ADULT ANTIBIOTIC GUIDELINE

IMMUNOCOMPETENT ADULTS AND STABLE HIV PATIENTS

MEDICAL ACTION MYANMAR

Two of: Respiratory rate ≥22 bpm; Altered mental state; Systolic blood pressure < 100mmHg + **Clinical evidence of infection** → **THINK SEPSIS**

Give Ceftriaxone 2g IV STAT and *refer to hospital*

If penicillin allergic, discuss with senior

	Diagnosis	Key clinical findings	Recommended management
CNS	**Meningitis**	Fever, headache, photophobia, neck stiffness	Ceftriaxone 2g IV STAT and *refer to hospital* Penicillin allergy: Find out severity of allergy and discuss with senior re chloramphenicol
	Encephalitis	Headache + confusion +/-fever	Add Acyclovir PO 800mg STAT to the above if available and *refer to hospital*
EYE	**Conjunctivitis**	Red, painful/itchy eye, sometimes sticky, vision normal.	Chloramphenicol eye drops 2 hourly for 2 days then QID until 48hr after resolves
	Orbital cellulitis	Swollen, red eye including lid, painful eye movements.	Medical emergency: IV Ceftriaxone 2g STAT and *refer to hospital* Penicillin allergy: Clindamycin 600mg STAT and *refer to hospital*
	Periorbital cellulitis	Painful swelling near eye, pain free eye movements	Ensure not orbital cellulitis (see above) Co-amoxiclav 625mg PO TDS for 10 days Penicillin allergy: Clindamycin 600mg PO TDS for 10 days
ENT	**Sore throat or Tonsillitis**	History of fever, tonsillar exudates, no cough, tender lymphadenopathy	Mostly viral but if has 2 or more of signs/symptoms listed or not resolving then treat: Amoxicillin 500mg PO TDS for 6 days Penicillin allergy: Azithromycin 500mg PO OD for 3 days
	Epiglottitis or Supraglottitis	Bad sore throat, fever, drooling, ?obstructed airway	Ceftriaxone 1g IV STAT and r*efer to hospital*
	Otitis Externa	Ear pain + discharge. Otoscopy: ear canal is red, swollen with debris	*Not for antibiotics unless cellulitis extending outside ear canal or unwell (If recurrent refer to ENT)* Cloxacillin 500mg PO QDS for 7 days. Penicillin allergy: Azithromycin 500mg PO OD for 3 days
	Otitis Media	Earache with hearing loss. Otoscopy: bulging, red tympanic membrane.	Amoxicillin 500mg PO TDS for 5 days. 2nd line treatment: Co-amoxiclav 625mg TDS PO for 5 days Penicillin allergy: Azithromycin 500mg PO OD for 3 days
LUNG	**LRTI**	**Acute onset cough + one of:** Fever/ sputum production/ breathlessness/ chest discomfort	If antibiotics indicated (criteria met) : Amoxicillin 500mg PO TDS for 5 days Penicillin allergy: Azithromycin 500mg PO OD for 3 days
	Pneumonia CRB 65 severity score (1 point each): Confusion (new AMT ≤ 4/4), Respiratory rate ≥30/min, BP <90 systolic or ≤60 diastolic, Age ≥ 65 years		
	Pneumonia mild/mod (CRB 65= 0-1)	As above plus focal chest findings on examination	Amoxicillin 500mg PO TDS for 5-7 days Penicillin allergy: Azithromycin 500mg PO OD for 3 days
	Pneumonia severe (CRB 65 = 2-3)	As above with severity signs as per CRB below	Amoxicillin 1g PO TDS for 7 days + Azithromycin 500mg PO OD for 3 days 2nd line: Co-amoxiclav 625mg PO TDS for 5-7 days Penicillin allergy: Azithromycin 500mg PO OD for 7-10 days
	Very severe Pneumonia (CRB 65 >3)	As above with severity signs as per CRB below	Ceftriaxone 1g IV + Azithromycin 500mg PO STAT and refer to hospital Penicillin allergy: Azithromycin 500mg PO STAT and refer to hospital
	Infective exacerbation of COPD	COPD patient, cough + increased sputum production +/- change in sputum colour.	Doxycycline 200mg PO STAT, then 100mg PO OD for 5 days
	Aspiration pneumonia	Features of pneumonia with history or risk factors for aspiration	Co-amoxiclav 625mg PO TDS for 3 days Penicillin allergy: Ciprofloxacin 500mg PO BD + Metronidazole 500mg PO TDS for 3 days
♥	**Endocarditis**	Fever + new murmur +/- peripheral stigmata	*Refer to hospital,* if delay give Ceftriaxone 2g IV STAT Penicillin allergy: Discuss with senior
GI	**Acute Gastroenteritis**	Diarrhoea, vomiting, abdominal pain, fever	Treatment supportive unless systemically unwell, if bloody give Ciprofloxacin as per GI algorithm
	Acute Pancreatitis	Severe epigastric pain, fever, raised amylase.	Supportive management/surgical referral, antibiotics unlikely to affect outcome

	Diagnosis	Key clinical findings	Recommended management
	Peritonitis	Severe abdominal pain, rigid, guarding.	*Refer to hospital*
	Intra-abdominal Or Biliary infection	RUQ pain +/- fever, Murphy's sign positive +/- jaundice	*Refer to nearest surgical unit If* delay: Ceftriaxone 2g IV OD + Metronidazole 500mg PO Penicillin allergy: Ciprofloxacin 500mg PO BD + Metronidazole 500mg PO
	Diverticulitis	Altered bowl habit, fever, left sided abdo pain	If Antibiotics indicated - Metronidazole 500mg PO TDS + Co-trimoxazole 960mg BD for 5 days
	Liver abscess	Intermittent fever, +/- hepatic tenderness USS finding and size estimate	**if >3cm** hospital referral strongly advised as needs drainage/diagnostic tap **If <3cm trial of:** Tinidazole 2g PO OD for 3 days + Co-amoxiclav 625mg PO TDS for 3 weeks, *REVIEW at 5 days –* monitor for radiological resolution, if no improvement - *refer to hospital*
GU	**Female lower UTI (cystitis)**	Dysuria, frequency, No flank pain. Positive urine analysis for nitrites +/- leucocytes	1st line Cefixime 400mg PO OD for 3 days (to be replaced by nitrofurantoin when available) 2nd line/Penicillin allergy: Ciprofloxacin 500mg PO BD for 3 days
	Male lower UTI (cystitis)	Dysuria, frequency, No flank pain. Positive urine analysis for nitrites +/- leucocytes	1st line Cefixime 400mg PO OD for 7 days (to be replaced by nitrofurantoin when available) 2nd line/Penicillin allergy: Ciprofloxacin 500mg PO BD for 7 days
	Complicated UTI or Pyelonephritis	Fever + flank pain + positive urinalysis	Ciprofloxacin 500mg PO BD for 7 days *If unwell Ceftriaxone 2g IV STAT and refer to hospital*
	Epididymo-orchitis	Acute tender swelling of spermatic cord/testicles, dysuria, fever. Do urinalysis and consider STI screen.	If STI likely: Doxycycline 100mg PO BD for 14 days If UTI likely: Ciprofloxacin 500mg PO BD for 14 days
BONE/SKIN	**Cellulitis**	Area of hot, red, tender skin Fast spread = more aggressive treatment	Cloxacillin 1g PO QDS for 7 days Penicillin allergy: Clindamycin 600 PO TDS for 7 days
	Diabetic foot infection	Foot infection in patient with poor diabetes control. Check pulses, probe ulcer to reveal depth, X-ray for osteomyelitis.	*Optimise diabetic control – refer for endocrinology review* Cloxacillin 500mg PO QDS + Metronidazole 500mg PO TDS for 7 days ***or*** Co-amoxiclav 625mg PO TDS ***or*** /if Penicillin allergic Doxycycline 100mg BD + Clindamycin 600mg PO TDS for 7 days
	Impetigo	Yellow crusting skin infection. Common sites: nose, mouth, limbs, scalp	Cloxacillin 1g PO QDS for 7 days Penicillin allergy: Doxycycline 100mg PO BD for 5 days
	Mastitis	Oedema, red, painful +/- fever Check for abscess, if large this would need draining	1st line: Cloxacillin 500mg PO QID + Metronidazole 500mg PO TDS 7 days 2nd line: Ceftriaxone 1g IV STAT then Co-amoxiclav 625mg PO TDS 7 days Penicillin allergy: Clindamycin 600 PO TDS for 7 days
	Animal bites	Clean thoroughly and give antibiotic prophylaxis Risk assess for Rabies.	Co-amoxiclav 625mg PO TDS for 7 days Penicillin allergy: Doxycycline 100mg PO BD + Metronidazole 500mg PO TDS for 7 days
	Osteomyelitis or Septic arthritis	Osteomyelitis: X-ray if non-healing skin infection/sinus Septic Arthritis: Acutely hot, red, swollen joint, fever	*Refer to hospital.* If delay: Ceftriaxone 2g IV OD + Cloxacillin 1g PO QDS Penicillin allergy: Discuss with senior

This guideline is based on MSF Clinical guidelines diagnosis and treatment manual 2017 and has been adapted in line with the MAM clinic formulary. Pharmacological information is from the British National Formulary. The guidance is intended for use by MAM clinic doctors and community healthcare workers in the management of adult patients with evidence of infection. Please refer to MAM paediatric and maternal antibiotic guidelines for recommendations tailored to those patient groups.

MEDICAL ACTION MYANMAR

MATERNAL ANTIBIOTIC GUIDELINE

IMMUNOCOMPETENT WOMEN AND STABLE HIV PATIENTS

Respiratory rate ≥22 bpm
Altered mental state
Systolic blood pressure < 100mmHg
Temperature <36°C or >38°C
Oliguria

and
or

Look unwell
Offensive discharge
Retained products of conception

→ **THINK MATERNAL SEPSIS**

Give Ceftriaxone 2g IV STAT and *refer to hospital*
If penicillin allergic, discuss with senior

	Diagnosis	Key clinical findings	Recommended management
PREGNANCY	**Premature rupture of membranes**	Rupture of membranes more than 1 hour before onset of labour	Amoxicillin 1g PO STAT and *refer to hospital* Penicillin allergy: Azithromycin 500mg PO STAT and *refer to hospital*
	Meningitis	Fever, headache, photophobia, neck stiffness	Ceftriaxone 2g IV STAT and *refer to hospital* Penicillin allergy: Find out severity of allergy and discuss with senior re chloramphenicol
	UTI/Asymptomatic bacteriuria	Dysuria, frequency, No flank pain and/or Positive urine analysis for nitrites +/- leucocytes	1st line Cefixime 400mg PO OD for 3 days then review and repeat urinalysis- if still positive retreat for 7 days. Send for urine culture if recurrent infection. 2nd line/Penicillin allergy: Ciprofloxacin 500mg PO BD for 3 days then review and repeat urinalysis
	Pyelonephritis	Fever + flank pain + positive urinalysis	*If unwell Ceftriaxone 2g IV STAT and refer to hospital* Co-amoxiclav 625mg PO TDS for 10 days - review and repeat urinalysis Penicillin allergy: Ciprofloxacin 500mg PO BD for 7 days- then review and repeat urinalysis
POST-NATAL	**Endometritis**	Most cases within 2 to 10 days of delivery or abortion. Fever, abdominal pain, malodorous or purulent lochia, enlarged tender uterus. Check for retained products	If uterine tenderness/signs of sepsis- refer to hospital urgently Co-amoxiclav 625mg PO TDS for 7 days then review Penicillin allergy: Clindamycin 600mg PO TDS + Ciprofloxacin 500mg PO TDS for 7 days and review
	Post C-section wound infection	Fever, tender + red wound +/- abdominal pain	Co-amoxiclav 625mg PO TDS 7 days then review Penicillin allergy: Clindamycin 600mg PO TDS for 7 days then review
	Infected perineal tear	Tender, red, swollen round with discharge.	Co-amoxiclav 625mg PO TDS 7 days then review Penicillin allergy: Clindamycin 600mg PO TDS for 7 days then review
	Mastitis	Usually unilateral, hot, red, swollen +/- fever	*Ensure complete drainage of breast at each feed, give NSAIDs and warm compresses.* 1st line: Cloxacillin 500mg PO QID and Metronidazole 500mg PO TDS for 7 days 2nd line: Ceftriaxone 1g IV OD STAT and then Co-amoxiclav 625mg PO TDS for 7 days Penicillin allergy: Clindamycin 600mg PO TDS for 7 days
	Breast abscess	Hot, tender, swollen breast	Cloxacillin 1g PO QID and Metronidazole 500mg PO TDS for 7 days
	Nipple thrush or Infant oral thrush	**Mother:** Bilateral breast pain after feeds. No signs of mastitis **Infant:** White patches on tongue, gums, roof of mouth, inside cheeks	Ensure good attachment of baby to the breast and treat mother and baby simultaneously. **MOTHER**: Miconazole 2% cream applied to nipple and areola after each feed for 7 days. Wipe away residue before the next feed. If severe pain systemic treatment may be needed with Fluconazole 200mg daily for 10 days (unlicensed). Review diagnosis if no improvement after 10 days. Caution is required if baby <6 weeks old. **INFANT**: Nystatin oral suspension 1ml QDS after feeds until 48h after symptoms have cleared (unlicensed in neonates)
	Nipple fissure	Painful cracked nipple with no signs of infection	Only treat if signs of infection e.g. yellow discharge or crusts, if widespread /severe use antibiotics as for mastitis.
	Pyelonephritis/UTI	As for 'Pregnancy' above	As for 'Pregnancy' above

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PAEDIATRIC ANTIBIOTIC GUIDELINE

FOR IMMUNOCOMPETENT OR WELL CONTROLLED HIV PATIENTS

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RED FLAGS:

A) Stridor in calm child or weak, high-pitched, continuous cry
B) Oxygen saturations <92%, grunting
C) Severe tachycardia or bradycardia for age, not passing urine
D) Convulsions, lethargic, difficult to rouse
E) Temperature <3m: <36°C or >38°C, >3m >39°C
3-6 months: Non-blanching rash, not able to drink, persistent vomiting, severe malnutrition

SEPSIS: Unknown source + RED FLAGS → Ceftriaxone* IV STAT (<15 days old: 20-50mg/kg, >15 days old 50-80mg/kg) + ***refer to hospital***

Penicillin allergy: Find out severity and discuss with senior

	Diagnosis	Description	Recommended management
CNS	**Meningitis**	Irritable, poor feeding. vomiting, seizures, apnoea, altered consciousness, bulging fontanelle (when not crying); Older children: headache, neck stiffness, fever.	Ceftriaxone* IV STAT and *refer to hospital* <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: Find out severity and discuss with senior
EYE	**Conjunctivitis**	Red, itchy eye, sticky discharge *NB: sticky eye in early infancy without inflammation suggests blockage of nasolacrimal ducts. This does not require antibiotic therapy.*	Chloramphenicol eye drops 2 hourly for 2 days then QID until 48hr after symptoms resolve.
	Ophthalmia neonatorum	Baby ≤1 month old: purulent or mucoid discharge from one/both eyes; red eye and lid swelling.	Ceftriaxone* IV/IM STAT 25-50mg/kg (max 125mg) + Tetracycline eye ointment BD 7 days *+ STI screen mother* Penicillin allergy: Find out severity and discuss with senior
	Orbital cellulitis	Swollen, red eyelid, decreased and painful eye movements, poor vision. Fever usually present.	Ceftriaxone* IV STAT and *refer to hospital* <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: Find out severity and discuss with senior
	Peri-orbital cellulitis	Tenderness, swelling, warmth, redness of eyelid, sometimes with fever, visual acuity and ocular movements not affected, no proptosis	*Can tolerate oral:* Co-amoxiclav for 5 days then review <5 years: 0.25ml/kg (125/31mg/5ml oral suspension) 5-12 years: half a 625mg tablet PO TDS *Unable to tolerate oral:* Ceftriaxone* for IV 5 days then review <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: <1 year discuss with senior >1 year Ciprofloxacin BD 20mg/kg (max 750mg) + Metronidazole PO TDS 7.5mg/kg (max 400mg) for 5 days and review
ENT	**Sore Throat or Tonsillitis**	Give antibiotics if 2 or more of: • History of fever • Tonsillar exudates • No cough • Tender cervical lymphadenopathy	*Mostly viral – use antibiotics only if meets criteria or if >3 years and no clinical concern re glandular fever.* Amoxicillin PO TDS for 10 days. 1-4 years: 250mg >5 years: 500mg Penicillin allergy: Azithromycin PO OD for 3 days 10mg/kg (max 500mg)
	Epiglottitis	Acute onset high fever. Difficulty swallowing, drooling, respiratory distress, ?obstructed airway	Ceftriaxone* IV STAT and *refer to hospital* <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: Find out severity and discuss with senior
	Acute otitis media	Acute ear pain, Otoscopy: red, bulging tympanic membrane. Only use antibiotics if: < 2 years/severe infection/risk factors (malnutrition, immunodeficiency) or if not improving after 48hrs.	Amoxicillin PO TDS for 5 days neonates: 30mg/kg >1 month-old: 30mg/kg (max 125mg) Penicillin allergy: Azithromycin PO OD for 3 days 10mg/kg (max 500mg)
LUNG	**Pneumonia non-severe**	Cough or difficulty breathing +/- fever + increased respiratory rate (calculate for age). Auscultation: diminished breath sounds, crepitation's, bronchial breathing. Mild chest in drawing	<1 year Co-amoxiclav PO TDS 5 days 0.25ml/kg (125/31mg/5ml oral suspension) >1 year Amoxicillin PO TDS 5 days 1-4 years: 250mg >5 years: 500mg 2nd line >1 year: Co-amoxiclav PO TDS for 7 days <5 years 0.25ml/kg (125/31mg/5ml oral suspension) 5-12 years: half 625mg tablet Penicillin allergy: Azithromycin PO for 3 days 12mg/kg (max 500mg)

	Diagnosis	Description	Recommended management
	Pneumonia with danger signs*	Chest in drawing, cyanosis, O_2 saturation < 90%, nasal flaring , altered mental status, stridor, grunting, refusal to feed /drink, children under 2 months or with severe malnutrition	Ceftriaxone* IV STAT and *refer to hospital* <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: Find out severity and discuss with senior
❤	**Endocarditis**	Fever + new heart murmur +/- peripheral stigmata	Ceftriaxone* IV STAT and *refer to hospital* <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: Find out severity and discuss with senior
GI	**Acute Gastroenteritis**	Diarrhoea, vomiting, abdominal pain, fever	Supportive treatment unless systemically unwell
GI	**Suspected Typhoid**	Fever >1-week, headache, weakness, anorexia, epistaxis. Abdominal pain, diarrhoea or constipation, confusion, splenomegaly, HR not fast despite fever	**Uncomplicated enteric fever:** Cefixime PO BD 14 days 7.5-10mg/kg **Severe enteric fever:** Ceftriaxone* IV OD for 14 days 50-75mg/kg Penicillin allergy: Find out severity and discuss with senior
GI	**Peritonitis**	Abdominal pain, rigid abdomen with guarding	*Surgical emergency: Refer to nearest surgical unit*
GU	**Lower UTI**	Pain/child crying during urination, frequency. No fever, no flank pain. Urinalysis positive for nitrites +/- leucocytes +/- blood	Co-amoxiclav PO TDS for 7 days <5 years: 0.25ml/kg (125/31mg/5ml oral suspension) >5 years or Penicillin allergy: Cefixime PO OD for 7 days 6-11 months: 75mg 1-4 years: 100mg 5-9 years: 200mg >9 years: 200-400mg
GU	**Complicated UTI or Pyelonephritis**	Suspect UTI in children with unexplained fever/sepsis with no obvious source – do urinalysis. Fever, irritability, vomiting, poor oral intake. Lower abdominal tenderness.	Ceftriaxone* IV OD ***when clinically appropriate*** switch to Co-amoxiclav <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg: Co-amoxiclav PO TDS for 10 days total course <5 years: 0.25ml/kg (125/31mg/5ml oral suspension) 5-12 years: half a 625mg tablet PO TDS Penicillin allergy: Ciprofloxacin BD PO 7 days neonate: 15mg/kg child: 20mg/kg (max. 750mg)
BONE/ SKIN	**Cellulitis**	Hot, red, painful often spreading skin lesions. +/- fever +/- systemic signs	Co-amoxiclav PO TDS for 7 days <5 years: 0.25ml/kg (125/31mg/5ml oral suspension) 5-12 years: half a 625mg tablet PO TDS Penicillin allergy: Azithromycin PO OD 3 days 12mg/kg (max 500mg)
BONE/ SKIN	**Impetigo**	Yellow crusting skin infection. Common sites: nose, mouth, limbs, scalp	Co-amoxiclav PO TDS for 7 days <5 years: 0.25ml/kg (125/31mg/5ml oral suspension) 5-12 years: half a 625mg tablet PO TDS Penicillin allergy: Azithromycin PO OD 3 days 12mg/kg (max 500mg)
BONE/ SKIN	**Animal bites**	Clean thoroughly and give antibiotic prophylaxis Risk assess for Rabies.	Ceftriaxone* IV STAT and *refer to hospital* <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: Find out severity and discuss with senior
BONE/ SKIN	**Osteomyelitis or Septic arthritis**	Osteomyelitis: X-ray if non-healing skin infection/sinus Septic Arthritis: Acutely hot, red, swollen joint, fever	Ceftriaxone* IV STAT and *refer to hospital* <15 days old: 20-50mg/kg >15 days old: 50-80mg/kg Penicillin allergy: Find out severity and discuss with senior

*Contraindication to treatment with Ceftriaxone in neonates:
<41 weeks corrected gestational age
>41 weeks neonates corrected with jaundice

This guideline is based on MSF Clinical guidelines diagnosis and treatment manual 2017, WHO pocket book of hospital care for children (2nd edition), Myanmar Paediatric Guidelines 2018, and the British National Formulary. The guidance is intended for use by MAM clinic doctors and community healthcare workers in the management of children with evidence of infection. Please refer to MAM adult and maternal antibiotic guidelines for recommendations tailored to those patient groups.

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