2 days, then tapered. Total duration of treatment is 3 weeks **Remarks:** Culture is mandatory. Consider Propamidine isethionate (0.1%) as an alternative. In late cases, TPK may be needed.
12.	**Eye infection in Contact Lens Users** Pseudomonas spp	**Pseudomonas keratitis** (topical and systemic antibiotics) **Tobramycin fortified e/d 1.3 %** 1 drop 1 hourly **Or** **Gentamicin** 14 mg/ml 1 drop 1 hourly **Duration**: 15 days **Alternative/Remarks:** Culture is mandatory.

		If no response then Colistin e/d 0.19% 2 hrly **Duration: 2 weeks** Consider Propamidine isothionate (0.1%) as an alternative. In late cases, TPK may be needed.
13.	**Dacrocystitis** *H. influenza, S. aureus, S. pyogenes, P. aeruginosa*	**Gatifloxacin** 0.3% Or **Moxifloxacin 0.5%** e/o 6 times a day + **Systemic Co-amoxiclav** 625 mg PO TDS **Duration** : 7 days In addition, • Hot fomentation and massage • Oral NSAID's for 1 week • DCR/DCT to be done after inflammation subsides in acute cases and can be done as a primary indication in chronic cases
14.	**Endophthalmitis** *S. epidermidis S. aureus*, Streptococcus spp, Enterococcus Spp, Gram negative bacilli, anaerobes	**<u>Intravitreal antibiotics:</u>** **Vancomycin** 1 mg in 0.1 ml + **Ceftazidime / Cefazolin** 2.25 mg in 0.1 ml **or** **Amikacin** 400 mcg in 0.1 ml **or** **Gentamicin** 200 mcg in 0.1 ml **<u>Systemic antibiotics</u>** **Vancomycin** 1gm IV BD **and Amikacin**240 mg IV TDS

		or **Vancomycin and Ceftazidime** 2gm IV TDS **<u>Topical antibiotics</u>** **Fortified tobramycin** 1.3% **or fortified cefazolin** 5% 1 drop 1 hrly to be reduced according to response **Duration:** 2 weeks Important considerations • Homatropine e/d to be added • Intravitreal antibiotics to be repeated after 48 hrs in case of no response • Pars plana vitrectomy or vitreous aspiration may be performed. • Send specimen for culture – bacterial and fungal. • Treatment is tailor made for the cause whether exogenous(post-op,/posttrauma) or endogenous If fungal, add AmphotericinB
15	**Endophthalmitis** *Candida sp, Aspergillus sp.*	**<u>Intravitreal antifungals:</u>** **Amphotericin B** 5 mcg in 0.1 ml **or** **Voriconazole** 0.1 ml/100 mcg • Pars plana vitrectomy or vitreous aspiration may be performed. • Send specimen for culture – bacterial and fungal. • Treatment is tailor made for the cause , whether exogenous(post-op,/posttrauma) or endogenous • If fungal, add AmphotericinB
16	**Retinitis** HSV Varicella Zoster Virus	<u>IV antiviral drugs</u>: **Acyclovir** IV 10 mg/kg 8 hrly for 10-14 days and then orally 800 mg five times a day for 6-12 weeks **Alternative/ Remarks:** Resistant cases require intra vitreal anti-viral agents.

17	**Iridocyclitis**	To be deleted from MCGM guidelines
18	**Uveitis** Infectious, Traumatic, Immune mediated, Viral-Herpes simplex	To be deleted from MCGM guidelines
19	Pre-operative Prophylaxis Clean cases Cataract, terygium, glaucoma, strabismus, lid(entropion, exotropion,ptosis), corneal transplant	**Moxifloxacin 0.5% e/d 3 times previous day of surgery.** **Instill Povidone Iodine 5% eye drops in conjunctiva (to remain for 3 minutes), immediate preoperative preparation** **In addition,** 1. **Trimming of eye lashes just before surgery** 2. **Eye wash with 5% betadine prior to surgery** 3. **Head bath and face wash prior to surgery** 4. **Check patency of nasolacrimal duct before surgery**
20	Contaminated cases Endopthalmitis, corneal ulcer, post traumatic tear with infection,intraocular foreign body, lacrimal sac surgery, dacrocystitis	Systemic **Cefotaxime** 1 gm IV TDS **Or Ceftriaxone** 1.5 gm IV BD one day prior to surgery and continue 7 days post surgery + **Topical Moxifloxacin 0.5%** 4-6 times a day + **Intracameral Moxifloxacin** intra op at the end of surgery Systemic Cefotaxime 1 gm IV TDS Or Ceftriaxone 1.5 gm IV BD one day prior to surgery and continue 7 days post surgery + Topical Moxifloxacin 0.5% 4-6 times a day

		+ Intracameral Moxifloxacin intra op at the end of surgery **In addition,** 1. **Trimming of eye lashes just before surgery** 2. **Eye wash with 5% betadine prior to surgery** 3. **Head bath and face wash prior to surgery** 4. **Check patency of nasolacrimal duct before surgery**
21	Corneal foreign body	Patch for 24 hrs for epithelisation before increased cycloplegia **Antibiotic Chloramphenicol applicap** Next day: **Antibiotic drops Moxifloxacin/ Gatifloxacin X 3 days** **Homatropine 2% BD for 1-2 days** **In addition,** 1. **Trimming of eye lashes just before surgery** 2. **Eye wash with 5% betadine prior to surgery** 3. **Head bath and face wash prior to surgery** 4. **Check patency of nasolacrimal duct before surgery**

5. Bone And Joint Infections

Sr. No.	Conditions/ Expected pathogens	Revised MCGM recommendations
1	**Acute osteomyelitis / Septic arthritis** *S.aureus, Streptococcus pyogenes* Enterobacteriaceae	**Amoxicillin + clavulinic acid** 1.2 g IV BD **Or** **Cloxacillin** 1gm IV QDS **Or** **Linezolid** 600mg IV BD in proven MRSA **Duration** **IV for 2-3 weeks followed by oral for a minimum of 6-8 weeks (maximum duration upto 3 months)**
2	**Chronic osteomyelitis** *S.aureus,* Enterobacteriaceae, Pseudomonas	***Primary treatment*** **Surgical debridement and then send sample for culture and sensitivity (bacterial, fungal, mycobacteria).** **If culture positive then treat as per culture sensitivity report, until then start** **Cloxacillin** 1gm IV QDS **Or** **Cefuroxime** 1.5gm IV 12 hrly **+** **Amikacin** 500-750mg IV OD **If culture negative then** **Cloxacillin** 1gm IV QDS **Or** **Cefuroxime** 1.5gm IV 12 hrly **+**

		Amikacin 500-750mg IV OD **<u>Duration</u>** Minimum 3 wks IV and continued as per patients response then shift to oral. Minimum duration of treatment – 6-8 wks and extended as per clinical response for maximum 3 months
3	**Open Injuries -** Gram Negative & *S. aureus*	**Cephazolin** 2gm IV 12 hrly **Or** **Ceftriaxone** 2 gm IV OD **Or** **Cefuroxime** 1.5gm IV 12 hrly **+** **Amikacin** 500 -750 mg IV OD **+** **Metronidazole** 500 mg IV 8 hrly To be given pre-op and upto 72 hrs post-op
4	**Prosthetic Joint Infections -** Grp A,B,G & viridans Strep *S. aureus*CoNS Enterococcus Gram Negative Bacilli	**<u>If clinical evidence of infection</u>** **Debride and send for culture and start** **Ceftriaxone** 2g IV OD **+** **Linezolid** 600 mg IV BD **Or** **Vancomycin** 1gm IV BD

		When culture reports available change as per culture sensitivity report. **If culture negative continue the above treatment.** **Duration** Minimum 6 wks and upto maximum of 3 months.
5	**Bursitis** *S. aureus*	No antibiotics **If culture positive,** **Cloxacillin** 500mg POQDS or **Co-amoxiclav** 625mg PO TDS **Duration :** 5 days **Alternatives:** *If septic bursitis then* **Flucloxacillin** 500mg , **erythromycin**, **clarithromycin** BD/ QID for 7 days
6	**Gas Gangrene-** Clostridia	**Surgical debridement is primary therapy** **Hyperbaric oxygen debated** **Antibiotics** **Penicillin + Clindamycin** **Or** ***In Penicillin allergic patients,*** **Clindamycin + Metronidazole** **Dose: Clindamycin** 600 - 1200 mg IV/day in divided doses **Penicillin G** 24 million units/day divide 4-6hrly IV **Metronidazole** 500 mg IV TDS

		Duration : 2-4 weeks depending on patient's response **Alternatives:** Penicillin to be administered only after test dose. A combination of penicillin and metronidazole may be antagonistic and is not recommended. **Ceftriaxone** 2g IV BD **Or** **Erythromycin** 1 g QDS IV (not by bolus)
Pre operative prophylaxis (revised MCGM guidelines)		
1.	Clean soft tissue surgery without implant. Eg ; excision of benign soft tissue tumour.	**Single dose Cephazolin** 2gm IV **Or** **Single dose Co-amoxyclav** 1.2gm IV **Or** **Single dose Cefuroxime** 1.5gm IV 60 mins prior to incision.
2	Closed trauma requiring open reduction and Fixation with implant	**Cephazolin** 2gm IV **Or** **Co-amoxyclav** 1.2gm IV **Or** **Cefuroxime** 1.5gm IV Given pre-op and IV 12hrly for 2 doses.
3	Open trauma requiring debridement and Internal or external fixation.	**Cephazolin** 2gm IV 12 hrly **Or**

		Ceftriaxone 2 gm IV OD **Or** **Cefuroxime** 1.5gm IV 12 hrly **+** **Amikacin** 500 -750 mg IV OD **+** **Metronidazole** 500 mg IV 8 hrly To be given pre-op and upto 72 hrs post-op
4	Primary joint replacement	**Cephazolin** 2gm IV 12 hryly **Or** **Co-amoxyclav 1.2gm IV** 12 hryly **or** **Cefuroxime** 1.5gm IV 12 hrly **+** **Amikacin** 500 -750 mg IV OD Pre-op and between 2-5 days post op
5	Major spinal surgery lasting more than 8 hrs	**Cephazolin** 2gm IV 12 hryly **Or** **Co-amoxyclav** 1.2gm IV 12 hryly **Or** **Cefuroxime** 1.5gm IV 12 hrly **+** **Amikacin** 500 -750 mg IV OD Pre-op till 5 days post op

6	Minor spinal surgery	**Cephazolin** 2gm IV 12 hryly **Or** **Co-amoxyclav** 1.2gm IV 12 hryly **Or** **Cefuroxime** 1.5gm IV 12 hrly + **Amikacin** 500 -750 mg IV OD Pre-op and upto 48 hrs post-op
7.	Revision joint surgery (for aseptic loosening)	**Screen all patients for MRSA** **If not MRSA carrier then start** **Cephazolin** 2gm IV 12 hryly **Or** **Co-amoxyclav** 1.2gm IV 12 hryly **or** **Cefuroxime** 1.5gm IV 12 hrly + **Amikacin** 500mg – 750 mg IV OD To be continued for 5 days post op. **If MRSA carrier to the above add** Vancomycin 1gm IV 12 hrly And treat for MRSA carriage

6.Skin and soft tissue infections

Sr. No.	Condition/ Expected pathogens	Current MCGM Guidelines
1	**Acne vulgaris** *Propionibacterium acnes*	**Clindamycin (1%)** gel/lotion to be applied locally BD **Duration - 15days** **+/- (depending on severity)** **Cap. Doxycycline 100mg PO OD;** **Duration -** 15 days **Or**

		OralAzithromycin 500 mg OD for 3days. Repeat after one week (for upto 6 weeks) To follow up after 15 days for clinical evaluation and to assess response to treatment **Alternatives:** **Ointment Erythromycin base (1.5%) to be applied locally BD;** **Duration - 15days** **+/- (depending on severity)** **Minocycline 100 mg PO OD** **Duration - 20 days** ***Antibiotic sparing agents have proved effective. To be given in addition to oral treatment:*** **Topical benzoyl peroxide 2.5% gel or** **Tretinoin 0.025% cream** **Systemic-** **Oral contraceptives with anti androgenic progesterone** **Dapsone** **Anti-androgenic agents**
2	**Furunculosis** *S. aureus* – Methicillin susceptible *S. aureus* – Methicillin susceptible	**Co-amoxiclav** 625 mg PO TDS Or **Cefadroxil** 250 / 500 mg PO BD **Duration :** 7-10 days **Chronic cases -** **Minocycline or Doxycycline** 100 mg PO BD **In severe cases -** **Clindamycin**300–450 mg/kgTDS

		Alternatives: **TMP-SMX** 800/160 PO BD **or** **Cloxacillin** 250-500 mg QDS **Duration:** 7days ***Local –*** **Sodium fusidate 2%** twice daily for 3-4 wks **Or** **Mupirocin 1%** twice daily **Or** **Povidone iodine ointment**
3	**Carbuncle** *S. aureus*, Gram negative rods	1. **Incision drainage** **2. Co-amoxiclav** 625 mg PO TDS **Or** **Cefadroxil** 500 mg PO BD **Duration :**7 days **Alternatives:** **T. Cephalexin** 500 mg PO QDS Duration : 7 days
4	**Cellulitis** *S. pyogenes*, Other streptococci, *S.aureus*	**Co-amoxiclav** 625 mg PO TDS **Or** **TMP/SMX** 800/160 mg PO BD **Duration** : 7-10 days **Alternatives:** **Cefazolin**, 1–2 g TDS or **Ampicillin/sulbactam**, 1.5–3 g IV QDS or **Clindamycin**, 600–900 mg IV TDS
5	**Erythrasma**	**Azithromycin** 500 mg PO OD **Duration :** 3 days **Or** **Erythromycin** 500 mg PO QDS **Duration:** 5 days + **Topical erythromycin / Clotrimazole 1%/ Miconazole 2%/ Clindamycin / Fusidic acid**

		Duration : 2 weeks
6	**Erysipelas** *S. pyogenes*, other streptococci, *S.aureus*, (Facial-S.pneumoniae also) In diabetics – maybe associated with Entero-bacteriaeceae	**Co-amoxiclav** 625 mg PO TDS **Duration :** 7-10 days **Or** **Erythromycin 500 mg QDS** **Duration :** 7-10 days **Alternatives:** **Cefazolin**, 1–2 g TDS **or** **Ampicillin/sulbactam**, 1.5–3 g IV QDS **or** **Clindamycin** 600–900 mg IV TDS
7	**Folliculitis** *S.aureus* *P.aeruginosa* (Hot tub)	**Co-amoxiclav** 625 mg PO TDS **Duration :** 7days **Or** **Ciprofloxacin** 500 mg PO BD **+ / -** **Local: 1% Mupirocin/ Sodium fusidate / Povidone iodine/ neomycin** containing ointment
8.	**Chronic Folliculitis** *S.aureus* *P.aeruginosa* (Hot tub)	**Doxycycline** 100 mg PO OD **Duration:** 2-4 weeks **or** **Dapsone** 100 mg PO OD **Duration:** 2-4 weeks **Topical:** **1% Mupirocin/ Sodium fusidate / Povidone iodine/ neomycin** containing ointment **Alternatives:** **TMP/SMX** 800/160 mg PO BD **Duration:** 2-4 weeks

9	**Hiradenitis suppurativa** *S.aureus, S.pyogenes,* Anaerobes, Pseudomonas spp., Entero- bacteriaceae	**Co-amoxiclav** 625 PO TDS **Duration:**7days **Or** **Azithromycin** 500 mg PO OD **Duration:** 3days **Alternatives:** **Minocycline** 100 mg BD **or** **Doxycycline** 100 mg BD **or** **Clindamycin** 300 mg QDS Or **TMP/SMX** 800/160 mg PO BD *Antibiotic sparing agents are recommended (Retinoids and antiandrogens)*
10	**Ecthyema** Grp A Strep, *S. Aureus*	**Co-amoxiclav** 625 mg PO TDS **Or** **Cefadroxil** 250 / 500 mg PO BD **Duration :** 7-10 days **Topical mupirocin ointment/ Sodium fusidate 2% is also effective.** **Alternatives:** For minor lesion, those on dangerous area of face and in children **Azithromycin** 500 mg PO OD **Duration:** 3days Or

		TMP/SMX 800/160 mg PO BD **Duration:** 7-10 days
11	**Madura foot, Actinomycotic-mycetoma/ Eumycetoma** Nocardia spp. Actinomadura spp./ Fungal causes	Actinomycotic mycetoma: **InjAmikacin** 500 mg IM BD + **Inj Ampicillin** 500 mg IV QDS **Duration of injectable antibiotics**: 2 weeks (to be repeated at 2 week intervals for a total duration of three months) + **TMP/SMX** 800/160 mg PO BD Duration: 3 months **Itraconazole** 100 -200 mg BD **Duration**: 3 months **Alternatives:** **Inj. Crystalline Penicillin 50,000units/kg body weight IV in 4 divided doses/ day** **Duration: 2 weeks** **Surgical debulking done to reduce infection load** **Eumycetoma:** **Itraconazole 100 -200 mg BD** **Duration: 3 months**
12	**Muco-cutaneous candidiasis** Candida albicans	**<u>Correct the underlying predisposing condition</u>** **Cutaneous Candidiasis**

		Clotrimazole cream (1%) to be applied locally twice daily **Or** **Miconazole** 2% cream **Duration:** 2 weeks. ***To follow up after 2 weeks to assess response to therapy.*** **Alternatives:** **Cap.Fluconazole** (100 mg) 2 capsules on day 1 followed by 1 capsule once daily for 2 weeks **Or** **Nystatin** Suspension 100000 Units to swish around in the mouth and then swallow four times daily
13	**Paronychia** **(Acute/chronic)** Acute: Staphylococcal infection Chronic : Candida	***Acute:*** **Co-amoxiclav** 625 PO BD **and** **Incision and drainage to relieve pain** ***Chronic:*** **Oral fluconazole** 150 gm /wk **Topical miconazole / clotrimazole.** ***Alternatives:*** **Ciclopirox suspension** applied to affected area(s) BID/TDS **Or** **Econazole** cream applied to affected area(s) BD/TID
14	**Localised**	**Topical Treatment:**

	Pyoderma	**Sodium fusidate 2%** **Or** **Mupirocin 1%** **Or** **Povidone iodine ointment** **Duration:** 7-10 days ***Alternatives:*** Topical **Nadifloxacin** cream **Duration:** 7-10 days
15	**Puncture wounds (foot)** S.*aureus*, Strep spp, *P.aeruginosa*, other GNR	***To be deleted from MCGM guidelines***
16	**Seborrhoiec dermatitis** **Malassezia spp**	***To be deleted from MCGM guidelines***
17	**Other fungal infections of skin, hair and nails** Tinea versicolor, Dermatophytes	**a) Tinea corporis/Tinea cruris** Systemic therapy **Terbinafine** 250 mg OD/BD **Duration:** 14 days Or **Itraconazole** 100 -200 mg BD **Duration:** 14 days

		To follow up after 2 weeks to check response to therapy Topical therapy **Whitfield ointment** + **Cream Clotrimazole** (1%) to be applied locally twice daily for 2 weeks **Or** **Amorolfine** cream 1% **Or** **Luliconazole** Cream *Alternative treatment* (T. corporis/T cruris) **Griseofulvin** 250 mg PO BD **Duration:** 6 weeks to 6 months **b) Tinea capitis/Tinea barbae/Tinea pedis/Tinea manuum** Systemic therapy **Terbinafine** 250 mg OD/BD **Duration:** 21 days Or **Itraconazole** 100 -200 mg BD **Duration:** 21 days To follow up after 2 weeks to check response to therapy. Topical therapy

		Whitfield ointment + **Cream Clotrimazole** (1%) to be applied locally twice daily for 2 weeks Or **Amorolfine** cream 1% **Or** **Luliconazole** Cream **c) Other fungal infections of skin, hair and nails** **(Pityriasis/Tinea Versicolor of trunk/face)** Systemic therapy **Fluconazole** 200 mg 2 tablets once a month **Duration:** 3 months Topical therapy **Lotion Clotrimazole (1%)/ miconazole/ oxyconazole/ selenium sulfide** applied locally twice daily for 6 weeks To follow up after 3 weeks to check response to therapy
18	**Scabies** Sarcoptes scabiei	**Permethrin** 5% cream **OR** **GBH** 1 % lotion (gamma benzene hexachloride) Apply Permethrin entire skin chin down to and including toes. Leave on for 8-14 hours **Repeat application after 10 days** **Alternatives:**

		Single Dose Ivermectin 200 µg/kg PO **Take 2nd dose of Ivermectin after 10 days**
19	**Onychomycosis** Fungal	**Itraconazole** 100-200 mg BD **Duration:** 6-12 weeks **Or** **Terbinafine** 250-500 PO per day **Duration:** 6-12 weeks After 3 months, repeat testing **Alternative:** **Griseofulvin** 250-500 mg PO BD **Duration:** 6-12 months

7 CVS Infections

Sr. No.	Condition/ Expected pathogens	Current MCGM Guidelines
1.	**Infective endocarditis (native valve)** *S. viridians*, Enterococcus, MSSA, MRSA, Culture negative	**I. Inj Ceftriaxone** 2 gm IV / IM single dose **Duration :** 4 weeks + **Inj Gentamicin** 3 mg/kg/day IV or IM OD **Duration** : 2 weeks **II.Inj Ampicillin** 12gm/day(divided in 4-6 doses) + **Inj Cloxacillin** 12gm/day (divided in 4-6 doses) **Duration :**4 weeks + **Inj Gentamycin** 3 mg/kg/day OD dose. **Duration:** 2 weeks

		-For patients unable to tolerate beta lactams or beta lactam resistance **Vancomycin** 30 mg/kg/day IV in 2 doses **+ Gentamicin** (3 mg/kg/day IV. or i.m.) Note : OD dosing of Gentamicin decreases the nephrotoxicity
2	**Infective endocarditis (prosthetic valve)** MSSA, MRSA	**Early (<12 months)** **Inj Vancomycin** 15-20 mg / kg /day IV in 2 doses **Duration** : 6 weeks **+ Gentamicin** (3 mg/kg/day IV or IM in OD dose) **Duration** : 2 weeks **+ Rifampicin** 900-1200 mg PO in 2-3 divided doses **Duration**- 6 weeks **Late (>12 months**) Similar to Empirical Therapy for native valve Endocarditis with total duration of 6 weeks **Remarks:** • Inj Gentamicin is usually used for two weeks. The duration of treatment is 4-6 weeks of effective antibiotics. • **Rifampicin** should not be used in the first 5 days till bacteremia is cleared because of antagonistic action of antibiotics against plaktonik /replicating bacteria
3.	**Pacemaker/ Defibrillator infection** Local microbial spectrum	Local antibiogram

Version 2018 (1.3)

CARDIOVASCULAR SYSTEM INFECTIONS POST SURGERY IN ADULTS		
Sr. No	Condition/ Expected Pathogens	Revised MCGM recommendations
1	**CABG**	Same as before
2.	**Pacemaker/ Defibrillator** **Implantation** ***S. aureus*** ***S. epidermidis*** **Gram Negative Bacilli**	**Amoxycillin-clavulanic acid** 1.2 g IV. 60 min prior to skin incision and 12 hours after the procedure f/b 1g PO BD for 3 days
3.	**Cardiac Catheterization**	**Amoxycillin-clavulanic acid** 1.2 g IV. 60 min prior to skin incision and 12 hours after the procedure f/b 1g PO BD for 3 days

8 Intra-abdominal infections

Sr. No	Conditions/ Expected Pathogens	Revised MCGM guidelines
1.	**Abscess-Liver Pyemic** Enterobacteriaeceae, Enterococcus,*B.fragilis* Other anaerobes	**Ampicillin + Sulbactam** 1.5g IV TDS **Or** **Ceftriaxone** 1.0 g IV BD **Or** **Ciprofloxacin** 500 mg BD IV **Plus** **Metronidazole** 500 mg IV TDS or 800 mg oral TDS **Duration** : 2 weeks **Alternatives:** **Piperacillin + tazobactam** 4.5 gm IV QDS X 2 weeks Remarks: Ultrasound guided drainage indicatedin large abscesses, signs of imminent rupture and no response tomedical treatment.
2.	**Abscess-Liver Amoebic** *E.histolytica*	**Metronidazole** 800 mg PO TDS / 500 mg IV TDS

		+ **Tab Chloroquine** 250 mg BD + **Cefotaxime** 1 gm IV 8 hrly **Duration :** 10-14 days **Alternative:** Diloxanide furoate with metronidazole 500 mg + 400 mg TDS X 10 days (for cyst passers)
3.	**Acute gastroenteritis** **(indoor patient)** Suspected- viral Bacterial – Pathogenic *E.coli*	***None indicated in viral*** ***Bacterial:*** **Ciprofloxacin** 500 mg IV BD **Or** **Ofloxacin** 200 mg IV BD **Duration** – 3-5 days (convert to oral when patient stabilizes) **Alternative:** **Doxycycline**100 mg PO BD **Duration:** 3-5 days **OR** **Co-trimoxazole** 800/160 mg PO OD ; **Duration:** 3-5 days
3a	**Acute gastroenteritis** **(OPD patient)**	***None indicated in viral*** ***Bacterial:***

	Suspected- viral Bacterial – V cholera	**Doxycycline**- 100 mg PO BD **Or** **Ciprofloxacin** 500 mg BD **Duration** - 3-5 days **<u>Remarks:</u>** **Rehydration is life saving**
4a	**Dysentery - Bacillary** Shigella spp *Campylobacterjejuni* Pathogenic E.coli	**Ciprofloxacin** 500 mg BD **Or** **Ofloxacin** 200 mg BD (for mild cases given orally and IV for indoor patients/ patients with severe illness) **Duration** - 5 days **<u>Alternatives:</u>** **Ceftriaxone** 2gm IVOD for 5 days Remarks: For Campylobacterthe drug of choice is Azithromycin
4b	**Dysentery - Amoebic** **(OPD patient)** *E.histolytica*	**Metronidazole** 400 mg PO TDS **Duration**- 7 days **<u>For severe cases:</u>** **Metronidazole** 500 mg IV 8 hrly for 7-10 days **Alternatives:** **Tinidazole** 2gm oral stat Add **Diloxanidefuroate** 500 mgTDS for 10 days for cyst passers

5	**Dysentery – Unknown OPD patient**	**Ciprofloxacin 500 mg PO BD** **+** **Metronidazole 400 mg PO TDS** **Duration - 5 days** **If no response to Ciprofloxacin, add Metronidazole 400 mg PO TDS** **Alternatives:** **Ofloxacin 200 mg PO BD** **Duration: 5 days** **+** **Tinidazole 2gm oral stat**
6	**Cholangitis** Enterobacteriaeceae, Anaerobes	**Piperacillin- tazobactam** 4.5 gm IV TDS **+** **Metronidazole** 500 mg IV TDS **Duration** – 7 days **<u>Alternatives:</u>** **If no response after 72 hrs add,** **Gentamicin** 1 mg/kg IV TDS **Or** **Amikacin** 15 mg/kg IV OD **Duration- 7 days** Upgrade to higher antibiotics as per culture and sensitivity report Meropenem to be reserved for post surgical/ endoscopic cases Remarks: Surgical orendoscopic intervention to be considered

		if there is biliary obstruction. High prevalence of ESBL producing *E.coli*, *Klebsiella sp.*strains. De- escalate therapy once antibiotic susceptibility is known.
7	**Cryptosporidiosis** *Cryptosporidium parvum*	**Nitazoxanide**500 mg (PO) BD **Duration**- 3 days
8	**Diarrhoea – C.difficile**	**Metronidazole** 400 mg PO TDS **Duration** - 10-14 days **In seriously ill add,** **Vancomycin -**125 mg (children) / 500 mg (adults) , PO QDS **Duration**- 10-14 days **<u>Remarks:</u>** Discontinue the causative antibiotic. Correct fluid and electrolyte loss. Intravenous vancomycin is not recommended since bactericidal concentrations are not achieved in the colon.
9	**Enteric fever** *Salmonella typhi / Salmonella paratyphi A/B/C*	**Ceftriaxone** 2 gm IV BD **+** **Azithromycin** 1 gm (PO or IV) OD ***Duration:** 7 days ***<u>If patient discharged earlier, switch to</u>*** **Oral Cefixime** 200 mg BD **+**

		Azithromycin 500 mg BD ***Duration:** 7 days **For susceptible strains with no response to Ceftriaxone give,** **Chloramphenicol** 500 mg IV QDS ; **Duration:** 14 days ****Total duration of therapy if IV drugs are given is 7 days. If IV drugs are given for 7 days in toto then no oral drugs are required*** ***However, if patient is discharged earlier than 7 days then duration of treatment for IV plus oral is 10 – 14 days.***
10	**Acute cholecystitis** Enterobacteriaeceae, Enterococci, Anaerobes	All IV **Ceftriaxone** 1 gm BD **Or** **Piperacillin- Tazobactam** 4.5 gm TDS + **Metronidazole** 500 mg TDS **Duration**- 7-10 days **Alternatives/remarks:** Patients unresponsive to antibiotics may require surgery.
11	**Spontaneous Bacterial Peritonitis** Enterobacteria-eceae Enterococci *S.pneumoniae*	All IV **Cefotaxime** , 2 gm , TDS **Or** **Piperacillin- Tazobactam** 4.5 gm TDS

	naerobes	+ **Metronidazole** 500 mg TDS **Duration** - 7 days **Alternatives:** **Ceftriaxone** 1 gm BD **Duration** - 7 day
12.	**Perforative peritonitis** Enterobacteriaeceae Enterococci *P.aeruginosa,* Anaerobes	All IV **Piperacillin- tazobactam** 4.5 gm TDS + **Metronidazole** 1 gm TDS **Duration** - 7-10 days **Alternative:** **Imipenem** 1 gm TDS Or **Meropenem** 1 gm TDS + **Metronidazole** 1 gm TDS ***<u>If no response then upgrade as per culture and sensitivity report</u>*** **<u>Addition of cover for yeast:</u>Fluconazole** 800mg IV loading dose day1, followed by 400 mg 2nd day onwards **Duration: ?** *<u>Remarks: Source control isimportant to reduce bacterial load.If excellent source control – for 5-7 days; other wise 2-3 weeks suggested.</u>*
13	**Intra abdominal abscess**	**<u>Mild – Moderate:</u>** **Ceftriaxone** 1 gm IV BD

	Enterobacteriaeceae Gram pos cocci Anaerobes MTB Complex (rare)	+ **Metronidazole** 500 mg IV TDS **<u>Severe:</u>** **Piperacillin- Tazobactam** 4.5 gm IV TDS **or** **Imipenem 1 gm + Cilastatin** IV + **Metronidazole** 500 mg IV TDS **Duration** - 10 days or longer **<u>Alternatives/Remarks:</u>** Antibiotics should be administered early. Drainage should be considered. If no response then modify as per culture sensitivity report. **<u>Addition of cover for yeast:</u>Fluconazole** 800mg IV loading dose day1, followed by 400 mg 2nd day onwards
14	**Gastric Ulcer Disease / Peptic Ulcer Disease** *H.pylori*	**PPI** Pantoprazole 40 mg PO BD + **Clarithromycin** 500 mg PO BD + **Amoxicillin** 1 gm PO BD **Duration** 2 weeks **Alternative:** **PPI** 40 mg + **Clarithromycin** 500 mg +

		Metronidazole 500 mg
15	**Liver - Hydatid Disease** E. granulosus	**Albendazole** 15 mg / kg PO BD **Duration** : 3-6 months
16	**Pancreatic abscess** Enterobacteriaeceae Enterococci Anaerobes	**Imipenem1gmwith Cilastatin** IV TDS is the drug of choice **Or** **Meropenem** 2 gm IV TDS + **Metronidazole** 500 mg IV TDS **Duration** : 10-14 days **Alternative/Remarks:** **Addition of cover for yeast:Fluconazole** 800mg IV loading dose day1, followed by 400 mg 2nd day onwards
17	**Pancreatitis with sepsis** Enterobacteriaeceae *P.aeruginosa* (occ) Enterococcus Bacteroides	**Imipenem1gmwith Cilastatin** IV TDS is the drug of choice **Or** **Meropenem** 2 gm IV TDS + **Metronidazole** 500 mg IV TDS **Duration** : 10-14 days **Addition of cover for yeast:Fluconazole** 800mg IV loading dose day1, followed by 400 mg 2nd day onwards

9 Infections of Urinary Tract

Sr. No	Conditions/ Expected pathogens	Revised MCGM recommendations
1.	**Cystitis** Most likely – *E.coli* Rare cause – Proteus spp, Klebsiella spp	**Nitrofurantoin** 100 mg PO BD **Duration : 7 days** **Or** **Cotrimoxazol**e DS (800/160) PO OD **Duration : 7 days** **Alternative:** **Ciprofloxacin** 500 mg PO BD Or **Norfloxacin** 400 mg PO BD **Duration:** 3 days (E.coli, Kleb) **Or** 7 days (other susceptible organisms)
2	**Complicated cystitis** **(Patients with structural abnormalities, calculi, diabetics, recurrent UTI)**	If patient is stable, same as above **Duration:** 14 days *If patient is unstable,* **Inj Piperacillin + Tazobactam**

	Most likely – *E.coli* Rare cause – Proteus spp, Klebsiella spp	4.5 gm IV TDS **Alternative/Remarks:** Culture mandatory. If patient does not respond in 72 hrs, advise imaging , USG, CT and adjust antibiotic as per culture sensitivity report.
3	***Acute uncomplicated Pyelonephritis*** *E.coli, Staphylococcus saphrophyticus* (in sexually active young women), *Klebsiella pneumoniae, Proteus mirabilis*	**Piperacillin-Tazobactam** 4.5 gm IV 8hrly OR (QID if pseudomonas) **Cefoperazone-Sulbactam** 3gm IV 12hrly OR **Amikacin** 15-20mg/kg/d IM/IV OD (preferred if outpatient) or **Gentamicin** 4-7mg/kg/d IM/IV OD (preferred if outpatient) **Duration** 2 weeks *Monitor creatinine if on amino glycoside*
4	***Complicated Pyelonephritis*** *Escherichia coli, Klebsiella pneumonia, Proteus mirabilis, Pseudomonas aeruginosa, Enterococcus* sp. Frequently multi-drug resistant organisms are present	**Piperacillin-Tazobactam 4.5 gm IV 6hrly** **Cefoperazone-Sulbactam 3gm IV 12hrly OR** **Amikacin 15-20mg/kg/d IM/IV OD (preferred if outpatient)** **Gentamicin 4-7mg/kg/d IM/IV OD (preferred if outpatient)** **SECOND LINE** **Meropenem 1gm IV 8hrly or Imipenem 1gm 8hrly** **In Addition:** ***Ciprofloxacin** 500mg BD **or Levofloxacin** 750 mg OD added if pseudomonas ***Switch as per culture ***Duration** 2 weeks *Monitoring of creat if ag

		*Two agents if sepsis or MODS present
5	Acute Prostatitis Enterobacteriaceae	**TMP-SMX 960 mg BD X 4-6 weeks** **Ciprofloxacin 500mg BD** **or** **Levofloxacin 500mg OD 4-6 weeks** **Severe systemic symptoms -treat as pyelonephritis**
6	Cathetar associated UTI	• **<u>Sample collection</u>** • **Remove catheter and collect clean catch MSU** • **Change PUC and collect sample from new catheter** • **Under all asepsis, puncture catheter with sterile needle** • **Treat as complicated pyelonephritis**

10. Plastic surgery and burns

Sr. No	Conditions/ Expected Pathogens	Revised MCGM recommendations
1.	**Maxillofacial injuries** (single uncomplicated fractures)	**At induction:Co-amoxiclav** 1.2g IV **OR Ceftriaxone** 1g IV **Immediate post op:** 6-8 hrs post induction dose: **Co-amoxiclav** 1.2g IV **Post op: Tab Co-amoxiclav** 625mg TDS for 5 days
2.	**Maxillofacial injuries** (complicated multiple fractures, panfacial fractures)	**At induction: Co-amoxiclav** 1.2g IV **OR Ceftriaxone** 1g IV **Immediate post op:** 6-8 hrs post induction dose: **Co-amoxiclav** 1.2g IV **Late post op: IV antibiotic continued for 3 days** **Switch over to oral : Tab Co-amoxiclav 625mg TDS for 7 days**
3.	**Clean surgery**	**Co-amoxiclav** 1.2g IV **ORCefuroxime** Repeat dose if surgery extends beyond 6 hrs In addition: Modify antibiotics as per culture and sensitivity report
4.	**Clean contaminated wounds** (debridement and	**At induction: Co-amoxiclav** 1.2g IV **OR Ceftriaxone** 1g IV **Immediate post op:** 6-8 hrs post induction dose: **Co-**

	grafting, minor debridement, etc)	**amoxiclav** 1.2g IV **<u>Late post op:</u>Tab Co-amoxiclav** 625mg TDS for 5 to 7 days (till 1st dressing) In addition: Modify antibiotics as per culture and sensitivity report
5.	**Dirty wounds** (major debridement and bone debridement), major flap and free flap surgeries	**<u>At induction:</u> Co-amoxiclav** 1.2g IV **OR Ceftriaxone** 1g IV or as per culture reports **<u>Immediate post op:</u>** 6-8 hrs post induction dose: **Co-amoxiclav** 1.2g IV ***or as per culture reports*** **<u>Late post op:</u> IV antibiotic** continued for 5 days **Switch over to Tab Co-amoxiclav** for next 5 days or as per culture reports In addition: Modify antibiotics as per culture and sensitivity report
6	**Burns (early excision and grafting)**	**<u>At induction:</u> Piperacillin-Tazobactum** 4.5 g IV **OR Meropenem** 1g IV **<u>Immediate post op:</u>** 6-8 hrs post induction dose: **Piperacillin-Tazobactum** 4.5 g IV **OR Meropenem** 1g IV **<u>Late post op:</u>** ***IV antibiotic continued for 5 to 7 days with change as per culture reports / clinical response*** ***May switch over to oral as per culture reports*** **<u>Antifungal Therapy –</u>** When extensive burns and patient not responding to antibiotics o <u>If hemodynamically stable</u>: **Fluconazole** o <u>If hemodynamically unstable</u>: **Echinocandin**

		In addition: ***-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***
7	**Burns (late grafting)**	**<u>At induction:</u>Co-amoxiclav** 1.2g IV **OR Ceftriaxone** 1g IV **<u>Immediate post op:</u>** 6-8 hrs post induction dose: **Co-amoxiclav** 1.2g IV **<u>Late post op:</u> Tab Co-amoxiclav** 625mg TDS for 5 to 7 days **In addition:** ***-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***

11. Infections in Obstetrics and Gynaecology

Sr. No	Condition/ Expected Pathogens	Revised MCGM recommendations
1	**Vaginal discharge** Trichomonal vaginitis Monilial vaginitis Bacterial vaginosis	**Fluconazole** 150 mg PO once and **Secnidazole** 2 g PO once (MDACS/NACO Green kit) <u>Alternatives:</u> Both sexual partners to be treated simultaneously. Both are category C, so withhold treatment until after first trimester, unless urgent treatment is felt to be necessary Local treatment in the form of intravaginal agents such as creams or suppositories as per requirement
2	**Cervical discharge** Chlamydia trachomatis	**Cefixime** 400 mg PO once **Azithromycin** 1 g PO once (MDACS/NACO Grey kit) Both sexual partners to be treated simultaneously.
3	**Septic abortion,** **Bartholin's abscess, Chorioamnioitis, PPROM,** **PROM,**	**I.Co-amoxiclav**1.2 g IV q12h X ≥7 d + **Inj. Metronidazole** 500 mg(100 cc) IV q8h X ≥7 d + **Inj. Gentamicin**1.5 to 2 mg/kg loading dose, followed by 1 to 1.7

	Burst abdomen **Severe PID** **Peritonitis** Enterobacteriaeceae Enterococci Anaerobes	mg/kg IV or IM q8h X 5 d **Or** **II.** **Ceftriaxone** 1.5 gms IV q12h + **Metronidazole** 500 mg IV q8h + **Amikacin** 500 mg IV q12h Duration : 5 days **Alternatives/Remarks:** Wound swab/ pus collected for culture sensitivity. Modify if required as per culture sensitivity result. Monitor renal function Consider Vancomycin or Clindamycin as per clinical condition
4	**PID: Mild** *C.trachomatis* *N.gonorrhoea* Mycoplasma Anaerobes *G.vaginalis*	Tab **Cefixime** 400mg PO once + Tab **Metronidazole** 400 mg PO TDS for 14 days + Cap **Doxycycline**100 mg PO BD for 14 days (MDACS/NACO yellow kit) **Alternatives:** Contraindicated in pregnancy

5	Syphilis	Refer to STD program guidelines
6	Tuberculosis in pregnancy	Please refer RNTCP guideline WHO has advocated that, all the first line drugs aresafe in pregnancy and can be used except streptomycin. SM causes significant ototoxicity to the fetus (Pyrazinamide not recommended by US FDA) 1. Mother and baby should stay together and the baby should continue to breastfeed. 2. Pyridoxine supplementation is recommended for all pregnant or breastfeeding women taking isoniazid as well as to neonate who are being breast fed by mothers taking INH. Remarks: Very small chance of transmission of infection to fetus. Late diagnosis can predispose to LBW, prematurity.
7	Influenza in pregnancy	**Oseltamivir** 75 mg Oral BD for 5 days In addition: Nebulization with **Zanamvir** respules (2) 5 mg each, BD for 5 days Remarks: 1. Tendency for severe including premature labor &delivery. 2. Treatment should begin within 48 hrs of onset of symptoms. 3. Higher doses commonly used in non pregnant population (150 mg) 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.

		Complications: -Direct fetal infection rare -Preterm delivery and pregnancy loss.
8	Varicella	>20 wks of gestation, presenting within 24 hours of the onset of the rash, **Acyclovir** 800mg Oral 5 times a day IV acyclovir recommended for the treatment of severe complications, > 24 hrs from the onset of rash, antivirals are not found to be useful. VZIG should be offered to susceptible women < 10 days of the exposure. VZIG has no role in treatment once the rash appears. The dose of VZIG is 125 units / 10kg not exceeding 625 units, IM <u>Remarks:</u> Chickenpox during pregnancy does not justify termination without prior prenatal diagnosis as only. A minority of fetuses infected develop fetal varicella syndrome.
9	Toxoplasmosis in pregnancy	<18 weeks gestation at diagnosis **Spiramycin** 1 gm Oral qid until 16-18 weeks/**Pyrimathamine** + **sulphadizine**. Alternate every two weeks If PCR Positive - >18 weeks gestation and documented fetal infection by positive amniotic fluid PCR. **Pyremethamine** 50 mg Oral BD x 2 days then 50 mg OD +

		Sulphadiazine 75 mg/kg Oral x 1 dose then 50mg/kg bd + **Folinic Acid** (10-20 mg Oral daily) for minimum of 4 weeks or for duration of pregnancy.
10.	Malaria in pregnancy	As per national program
11.	Mastitis without abscess	**Amoxycillin clavulunate/Cephalexin** 500 mg QID/ OR **Ceftriaxone** 2 gm OD OR MRSA- based on sensitivities Add **Clindamycin** 300 QID or **Vancomycin** I gm IV 12 hourly /**teicoplanin** 12mg/kg IV 12 hourly x 3 doses followed by 6 once daily IV
12.	Mastitis with abscess	Drainage with antibiotic cover for MRSA **Clindamycin** 300 QID or **Vancomycin** 15mg/kg IV 12 hourly (maximum 1gm 12 hourly)/**teicoplanin** 12mg/kg IV 12 hourly x 3 doses followed by 6 mg once daily IV

12. Guidelines for Pediatric infections

Sr. No	Condition/ Expected Pathogens	Revised MCGM recommendation
1.	**Tonsillitis/ Pharyngitis** Grp A beta haemolytic Streptococci	Amoxycillin (Oral) **40 mg/kg/day (<30 kg); 50 mg/kg/day given TID, can be given BID (>30 kg)** **Duration :** 10 days **Alternatives** **Cefaclor** (20-40 mg/kg/d in 3 divided doses) / **Cephalexin** (50 mg/kg/d in 3 divided doses)- **Erythromycin** (40 mg/kg/day in 3 divided doses for 10 days)/ **Azithromycin**(12 mg/kg/day single dose for 5 days)
2.	**Otitis Media**	**Amoxicillin:** 80-90 mg/kg per day**OR** **Co-amoxiclav:** 90 mg/kg per day of Amoxicillin, with 6.4 mg/kg per day of clavulanate in 3 divided doses **Duration:**7-10 days **Alternatives:** **Ceftriaxone** IV: 1 or 3 days OR Azithromycin **Remarks:** **May require tympanocentesis**
3.	**Sinusitis**	**Amoxicillin** (oral: 45 mg/kg/day) or **Co-amoxiclav** (oral: 80-90 mg/kg/day of amoxicillin) if failure to

		respond to amoxicillin in 72 hrs. **Alternatives:** **Trimethoprim-Sulfa-methoxazole** (TMP 10 mg/kg/day and SMX 50 mg/kg/day in 2 div doses) OR Azithromycin **Remarks:** Refer to ENT surgeon if no response
4.	**Pneumonia Community acquired** **Age 3 weeks to 3 months**	**IV Cefotaxime** (150mg/kg/d) in 2-3 div doses **OR** **IV Ceftriaxone** (50-75mg/kg/day OD) for hospitalized patients **Duration :** 10-14 days. **Add erythromycin for chlamydia** **Alternative:** **Coamoxyclav** 100 mg/kg/day in two divided doses **Remarks:** Amoxicillin (80-90 mg/kg/day oral) can be used in non-hospitalized patients
5.	**Pneumonia Community acquired** **Age 4 months – 4 years**	**IV Cefotaxime** (150mg/kg/d) in 2-3 div doses **OR** **IV Ceftriaxone** (50-75mg/kg/day OD) for hospitalized patients **Duration:** 10-14 days. **Add vancomycin or Clindamycin if** **MRSA i**s the etiology **<u>Alternatives:</u>**

		Co-amoxiclav / Cefuroxime axetil (150-200mg/kg/d in 3 div doses) **Remarks:** Amoxicillin (80-90 mg/kg/day oral) can be used in non-hospitalized patients
6.	**Pneumonia Community acquired** **Age > 5 years**	**Above plus** **Add Azithromycin** (for M.pneumoniae and C.pneumoniae) 12 mg/kg/day single dose for 5 days **Duration :** 5 days **Alternatives:** Co-amoxiclav / Cefuroxime axetil PLUS Azithromycin **Remarks:** Amoxicillin (80-90 mg/kg/day oral) can be used in non-hospitalized patients PLUS Azithromycin
7.	**Empyema**	**I.V. Cefotaxime / Ceftriaxone**(100 mg/kg/24 hr divided every 12 hr IV). **Add I.V. Co-amoxiclav** 100 mg/kg/day in two divided doses **Vancomycin** (40-60 mg/kg/day in 4 div doses) or **Linezolid** (10mg/kg/dose 8-12 hrly**) if MRSA** is the aetiology . **Duration**: 3-4 weeks **Remarks:** Thoraco-centesis/ ICD/ VATS as necessary
8.	**Acute epiglottitis**	**Ceftriaxone**50-100 mg / kg / day BD **Or** **Cefotaxime**50-100 mg / kg / day TDS **Duration :** 7-10 days **Alternative:**

		Meropenem (IV 60 mg/kg/day in 3 div doses)
9.	**Diphtheria**	**Erythromycin** (40-50 mg/kg/day divided every 6 hr by mouth [PO] max. 2 g/day) Or **Aqueouscrystalline penicillin G** (100,000-150,000 U/kg/day divided every 6 hr IV or intramuscularly [IM]) **Alternative:** Procaine penicillin (25,000-50,000 U/kg/day divided every 12 hr IM). Duration- 14 days **Remarks:** Penicillins should be administered after test dose Specific antitoxin to be administered
10.	**Pertussis/ Whooping cough**	**Azithromycin**: 10 mg/kg/day in a single dose **for 5 days** **Or** **Erythromycin** (40-50 mg/kg/day in 4 divided doses **for 14 days**) **Alternative:** **Clarithromycin** (15 mg/kg/day in 2 divided doses for 7 days) Or **TMP-SMZ** (For infants aged ≥2 mo: TMP 8mg/kg/day plus SMZ 40 mg/kg/day in 2 divided doses for 14 days) **Remarks:** Same drugs are useful for prophylaxis
11.	**Diarrhoea**	Viral Diarrhoea- No antibiotics required. For Bacterial (E coli)-**TMP** 10 mg/kg/day **and SMX** 50 mg/kg/day BD× **5 days.** For Salmonella- Treat similar to Shigella

		Remarks: Correct the dehydration. Add daily oral zinc for 14 days (10 mg/day for infants <6 mo of age and 20 mg/day for those >6 mo)
12.	**Dysentery** Shigella dysenteriae	**Ceftriaxone** 50-100 mg/kg/day IV or IM, qd or BD**× 7 days** OR **Ampicillin** PO, IV 50-100 mg/kg/day QDS**× 7 days** **Alternatives:** TMP 10 mg/kg/day and SMX 50 mg/kg/day BD × 5 days. **Remarks:** Nalidixic acid (50mg/kg/day in 4 div. doses)
13.	**Cholera**	**Doxycycline** (adults and older children): 300 mg given as a **single dose** *or* **Tetracycline** 12.5 mg/kg/dose 4 times/day × **3 days** (up to 500 mg per dose × 3 days) **Alternatives:** **Erythromycin** 12.5 mg/kg/dose 4 times a day × 3 days (up to 250 mg 4 times a day × 3 days) or **TMP** 10 mg/kg/day and **SMX** 50 mg/kg/day BD × 5 days. **Remarks:** Rehydration. Add zinc for 14 days.
14.	**Giardiasis**	**Metronidazole** PO 30-40 mg/kg/day in 3 div doses **× 7 days**

		<u>Alternatives:</u> **Furazolidone** PO 25 mg/kg/day QDS × 5-7 days or **Albendazole** PO 200 mg BD × 10 days
15.	**Intestinal amoebiasis**	**Metronidazol**e PO 30-40 mg/kg/day in 3 div doses **× 7-10 days**
16.	**Helminthic infestations**	**<u>Ascariasis</u>- Albendazole** (400 mg PO once, for all ages) or **Mebendazole** (100 mg BD PO for 3 days or 500 mg PO once for all ages), OR **Pyrantel pamoate** (11 mg/kg PO once, maximum 1 g). **<u>Trichuris-</u> Mebendazole** (100 mg BD PO for 3 days or 500 mg PO once for all ages). **<u>A.duodenale-</u>Albendazole** (400 mg PO once, for all ages) **<u>Alternatives:</u>** **<u>Ascariasis-</u>Nitazoxanide** (100 mg BD PO for 3 days for children 1-3 yr of age and 200 mg BD PO for 3 days for children 4-11 yr. **<u>Trichuris-</u> Albendazole** (400 mg PO once for all ages) or **Nitazoxanide** (100 mg BD PO for 3 days for children 1-3 yr of age, 200 mg BD PO for 3 days for children 4-11 yr of age **<u>A.duodenale-</u>Mebendazole** 100 mg BD PO for 3 days
17.	**Enteric fever**	**Ceftriaxone:** 75mg/kg/day in 2 divided doses **Duration** : 10-14 days Or **Cefotaxime:** 80mg/kg/day **Duration** : 10-14 days

		Or **Fluoroquinolone, e.g., Ofloxacin** (15 mg/kg/day in 2 div doses) Or **Ciprofloxacin** (15-30 mg/kg/day in 2 div doses) **Duration**: 5-7 days **<u>Alternative:</u>** **Azithromycin**: 20 mg/kg/day for 7 days or **Cefixime** 20 mg/kg/day in 2 div doses for 7-14 days.
18.	**Community acquired sepsis**	**Cefotaxime** (200 mg/kg/24 hr, given every 6 hr) or **Ceftriaxone** (100 mg/kg/24 hr administered once per day or 50 mg/kg/dose, given every 12 hr). **Add Amikacin** (if necessary). **Add Vancomycin** if resistant S.aureus or resistant S.pneumoniae suspected. **Duration : 14 days**
19	**UTI-uncomplicated**	**TMP-SMX**: **3- to 5-day course** of therapy with trimethoprim-sulfamethoxazole (TMP-SMX) is effective against most strains of *E. coli.* **Or** **Nitrofurantoin** (5-7 mg/kg/24 hr in 3-4 divided doses) also effective (also active against *Klebsiella* and *Enterobacter*). **Duration :** 7-10 days **Alternative:** **Amoxicillin** (50 mg/kg/24 hr) also is effective as initial treatment Or

		Cefixime 8mg / kg / day BD
20.	**UTI-Complicated**	**Ceftriaxone** (50-75 mg/kg/24 hr, not to exceed 2 g) **or** **Cefotaxime** (100 mg/kg/24 hr), **or** **Ampicillin** (100 mg/kg/24 hr) **with an aminoglycoside such as Gentamicin** (3-5 mg/kg/24 hr in 1-3 divided doses) **Duration :** 7-10 days
21.	**Bacterial meningitis**	**Cefotaxime** 200 mg/kg/24 hr, given every 6 hr) **or Ceftriaxone**- first dose 75 mg/kg/dose then followed by 100 mg/kg/24 hr administered once per day or 50 mg/kg/dose, given every 12 hrs. **Add Amikacin** if necessary. **Add Vancomycin if resistant S. pneumoniae suspected**. **Duration**- 1 to 4 weeks
22.	**Skin and Soft Tissue** **Infections** **Cellulitis** **Carbuncle**	**Cloxacillin 50 – 100 mg / kg / day 6 hrly IV** followed by oral. **Add Clindamycin** 20 – 30 mg / kg / day 6 hrly or **Vancomycin** 40 mg / kg / day 6 hrly over 60 mins slowly if necessary.
23.	**Bone and Joint Infections**	**Cloxacillin** (100 mg/kg/24 hr divided QDS IV), **plus broad-spectrum cephalosporin, such as Cefotaxime** (150-225 mg/kg/24 hr divided TDS IV). If methicillin-resistant *Staphylococcus* is suspected, Vancomycin is substituted for Cloxacillin. **Duration**- 4 to 6 weeks

24.	**Infective endocarditis prophylaxis**	**Amoxicillin** (50 mg/kg 1 hr before the procedure) **<u>Alternatives:</u>** **Ampicillin** (50 mg/kg 30 min before the procedure) OR **Ceftriaxone** (50 mg/kg IM or IV)
25.	**Malaria**	**Refer to National and MCGM Guidelines**
26.	**Leptospirosis**	**Parenteral Penicillin G** (6-8 million U/m^2/day divided every 4 hr IV Duration : 7 days **<u>Alternative:</u>** Tetracycline (10-20 mg/kg/day divided every 6 hr PO or IV for 7 days) OR Oral amoxicillin
27.	**pH1N1** (pandemic influenza 2009)	**Oseltamivir** < 15kg - 30 mg BD; > 15-23kg - 45 mg BD; > 23-40 kg - 60 mg BD; > 40 kg - 75 mg BD Duration : 5 days
28.	**Chicken pox** **(Varicella zoster)**	**Oral therapy with acyclovir (20 mg/kg/dose, maximum 800 mg/dose) given as 4 doses/day for 5 days can be used to treat uncomplicated varicella in children >12 mo of age with chronic cutaneous or pulmonary disorders, corticosteroid therapy, and long-term salicylate therapy.** **<u>Alternatives:</u>** **Start preferably within 24 hr of the onset of the exanthem. IV**

		therapy is indicated for severe disease and for varicella in immunocompromised patients (even if begun 72 hr after onset of rash).

13. Guidelines for acute febrile illness

Sr.	Conditions/ Expected	Revised recommendations

No	pathogens	
1.	**Leptospirosis** L. icterohaemorrhagia complex	**<u>Adults:</u>** **<u>Doxycycline</u> 100 mg twice a day for 10-14 days *<u>(contraindicated in pregnancy)</u>*** **+** **<u>Inj. Crystalline penicillin</u> 20 lacs IU IV every 6 hourly after test dose.** **(*<u>For the individuals who are allergic to penicillin group of drugs following</u>*** ***<u>alternative regimes maybe used)</u>*** **Ceftriaxone 1 gm IV x 6 hourly for 7 days** **OR** **Cefotaxime 1 gm IV x 6 hourly for 7 days** **OR** **Erythromycin 500 mg IV x 6 hourly for 7 days** Remarks: ***<u>Pregnant & lactating mothers should preferably be admitted and treated as above (except for doxycycline as it is contraindicated in pregnancy)</u>*** ***<u>If pregnant women cannot be admitted then they should be given capsule ampicillin 500 mg every 6 hourly for 10 days</u>*** **Children < 8 years** **Amoxycillin/ Ampicillin 30-50 mg/kg/day should be given in** **divided doses for 7 days** **Inj. Crystalline penicillin should be given 2–4 lacs IU/kg/ day for 7 days after test dose.** ***<u>(For individuals who are allergic to penicillin group of drugs</u>***

		following alternative ***regimes may be used)*** **Ceftriaxone 50-75 IV mg/kg/day for 7 days** **OR** **Cefotaxime 50-100 IV mg/kg/day for 7 days** **OR** **Erythromycin 30-50mg/kg/day in divided dose for 7 days** **Prophylaxis after wading through flood water:** **Doxycycline** 100 mg BD **Duration:** 2 days
2.	**Malaria** Plasmodium spp	Refer to national treatment guidelines http://www.nvbdcp.gov.in/Doc/Diagnosis-Treatment-Malaria-2013.pdf

B. (ii) PRE-OPERATIVE PROPHYLAXIS / THERAPY

- In patients with community / hospital acquired infection, collect appropriate specimen for culture and susceptibility testing prior to administration of antibiotic.
- It is not recommended to collect specimen from healing wounds.
- Modify / De-escalate treatment as per microbiology report and clinical response.
- Basic infection prevention and control strategies should be in place.
- **Definitions:**
  a) **Clean wound** (Surgery) - An uninfected operative wound in which no inflammation is encountered and the respiratory, alimentary, genital, or uninfected urinary tracts are not entered.
  b) **Clean contaminated**- Operative wounds in which the respiratory, alimentary, genital or urinary tracts are entered under controlled conditions and without unusual contamination. Specifically, operations involving the biliary tract, appendix, vagina, and oropharynx are included in this category provided no evidence of infection or major break in technique is encountered.
  c) **Contaminated** - Includes open, fresh, accidental wounds. In addition, operations with gross spillage from the gastrointestinal tract, and incisions in which acute, non-purulent inflammation is encountered are included in this category.
  d) **Dirty** -Includes old traumatic wounds with retained or devitalized tissue and those that involve existing clinical infection or perforated viscera.

References - 1.American Society of Health System Pharmacists (ASHP) 2013 Report 2. WHO Safe Surgery 2009

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Sr. No	Condition / Expected pathogen/s	Antimicrobial of choice Dose/Route/Frequency/Duration	Alternatives/ Remarks
	OPHTHALMOLOGY		
1	Pre-operative Prophylaxis **Clean cases** Cataract, terygium, glaucoma, strabismus, lid(entropion, exotropion,ptosis), corneal transplant	**Moxifloxacin e/d** 6 times previous day of surgery. Betadine e/d pre-operative	
2	**Contaminated cases** Endopthalmitis, corneal ulcer, post traumatic tear with infection,intraocular foreign body, lacrimal sac surgery, dacrocystitis	Systemic **Cefotaxime** 1 gm IV TDS Or Ceftriaxone 1.5 gm IV BD for 3 days prior to surgery, 7 days post surgery + Topical Moxifloxacin	
3	Corneal foreign body	Patch for 24 hrs for epithelisation before increased cycloplegia. Antibiotic Chloramphenicol applicap Next day : antibiotic drops Moxifloxacin/ Gatifloxacin X 3 days	
	ENT		
1	Pre op prophylaxis Major head and neck surgery including implant surgeries	Inj **Cefazolin** /2 gms (IV) 1st dose at induction or Inj **Cefuroxime sodium** 1.5 gm (IV) 2nd dose within 24 hrs	

GENERAL SURGERY / GI Surgery

1	**Clean surgery** *S. aureus,* *S. epidermidis*	**Cefazolin** 2 gms IV OR **Co-amoxiclav** (Amoxycillin 2 g + Clavulanic acid 125 mg) / IV	Total only 3 doses. If surgery beyond 4 hrs, give another dose. Post-surgery, 2 doses at 12 hrly interval X 1 day
2	**Clean contaminated**	**Uncomplicated cases** (patient stable) Appendix / gall bladder- **Co-amoxiclav** IV 3 doses Or Ceftriaxone 1.5 gm IV BD X 5 days **Complicated cases Cefotaxime** 1 gm / IV TDS OR Ceftriaxone 1.5 gm / IV BD **+ Amikacin** 5 mg / kg OD **+ Metronidazole** 500 mg TDS	For complicated cholecystectomy, cefaperazone + sulbactam should be the drug of choice as it has the best biliary penetration / concentration.

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3	**Contaminated**	Duodenal / Ileal perforation (Patient stable) **Cefotaxime** 1 gm IV Or Ceftriaxone 1.5 gm IV BD X 5 days Patients with organ failure / sepsis / In seriously ill / previous hospitalization, **Piperacillin- tazobactam** 4.5 gm TDS + **Amikacin** 5 mg / kg OD + **Metronidazole** 500 mg QDS X 5 days	
4	**Implants** **(Gram positive cooci, Enterobacteriaceae)**	**Cefuroxime** 1.5 gm / IV If surgery beyond 4 hrs, give another dose, then BD X 5 days OR **Co-amoxiclav -**Amoxicillin 2 gm + Clavulanic acid 125 / IV If surgery beyond 2 hours, give another dose. Then, BD 5 days	Cefazolin is preferred over 2nd and 3rd gen cephalosporins as they rare potent inducers of ESBL.
5	**Post-splenectomy - long term prophylaxis** **Enterobacteriaceae** **Anaerobes**	2 weeks prior to elective surgery,**vaccinate** for *S.pneumoniae, H.influenzae b* and *N.meningitidis*. Repeat Hib vaccine annually. **+ Amoxicillin** 500 mg PO OD **Duration :** 2 years	

3	**Contaminated**	Duodenal / Ileal perforation (Patient stable) **Cefotaxime** 1 gm IV Or Ceftriaxone 1.5 gm IV BD X 5 days Patients with organ failure / sepsis / In seriously ill / previous hospitalization, **Piperacillin- tazobactam** 4.5 gm TDS + **Amikacin** 5 mg / kg OD + **Metronidazole** 500 mg QDS X 5 days	
4	**Implants** **(Gram positive cooci, Enterobacteriaceae)**	**Cefuroxime** 1.5 gm / IV If surgery beyond 4 hrs, give another dose, then BD X 5 days OR **Co-amoxiclav -**Amoxicillin 2 gm + Clavulanic acid 125 / IV If surgery beyond 2 hours, give another dose. Then, BD 5 days	Cefazolin is preferred over 2nd and 3rd gen cephalosporins as they rare potent inducers of ESBL.
5	**Post-splenectomy - long term prophylaxis** **Enterobacteriaceae** **Anaerobes**	2 weeks prior to elective surgery,**vaccinate** for *S.pneumoniae, H.influenzae b* and *N.meningitidis*. Repeat Hib vaccine annually. **+ Amoxicillin** 500 mg PO OD **Duration :** 2 years	

3	**Paediatric Cardiac Surgery**	Same as CABG, except the dose Cefazolin: 30 mg/kg Vancomycin : 15 mg/kg Gentamicin: 3 mg/kg
4	**Pacemaker/ Defibrillator Implantation** *S. aureus* *S. epidermidis* **Gram Negative Bacilli**	**Cefazolin** 1 g IV 60 min prior to skin incision

5	**Cardiac Catheterization**	Not routinely	Antibiotic prophylaxis is indicated in patients at high risk of complications secondary to Infective Endocarditis

ORTHOPAEDICS

1	**Clean Non Infected Cases with minor implants** (K Wire etc./ No Implants) S. aureus	**Cefazolin** 1 g IV, 60 min prior to skin incision	Cefuroxime 1.5 g IV one dose, one day 2nd and 3rd gen cephalosporins are potent inducers of ESBL
2	**Surgeries with major implants** (including THR, TKR) GNB, S. aureus	**Cefuroxime** 1.5 g IV BD **+ Amikacin** 750 mg IV OD before surgery Maximum continued till 2 days	
3	**Cefuroxime** 1.5 g IV BD **+ Amikacin** 750 mg IV od **+ Metronidazole** 500 mg TDS Continued for 7-10 days as per wound healing status	**Cefuroxime** 1.5 g IV BD **+ Amikacin** 750 mg IV OD **+ Metronidazole** 500 mg TDS Continued for 7-10 days as per wound healing status	Cefixime as alternative for cefuroxime
4	**Closed treatment of fractures**	Nil	

OBSTETRICS AND GYNAECOLOGY

1	**Minor cases** ***S.aureus***	**Inj Co-amoxiclav** 1.2 gm (IM/IV) Single dose 30-60 mins before procedure / incision	Cefazolin 1 g IV. 60 min prior to skin incision Single dose
2	**Episiotomy** Enterobacteriaceae, Anaerobes	**Inj. Co-amoxiclav** 1.2 gm IV Single dose , Followed by 625 mg TDS X 3 days.	
3	**Tubal ligation** *S.aureus* GNB	**Inj. Co-amoxiclav** 1.2 gm IV Single dose followed by oral 625 mg 8 hourly X 5 days.	

4	**Major Cases** S.aureus, Other Gram positive cocci Rarely Gram negative bacilli	**Inj Co-amoxiclav** 1.2 gm 12 hourly(IV/IM) until orals started 625 mg TDS upto total 5 days + **Metronidazole** 500 mg (100cc) IV TDS x 5 days + **Inj. Gentamicin** 1.5 to 2 mg/kg loading **dose**, followed by 1 to 1.7 mg/kg IV or IM every 8 hours x 3 days	
5	**Post-operative wound gape** S.aureus, Enterobacteriaceae, Anaerobes, Enterococci, Other Gram positive cocci	**Inj Ceftriaxone** 1gm IV BD X 5-7 days + **Inj Metronidazole** 500 mg IV TDS X 5-7 days	Collect specimen for culture sensitivity. Change antibiotic based on microbiology report as required.

NEUROSURGERY

1	**Clean cases**	Oral: **Amoxicillin** 2 g (50 mg/kg) / **Cephalexin** 2 g (50 mg/kg) / **Cefadroxil** 2 g (56 mg/kg) Single dose before procedure **Vancomycin** 1g (20 mg/kg) IV (in MRSA positive and penicillin allergic patients)	For patients allergic to penicillin Clindamycin 600 mg (20 mg/kg) / Azithromycin 500 mg (15 mg/kg) / Clarithromycin 500 mg (15 mg/kg)
2	**Surgery on contaminated cases**	• Clindamycin 0.6 g IV 8 hrly + Gentamicin 80 mg IV 8 hrly • Ampicillin 2g IV 6 hrly/ + Gentamicin 80 mg IV 8 hrly + Metronidazole 0.5g IV 8 hrly • Amoxicillin 1g + clavunate 0.2 g IV 12 hrly	All given for 5 days Cefazolin 1g IV 8 hrly + Vancomycin 1g IV 12 hrly if MRSA prevalence in cenre is high / MRSA expected

PLASTIC SURGERY

1	**Clean surgery**	**Co-amoxiclav** 1.2g IV **OR** **Ceftriaxone** 1g IV Single dose Repeat dose if surgery extends beyond 6 hrs
2	**Clean contaminated wounds** (debridement and grafting, minor debridement, etc)	At induction: **Co-amoxiclav** 1.2g IV OR Ceftriaxone 1g IV Immediate post op: 6-8 hrs post induction dose: Co-amoxiclav 1.2g IV Late post op: Tab Co-amoxiclav 625mg BD for 5 to 7 days (till 1st dressing)

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3	**Dirty wounds** (major debridement and bone debridement), major flap and free flap surgeries	At induction: **Co-amoxiclav** 1.2g IV OR **Ceftriaxone** 1g IV or as per culture reports Immediate post op: 6-8 hrs post induction dose: Co-amoxiclav 1.2g IV or as per culture reports Late post op: IV antibiotic continued for 5 days Switch over to Tab Co-amoxiclav for next 5 days or as per culture reports
4	**Burns (early excision & grafting)**	At induction: **Piperacillin-tazobactum** 4.5 g IV **OR** **Meropenem** 1g IV Immediate post op: 6-8 hrs post induction dose Piperacillin-tazobactum 4.5 g IV OR Meropenem 1g IV Late post op: IV antibiotic continued for 5 to 7 days with change as per culture reports / clinical response May switch over to oral as per culture reports
5	**Burns (late grafting)**	At induction: **Co-amoxiclav** 1.2g IV OR Ceftriaxone 1g IV Immediate post op: 6-8 hrs post induction dose: Co-amoxiclav 1.2g IV Late post op: Tab Co-amoxiclav 625mg BD for 5 to 7 days.
6	**Maxillofacial injuries** (single uncomplicated fractures	At induction: **Co-amoxiclav** 1.2g IV OR Ceftriaxone 1g IV Immediate post op: 6-8 hrs post induction dose: Co-amoxiclav 1.2g IV Post op: Tab Co-amoxiclav 625mg BD for 5 days
7	**Maxillofacial injuries** (complicated multiple fractures, panfacial fractures)	At induction: **Co-amoxiclav** 1.2g IV OR Ceftriaxone 1g IV Immediate post op: 6-8 hrs post induction dose: Co-amoxiclav 1.2g IV Late post op: IV antibiotic continued for 3 days Switch over to oral : Tab Co-amoxiclav 625mg BD for 7 days
8	**Local anaesthesia cases in minor OT**	No antibiotics

Sr. No	Condition	Expected pathogen/s	Antimicrobial of choice Dose/Route/Frequency/Duration	Alternatives/ Remarks
	PAEDIATRIC SURGERY			
1	**Clean Surgery (Pre-operative prophylaxis)**			

Version 2018 (1.3)

1a	**Hernia**	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae	**No antibiotic required** **If to be given, then** Inj. Cefazolin 30 mg/kg IV single dose	Laparoscopic herniotomy single shot of antibiotic (Cefazolin)
1b	Hydrocoele	S.epidermidis S. aureus Streptococcus, Corynebacteria	**No antibiotic required** unless the patient is immunocompromised.	
1c	Orchiopexy	S.epidermidis S. aureus Streptococcus, Corynebacteria,	Inj. Cefazolin 30 mg/kg IV single d Inj. Cefazolin 30 mg/kg IV single d or Inj. Ceftriaxone 50 mg/kg single do	
1d	Cyst Excision & sinuses in the neck	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae	**No antibiotic required unless 2^0 infection** If infection, then Inj. Cefazolin 30 mg/kg IV 8 hourly for 3 days	
1e	Circumcision	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaeceae	**No antibiotic required unless 2^0 infection** If infection, then Inj. Cefazolin 30 mg/kg IV 8 hourly for 3 days	

2 Clean Contaminated Surgery (Pre-operative prophylaxis)

Version 2018 (1.3)

2a	Myelo-meningocoele Repair	S.epidermidis S. aureus Enterobacteriaceae	Inj. **Ceftriaxone** 100 mg / kg / d, q1 **+** Inj. **Metronidazole** 30 mg/kg /d, q6 **+** Inj **Amikacin** **Duration : 5 days minimum** Or Inj. Cefazolin 30 mg /kg i.v. 8 hourly + Inj. Metronidazole 30 mg / kg /d, q6h + Inj Amikacin Or Inj Meropenem 20 -40 mg / kg/dose thrice daily **Duration :** 10-14 days (with CSF leakage)	Inj. Clindamycin 20 mg/kg i.v. 8 hourly
2b	Cystoscopy	*S. aureus*, Enterobacteriaceae	Inj. **Ceftriaxone** 100 mg / kg / d, q1 Or Inj. Cefazolin 30 mg /kg i.v. 8 hourly + Inj. Amikacin 15 mg/kg/d, q8h **Duration :** 1-3 days if no UTI Or 5-7 days if febrile UTI	**Antibiotic to be directed as per pre-op urine culture sensitivity report.**
2c	Thoracotomy (for decortication)	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae	See next column	**Antibiotic as per culture sensitivity for 7-10 days**
2d	Thoracotomy (other indications)	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae	Inj. **Ceftriaxone** 100 mg / kg /d, q12 ± Amikacin ± metronidazole **Or** Inj. Cefazolin 30 mg / kg i.v. 8 hourl +amikacin ± metronidazole **Duration :** 3-5 days	

2e	Laparotomy	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae Anaerobes	Inj. **Cefazolin** 30 mg / kg i.v. 8 hour **+** Inj **Amikacin** **+** Inj **Metronidazole** 30 mg / kg / d, q6h **Duration :** 3-5 days Or Ceftriaxone / Ceftazidime + Amikacin + Metronidazole x 5 day Or Neonates - meropenem	Duration and antibiotic depends on indication and surgery done
2f	Laparoscopy	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae Anaerobes	Inj. **Cefazolin** 30 mg / kg i.v. 8 hour **+** Inj **Amikacin** **±** Inj. Metronidazole 30 mg / kg /d, q6h for 3-5 days **Or** 1 dose for diagnostic Laparoscopy Inj. Ceftriaxone 100 mg / kg i.v. 8 hourly + Inj. Metronidazole 30 mg / kg / d, q6h **1-5 days for appendicectomy and** **5 days for resection anastomosis**	Same as above
2g	Thoracoscopy	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae	**CDH** a. **Off ventilator** Ceftriaxone or ceftazidime **Duration :** 3 days b. **On ventilator** Meropenem or Imipenem + cilastatin **Duration :** 7 days	Same as above Antibiotics according to ICU organisms in different hospitals maybe needed.
2h	Hypospadias	S.epidermidis S. aureus Streptococcus, Corynebacteria, Enterobacteriaceae	Inj. **Cefazolin** 30 mg /kg i.v. 8 hourl + Inj.**Metronidazole** 30 mg / kg /d, q6h **or** Inj. Ceftriaxone 100 mg/kg i.v. 8 hour + Inj. Metronidazole 30 mg / kg /d, q	IV amoxyclavulanic acid 12.5 mg/kg/dose twice day of amoxicillin for 1-3 days
2i	VP shunt Insertion	S.epidermidis S. aureus, Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone** (double dose)**+ Amikacin** **Duration :** 5 days	Depending on CSF culture sensitivity reports
2j	TEF repair	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	Inj. **Ceftriaxone** 100mg/kg i.v. 8 hourly + Inj **Amikacin** + Inj. **Metronidazole** 30 (mg/kg)/d, q for 7 days **or** Piperacillin + tazobactam 90mg/kg/dose four times a day + metronidazole	Meropenem Imipenem + cilastatin or colistin for 7 days for bad patients/ on ventilator/ delayed presentation Antibiotics according to ICU organisms in different hospitals may be needed.

2k	Appendicectomy	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone** or Ceftazidime single shot OR Co-amoxiclav-single shot Complicated appendicitis - Ceftriaxc ± amikacin + metronidazole **Duration :** 3-7 days	Inj. Clindamycin 20 mg /kg i.v. 8 hourly + *Gentamicin, 3 mg per kg* or M*oxifloxacin 10 mg/kg* + Metronidazole Duration : 5-7days
2l	Choledochal Cyst	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone** or Cefoperazone ± amikacin + Metronidazle **Duration :** 7 days	Same as above
2m	Cholecystectomy	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	Inj. **Ceftriaxone** ± Co-amoxiclav single shot Or Cefoperazone + Amikacin +	Same as above
2n	Abdominal pull through	S.epidermidis S. aureus Streptococcus, Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone** or Ceftazidime ± amikacin + Metronidazole Or Cefazolin 30 mg /kg i.v. 8 hourly + Amikacin + Metronidazole 30 mg / kg /d, q6h **Duration :** 5-7 days	Same as above
2o	ASARP	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone** or Ceftazidime ± Amikacin + Metronidazole **Or** Cefazolin 30 mg/kg i.v. 8 hourly + Amikacin + Metronidazole 30 mg / kg /d, q6 **Duration :** 5-7days	Same as above
2p	PSARP	S.epidermidis S. aureus Streptococcus, Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone** or ceftazidime ± amikac + metro **Or** Cefazolin 30 mg/kg i.v. 8 hourly + Amikacin + Metronidazole 30 mg / kg /d, q6h are used. **Duration :** 3-5 days	Same as above
2q	Biliary atresia	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone** or Cefoperazone ± Amikacin + Metronidazole **Duration :** 7 days	Same as above

2r	Hepatic Resection & other Hepato Biliary Conditions	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	**Piperacill-intazobactam,** Infants 29 months: 80 mg/kg of the piperacillir component, Children >9 months anc =40 kg: 100 mg/kg of the piperacillii component 2 hrly Or Cefoperazone /Ceftriaxone + metronidazole **Duration :** 5 days	Same as above

Sr. No	Condition	Expected pathogen/s	Antimicrobial of choice Dose/Route/ Frequency/Duration	Alternatives/ Remarks
3	**Contaminated (Empiric Therapy)**			
3a	Incision & drainage of Abscesses **Superficial abscesses**	S.aureus (mostly), S.pyogenes, E.coli	**Cloxacillin** 25-50mg/kg in 4 divided doses for 5-10 days	Cephalexin / co-amoxyclav for 10-14 days
3b	**Deep intra-abdominal abscesses**	S.aureus (mostly), S.pyogenes, E.coli	**Ceftazidime** or ceftriaxone + amikacin + metro **Duration :** 5-7 days ± chloroquine x 5-7 days	Surgical drainage followed by placement of indwelling drains is the procedure of choice.
3c	Stoma Formation	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Anaerobes	**Ceftriaxone**/ ceftazidime + metronidazole Or Ampicillin- sulbactam 50 mg/kg of the ampicillin component + Gentamicin 2.5mg/kg i.v. 8 hourly +Metronidazole 15mg/kg i.v. 8 hourly **Duration :** 3 days If neonate 5 days	May need to be stepped up if enterocolitis, sick child, sepsis or depending on ICU flora

Sr. No	Condition	Expected pathogen/s	Antimicrobial of choice Dose/Route/Frequency/Duration	Alternatives/ Remarks
3d	Fistulectomies	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Enterococci Anaerobes	**– oral Cefazolin + Metronidazole for 3 days** cefazolin 30 mg/kg i.v. 8 hourly + metronidazole 30 (mg/kg)/d, q6h or 40 mg/kg 2 hrly or ampicillin - sulbactam 50 mg/kg of the ampicillin component or ceftriaxone + metronidazole	Clindamycin 20mg/kg i.v. q8h + *Gentamicin, 3 mg per kg* or fluoroquinolone (*moxifloxacin 10 mg/kg*) or Metronidazole + aminoglycoside or fluoroquinolone
33e	Rectal Polyp Excision	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Enterococci Anaerobes	**Cefazolin** 30mg/kg i.v. q8h + **Metronidazole** 30 mg/kg /d, q6h Or ampicillin - sulbactam 50 mg/kg of the ampicillin component Or ceftriaxone + metronidazole **Duration :** 1-3 days	Same as above

3f	Perforative peritonitis	Enterococci Enterobacteriaceae Anaerobes	**Ceftriaxone / Ceftazidime+amikacin + metronidazole x 5 days** **Neonates** **meropenem /colistin x 5-7 days**	As per requirement - In paediatric surgery conditions, in neonates for surgical intervention meropenem or imipenem + cilastatin are required

Sr. No	Condition	Expected pathogen/s	Antimicrobial of choice Dose/Route/Frequency/Duration	Alternatives/ Remarks
3g	Debridement of burns	S. aureus Enterobacteriaceae Pseudomonas	**Piperacillin-tazobactam,** Infants 29 mo: 80 mg/kg of the piperacillin component, Children >9 mo and = 40 kg: 100 mg/kg of the piperacillin component 2 hrly + metro for 5-7 days or cefotaxime 50 mg/kg 3 hrly + ampicillin 50 mg/kg 2 hrly for 5-7 days	**As per tissue culture sensitivity** Topical therapy is often applied to prevent infection and to treat ongoing infections or used as an adjunct to surgical treatment and systemic antibiotics. Topical silver nitrate + gentamicin are preferred
3h	Resection & anastomosis	S.epidermidis S. aureus Streptococcus, Enterobacteriaceae Enterococci Anaerobes	**Ceftriaxone / Ceftazidime+amikacin + metronidazole x 5 days** **Neonates** **meropenem / colistin x 5-7 days**	Clindamycin 20mg/kg i.v. 8 hourly + aminoglycoside (*gentamicin, 3 mg per kg*) or fluoroquinolone (*moxifloxacin 10 mg/kg*) + Metronidazole + aminoglycoside **– as per requirement x 5-7 days**