Changes to CARPA STM 2022 edition

A full summary of changes with supporting justification and references for each protocol is located in the RPHCM Reference book on the RPHCM website.

New protocols

New chapter: Acute assessment (gateway) protocols

- Early recognition of sepsis
- Acute assessment of unwell children (under 5 years)
- Acute assessment of acute confusion (delirium)
- Acute assessment of headaches
- Acute assessment of breathing problems in adults
- Acute assessment of breathing problems in children
- Acute assessment of chest pain
- Acute assessment of abdominal pain
- Acute assessment of nausea and vomiting

Child and youth health

- Competency, consent, and confidentiality
- Child development concerns 0-5 years
- School aged child and youth behaviour and development concerns

Chronic conditions

- Obesity

General topics

- Human T Cell Leukaemia Virus type 1 (HTLV-1)
- Dementia (split from delirium and dementia)

Deleted as stand-alone protocols (see below – Protocols that have been divided, merged or condensed)

- Blood fats
- Heart failure
- Interpreting results
- Near hanging
- Suicide risk

Protocols moved into STM from other manuals in suite or within STM

Protocol name	2017 edition	STM 2022 edition
Child health check (0-5 years)	CPM	STM – Child and youth health
School aged health check (School aged and young person's health check (6-17 years)	CPM	STM – Child and youth health
Adult health check	CPM	STM – Chronic conditions
Choking	CPM	STM – Emergencies and assessments
Ear and hearing problems	STM	Moved from Child and youth health to General topics

Protocols that have been divided, merged or condensed

Confusion – delirium and dementia	Divided into	**Acute assessment of acute confusion (delirium)** In Acute assessment (gateway) protocols
		Dementia in General topics
Chest pain	Divided into	**Acute assessment of chest pain** In Acute assessment (gateway) protocols
		Coronary artery disease In Chronic conditions
Abdominal pain	Divided into	**Acute assessment of abdominal pain** In Acute assessment (gateway) protocols
		Abdominal pain In General topics
Nausea and vomiting	Divided into	**Acute assessment of nausea and vomiting** In Acute assessment (gateway) protocols
		Nausea and vomiting In General topics
Infant and child growth and nutrition	Divided into	**Infant and child nutrition** In Child and youth health
		Infant, child and youth growth (0-17 years) In Child and youth health
Heart failure	Divided into	**Pulmonary oedema** In Emergencies and assessments
		Combined checks for chronic conditions In Chronic conditions
Near hanging	Merged into	**Mental health emergency,** **Mental health assessment**
Suicide risk		
Blood fats	Merged into	**Assessing and reducing cardiovascular risk**
Interpreting results	Merged into	**Relevant protocols eg Diabetes**
Pain management	Condensed	**Acute pain only**

Other protocol name changes (does not included minor name changes)

STM 2017 edition name	STM 2022 edition name
School aged health check (6-14yrs)	**School aged and young person's health check (6-17 years)**
Child neglect, abuse, sexual abuse	**Child abuse, neglect and cumulative harm**
Anaemia (weak blood) in children	**Anaemia (weak blood) in children and youth**
Discharge from penis or pain on passing urine	**Penile discharge or dysuria**
Pain management	**Pain management (acute)**
Joint sprains	**Sprains and strains**
Eye conditions	**Eye problems**
Painful scrotum	**Testicular pain**

Summary of new and deleted medicines

Drugs in RED are new additions to the Manuals

Drugs in BLUE are existing drugs in the 2017 edition that have new indication(s)

Drug	Protocol(s)	Manual	Indications	Rationale
0.3% ofloxacin — 1-2 drops every 30 mins	Eye Condition	STM	Gonococcal Conjunctivitis	If there is staining of fluorescein (damage) on the eye surface (cornea) -apply 0.3% ofloxacin 1-2 drops every 30 mins - medical consult, send to hospital urgently Gonococcal eye infection in neonates (< 6 weeks of age) sight-threatening.
Amoxicillin+clavulanic acid oral — 875+125 mg, twice a day (bd) for 10-14 days based on clinical response	Urine problems — over 12 years	STM	Mild kidney infection	Removed Trimethoprim due to resistance patterns Replaced by Amoxicillin+clavulanic acid oral — 875+125 mg, twice a day (bd) for 10-14 days
Azithromycin oral — 30mg/kg/day, single dose, repeat once after 7 days	Ear and hearing problems	STM		Alternative to amoxicillin if compliance is an issue
Azithromycin oral — adult 1g, single dose	Penile discharge or dysuria	STM	Persistent or recurrent gonorrhoea or chlamydia	Symptoms caused by Persistent or recurrent gonorrhoea or chlamydia - added to give azithromycin (additional to ceftriaxone mixed with lidocaine) (Rationale for second dose of azithromycin: The resistance is likely to be to the amoxicillin rather than the azithromycin and the amox is replaced with ceftriaxone. The azithromycin is to treat chlamydia, the amox/ceftriaxone for gonorrhoea. The administration of the azithromycin again is OK as it ensures that the appropriate full cover for people in a penicillin resistant area is given. Technically the azithromycin may not need to be given again but does cover in case there are questions about whether the dose was taken or if reinfection may have occurred.
Azithromycin oral — adult 500mg, child 10mg/kg/dose up to 500mg — doses — single dose	Chest infections — over 5 years	STM	Severe pneumonia	Now giving ceftriaxone AND azithromycin AND gentamicin (previously ceftriaxone AND gentamicin only
Calcium supplement	Chronic obstructive pulmonary disease (COPD) and bronchiectasis in adults	STM		If planning to use oral corticosteroids/prednisolone for more than 2 weeks. Consider baseline and annual assessment of bone mineral density especially if expected to use for more than 3 months

Cefalexin oral — 33mg/kg up to 500mg, 4 times a day (qid) for 10 days	Urine problems — 2 months to 12 years	STM	UTI	Cefalexin replaces amoxicillin-clavulanic acid oral twice a day (bd) for 5 days – child 22.5mg/kg/dose up to 875+125mg (doses)
Cefazolin IV — adult 2g, child 50mg/kg/dose up to 2g — doses — 8-hourly	Injuries — abdomen and pelvis	STM	if deep or open wound	Was ceftriaxone eTG recommends the following for deep wounds likely to need surgical management: cefazolin
Cefazolin IV — adult 2g, child 50mg/kg/dose up to 2g — doses — every 8 hours until send to hospital	Injuries — chest	STM	Penetrating (open or 'sucking') chest injury	In an effort to reduce 3rd gen cephalosporin (ceftriaxone) use
Cefazolin IV — adult 2g, child 50mg/kg/dose up to 2g — doses — every 8 hours (tds)	Injuries soft tissues Injuries — spear and knife (stab) wounds	STM	Prophylaxis and Infection of complicated or severe wound OR heavy contamination OR severe infection	Antibiotic prophylaxis is also required for open fractures (eTG) and if penetrating injury close to a joint Give cefazolin IV every 8 hours (tds) until evacuated – adult 2g, child 50mg/kg/dose up to 2g (doses)
Cefazolin IV — adult 2g, child 50mg/kg/dose up to 2g — doses — twice a day	Bites — animal or human	STM	If unable to give oral antibiotics	
Ceftazidime IV — adult 2g, child 50 mg/kg up to 2g	Melioidosis	STM	For initial therapy of non-neurological melioidosis, Use: ceftazidime 2 g (child: 50 mg/kg up to 2 g) intravenously, 6-hourly for at least 14 days	Ceftriaxone IV single dose currently recommended however eTG recommend ceftazidime 2 g (child: 50 mg/kg up to 2 g) intravenously, 6-hourly for at least 14 days. Better efficacy but less practical ID recommends for initial therapy give: Ceftazidime 2g (child: 50 mg/kg up to 2g) intravenously, 6-hourly for at least 14 days If ceftazidime is unavailable give: Ceftriaxone adult 2g, child 50mg/kg/dose up to 2g and transfer to hospital for directed melioidosis therapy. If melioidosis is suspected but not confirmed ADD to ceftriaxone: Gentamicin IV single dose (standard evacuation treatment just in case it is something else).
Ceftriaxone IV/IM — adult 2g, child 50mg/kg/dose up to 2g, once a day	COPD in adult	STM	acute episode of bronchiectasis and very unwell	If no results of sputum available give ceftriaxone IV/IM — adult 2g, child 50mg/kg/dose up to 2g, once a day
Ceftriaxone IV/IM — doses — 50mg/kg/dose	Diarrhoea	STM	If child unwell with signs of sepsis consider systemic Shigella or Salmonella infection,	Replaced azithromycin Urgent medical consult — send to hospital Ceftriaxone IV/IM — doses — 50mg/kg/dose

			especially infants less than 12 months	
Cefuroxime oral — child (3 months and over) 15mg/kg/dose up to 500mg — doses — twice a day (bd) for 14 days	CSLD & bronchiectasis in children	STM	In Acute episode, if allergy to penicillin	Replace cefaclor oral twice a day (bd) for 14 days – child 25mg/kg/dose up to 1g (doses) by : Cefuroxime (child 3 months or older) 15 mg/kg up to 500 mg orally, 12-hourly Rationale: Cefuroxime has replaced cefaclor in these guidelines because cefaclor has inferior activity against Streptococcus pneumoniae and is more likely to cause serum sickness–like syndrome, particularly in children. Note: Doses are higher than usual
Ciprofloxacin oral — 750mg, twice a day (bd)	Injuries limbs	STM	Compound fractures	If wound has been immersed in water
Doxycycline oral — adult 100mg, twice a day (bd) for 7 days	STI management	STM	Chlamydia - anorectal infections	As per national and international guidelines, doxycycline recommended for anorectal form. Azithromycin recommended for genital and oral infections
Doxycycline oral — adult 100mg, child over 8 years and less than 26 kg: 50 mg, 26 to 35 kg: 75 mg, more than 35 kg: 100 mg — doses — twice a day for 3 days	Chest Infection - over 5 years	STM	Mild or moderate pneumonia	Doxycycline given in association with procaine benzylpenicillin (procaine penicillin) IM — adult 1.5g, child 50mg/kg/dose up to 1.5g — doses — every 24 hours for 3 days
Doxycycline oral — adult 100mg, twice a day (bd) for 7 days	Penile discharge or dysuria	STM	Ongoing urethritis	Doxycycline (added to metronidazole oral single dose – adult 2g) prescribed after testing for mycoplasma genitalium also covers other conditions/high bacterial load Give doxycycline oral twice a day (bd) for 7 days – adult 100mg
Droperidol IM — adult 2.5-5mg	Mental Health Emergency	STM	Sedation, other medicine	eTG does not recommend haloperidol, rather droperidol. Droperidol is used in some of our remote clinics under Medical Consult and increasingly in some hospitals and is increasingly used as an effective agent. Many EDs use as the preferred IM antipsychotic option– including Royal Darwin Hospital. It has more rapid time to effect, more sedating and less likely to lower the seizure threshold. It is often preferred for acute behavioural emergencies in intoxicated patients for those reasons. Benztropine should still be on hand to use if dystonia emerges.
Dulaglutide	Diabetes	STM	Type 2	New class of glucose control type 2 medicines GLP-1 receptor agonists
Flucloxacillin	Sepsis	STM	If unknown or undifferentiated sepsis, give: IV gentamicin, flucloxacillin AND vancomycin loading dose	If unknown or undifferentiated sepsis before evac

Gliclazide IR	Diabetes	STM	Type 2	New IR formulation on the market
Ivermectin — 5 years+/15kg+ — 200microgram/kg/dose oral single dose with food (doses)	Scabies	STM		Oral ivermectin added as first option for scabies treatment In regions where prevalence of scabies is 10% or higher, consider an ivermectin-based mass drug administration (MDA) program
Ketoconazole 2% shampoo	Tinea	STM	Tinea of the scalp	Last edition gave terbinafine only
Levetiracetam IV — adult 40mg/kg/dose, child 40mg/kg/dose up to 3g — doses — over 5 minutes	Fits and Seizure	STM	2nd line agent after 2nd dose of midazolam and patient still fitting	To reflect current practice and better tolerated than valproate Note that it is already in CARPA Head injurie protocol
Metronidazole IV — adult 500mg, child 12.5mg/kg up to 500mg, 12-hourly	Injuries — abdomen and pelvis	STM	if deep or open wound	For heavily contaminated or severe wounds add metronidazole IV
Metronidazole oral — 500mg	Injuries limbs	STM	Compound fractures	If heavily contaminated with material embedded in bone or deep soft tissues Add metronidazole to cefazolin
Metronidazole oral — adult 400mg, child 10mg/kg/dose up to 400mg — doses — twice a day (bd)	Water-related skin infections	STM	Moderate infection after exposure to Fresh or brackish water – if soil or sewage contaminated	CA recommendation (Fabian and pharmacist) - given that ciprofloxacin is not available in remote)
MIDAZOLAM Buccal/ Intranasal 5mg/mL	Resuscitation reference table	STM		Added column for Midazolam intranasal (i.n) or buccal for seizures without iv access.
Naphcon-A eye drops — 1 drop, twice a day (bd) for 2 days	Eye condition	STM	Fly bite (type of allergic conjunctivitis)	Reconsider topical anti histamine advice as these drops are not available on the remote pharmacy drug list (olopatadine 0.1%, ketotifen 0.025%)
Nicotine spray	Tobacco	STM	NRT	1mg nicotine spray Spray into mouth, nicotine absorbed through mouth lining Use 1-2 sprays when cravings
Nitrofurantoin oral — 100 mg, four times a day (qid) for 7 days	Urine problems — over 12 years	STM	Cystitis in men and non-pregnant females	Removed Trimethoprim due to resistance patterns Replaced by Nitrofurantoin oral — 100 mg, four times a day (qid) for 7 days Do not use if CrCl <45mL/min
Nitrofurantoin oral — 100 mg, four times a day (qid) for 7 days	Testicular pain	STM	If infected testes, Men 45 years or over	Replaced Trimethoprim oral once a day for 7 days – 12+ years 300mg

			with no discharge Treat as UTI related	
Oxycodone (IR) — 5mg, 1-2 tabs every 3 hours PRN — medical consult	Pain management (acute)	STM	Acute pain relief (adult) Moderate pain (4-6)	Non-pharmacological interventions such as positioning, heat or cold packs AND Paracetamol — 500 mg, 1-2 tabs, 4 times per day AND (if not contraindicated) Ibuprofen 200 mg, 1-2 tabs 3 times per day with food AND Oxycodone (IR) — 5mg, 1-2 tabs every 3 hours PRN — medical consult OR Paracetamol–codeine — 500mg+30mg, 1-2 tablets, up to 4 times per day (qid) PRN — only 2 doses can be given without a medical consult
Oxycodone IR (if available) oral — 5 mg, every 4 to 6 hours as necessary	Dental and oral problem	STM	Severe pain	After maximum regular doses of ibuprofen AND paracetamol have been tried If ibuprofen contraindicated, continue paracetamol AND medical consult for oxycodone Recommended by eTG Codeine not being effective Expert dentists requested that the existing treatment for severe dental pain be changed from Codeine 30mg with Paracetamol to Oxycodone. eTG also supports this and has a clear “do no use codeine” message. Note 1: Medical consult before giving opioids — if this will cause serious delay in treatment give, then do medical consult as soon as possible Note 2: You must know your organisations policy regarding which pain medications can be initiated by a RN or ATSIHP
Prednisolone oral — adult 50mg, single dose	Asthma in adult	STM	severe or life threatening	Last edition gave oxygen, salbutamol, hydrocortisone IV, nebulised ipratropium (then more salbutamol) Now: Salbutamol, ipratropium, prednisolone oral (if oral route not possible give hydrocortisone IV) AND magnesium sulphate IV (ie new drugs: prednisolone, magnesium sulphate)
Selenium sulphide 2.5% shampoo	Tinea	STM	Tinea of the scalp	Last edition gave terbinafine only
Semaglutide 0.25mg subcutaneous (injection) weekly	Diabetes	STM	Type 2	New class of glucose control type 2 medicines GLP-1 receptor agonists
Tranexamic acid Adult — Tranexamic acid IV — 1g (in 100mL compatible fluid) over 10 minutes THEN 1g (in 1,000mL of a compatible fluid) IV over 8 hours — doses Child — Tranexamic acid IV	Injuries — spear and knife (stab) wounds	STM	Haemostatic. Reduction of peri/ postop blood loss	Add tranexamic acid and tourniquets to manage severe haemorrhage and shock (under stab wounds) Add Tranexamic acid (TXA) to management

— 15mg/kg up to 1g over 10 minutes THEN 2mg/kg/h for 8 hours, dilution 1g in 500mL of compatible fluid and infuse at 2mL/kg/h (maximum dose 125mg per hour) — doses				
Tranexamic acid Adult — Tranexamic acid IV — 1g (in 100mL compatible fluid) over 10 minutes THEN 1g (in 1000mL of a compatible fluid) over 8 hours — doses Child — Tranexamic acid IV — 15mg/kg up to 1g over 10 minutes THEN 2mg/kg/h for 8 hours, dilution 1g in 500mL of compatible fluid and infuse at 2mL/kg/h (maximum dose 125mg per hour) — doses	Injuries — abdomen and pelvis	STM	Haemostatic. Reduction of peri/ postop blood loss	Tranexamic acid (TXA) should be considered for any patient with trauma and signs of hypovolaemic shock if it can be administered within 3 hours of injury. A large RCT published in 2010 (CRASH2) showed that a short course of intravenous tranexamic acid given to trauma patients with, or at risk of, significant bleeding increased survival without an increased risk of adverse events if given within 3 hours of injury. This benefit is not apparent if given later than 3 hours post injury. Subsequently, TXA has been recommended for administration in such circumstances by a variety of organisations including NICE, UptoDate, and a variety of ambulance and retrieval services worldwide. The Central Australian Retrieval Service also recommends its use when available. Furthermore, the Royal College of Paediatricians (UK) in collaboration with the NPPG Medicines Committee have released guidance and dosage for use in children.
Tranexamic acid Adult — Tranexamic acid IV — 1g (in 100mL compatible fluid) over 10 minutes THEN 1g (in 1000mL of a compatible fluid) over 8 hours — doses Child — Tranexamic acid IV — 15mg/kg up to 1g over 10 minutes THEN 2mg/kg/h for 8 hours, dilution 1g in 500mL of compatible fluid and infuse at 2mL/kg/h (maximum dose 125mg per hour) — doses	Injuries-bleeding	STM	Haemostatic. Reduction of peri/ postop blood loss	[If signs of shock] Consider tranexamic acid within 3 hours of injury Rationale: Whilst administration of TXA is not the first priority of management, it is part of the standard protocol for most retrieval/ambulance services for patients with hypovolaemic shock after trauma/bleeding. Given that its benefits are maximal if given within the first three hours, I would advocate that it should be included as a therapy of benefit for remote/rural areas. I have discussed this with the Director of the Central Australian Retrieval Service who agrees and it was part of our protocol when I worked at NSW RFDS. It is a simple, cheap and safe therapy with proven benefit. [Bleeding Arm or Leg] Consider Tranexamic acid 1g in 0.9% sodium chloride (100mL) over 10 minutes if not already administered within 3 hours of injury. Then 1g in 100mL over 8 hours.

Tranexamic acid 500mg (5mL) via nasal atomiser to affected nostril prior to insertion of packing	Nosebleed	STM	Haemostatic. Reduction of peri/ postop blood loss	Nosebleed leading to shock Some debate whether we should keep Tranexamic acid amps for severe epistaxis. Has been discussed in Top end Morbidity and Mortality meeting. UptoDate summarises no benefit in lieu of saline. It shows prospective RCT 135 subjects Primary outcomes showed external compression with Tranexamic Acid IV stopped bleeding 91% compared with external compression and topical saline 71% although was comparable to the nasal packing control group (93.3%) to stopping bleeding within 15 minutes.
Trimethoprim-sulfamethoxazole oral — 4+20mg/kg/dose up to 160+800mg — doses — twice a day for 7 days	Rashes	STM	Nappy rash	Alternative to procaine benzylpenicillin (procaine penicillin) IM being in shortage
Trimethoprim-sulfamethoxazole oral — adult 160+800mg, child 4+20mg/kg/dose up to 160+800mg — doses — twice a day (bd) for 7 days	Skin infections	STM	Cellulitis	Cellulitis — added trimethoprim-sulfamethoxazole as first line antibiotic, removed phenoxymethylpenicillin
Trimethoprim-sulfamethoxazole oral — adult 320+1600mg, child 8+40mg/kg/dose up to 320+1600mg — doses — twice a day (bd)	Water-related skin infections	STM	Moderate infection after exposure to Fresh or brackish water	Ed 2017 recommended ceftriaxone IV/IM and ciprofloxacin oral CA recommendation (Fabian and pharmacist) - given that ciprofloxacin is not available in remote)
Vancomycin	Early recognition of sick or deteriorating patients	STM	If unknown or undifferentiated sepsis, give: IV gentamicin, flucloxacillin, ceftriaxone AND if available, vancomycin	Therefore, any combination should include MSSA, MRSA, S pneumoniae, Streptococcus pyogenes and other Streptococcal species, Enterobacterales (eg E coli, K pneumoniae), B. pseudomallei, Acinetobacter sp, Pseudomonas aeruginosa and N. meningitidis To be consistent with TG and NT sepsis pathway
Vitamin A	Infant, child, youth growth (0-15 years)	STM	Growth faltering malnutrition	Severe malnutrition is linked to Vit A deficiency Severe growth faltering may require Vitamin A supplementation if not given in previous 6 months — medical consult

vitamin D supplements	Chronic obstructive pulmonary disease (COPD) and bronchiectasis in adults	STM		If planning to use oral corticosteroids/prednisolone for more than 2 weeks Consider baseline and annual assessment of bone mineral density especially if expected to use for more than 3 months

Medicines and/or indications in ORANGE are removed from the 2022 STM

Drug	Protocol(s)	Manual	Indications	Rationale
Tinidazole oral single dose – adult 2g, child 50mg/kg/dose up to 2g (doses)	Dental and oral problems	STM	Acute ulcerative gingivitis	Discontinued metronidazole oral — adult 400mg, child 10mg/kg/dose up to 400mg — doses — twice a day (bd) for 5 days
Benzyl benzoate 25% lotion mixed with tea tree oil	Scabies	STM	if difficult case or treatment failure	Removed option of benzyl benzoate 25% lotion mixed with tea tree oil for difficult case or treatment failure in scabies, and for crusted scabies grade 1
cefalexin oral twice a day for 5 days -12+ years 500mg	Urine problems — over 12 years	STM	Cystitis in men and non-pregnant females Mild kidney infection	Removed Trimethoprim due to resistance patterns In cystitis replaced by Nitrofurantoin oral — 100 mg, four times a day (qid) for 7 days Do not use if CrCl <45mL/min In Mild kidney infection replaced by amoxicillin+clavulanic acid oral — 875+125 mg, twice a day (bd) for 10-14 days based on clinical response
ceftriaxone IV — adult 2g, child 50mg/kg/dose up to 2g — doses — single dose	Abdominal pain	STM	Generalised peritonitis and bowel obstruction	Rationalisation of antibiotics and protocol by Editorial Committee X-ref to sepsis protocol and medical consult required
Vancomycin IV 15mg/kg/dose (doses) Vancomycin IV single dose – adult 15mg/kg/dose (doses)	Acute rheumatic fever (ARF) and rheumatic heart disease (RHD)	STM	Prophylaxis for endocarditis	The protocol has been simplified and antibiotic prophylaxis has been shortened to cover only dental prophylaxis and refer to medical consult
Cefotaxime IV every 6 hours – 165mg /0.7ml [50mg/kg/dose]	Babies under 2 months who are sick or have a fever	STM	Sepsis	The protocol has been deleted and replaced by Acute assessment of unwell children under 5 years protocol ie. a differential diagnosis that X-reference to appropriate protocols and/or medical consult. If REWS score >3 urgent medical consult
Ciprofloxacin oral — adult 500mg, child 12.5mg/kg/dose up to	Bites — animal or human	STM		Rationalisation of antibiotics and protocol by Editorial Committee

500mg — doses — twice a day (bd)				
clindamycin IV — adult 450mg, child 10mg/kg/dose up to 450mg — doses — every 8 hours (tds)	Bites — animal or human	STM		Rationalisation of antibiotics and protocol by Editorial Committee
Procaine benzylpenicillin (procaine penicillin) IM — child 50mg/kg/dose up to 1.5g — doses — every 24 hours for total of 5 days	Bites — animal or human	STM		Rationalisation of antibiotics and protocol by Editorial Committee
Oxycodone immediate-release oral — start with 0.1mg/kg/dose up to 5mg (if over 1 year)	Bites and stings — snake, spider, centipede and scorpion	STM	Redback spider bite	Removed Oxycodone from pain in redback spider, recommend medical consult Cross reference to the Pain management protocol
Oxycodone IR 0.1mg/kg/dose up to 5mg Medical consult about ongoing dose and frequency	Bites and stings — snake, spider, centipede and scorpion	STM	Redback spider bite pain resistant to paracetamol and ibuprofen	Remove recommendation related to Oxycodone and insert medical consult. Or even remove if still pain line and only have severe pain recommendation. Med consult is necessary for initiation and administration of Oxycodone anyways- not on S250 list. New Edition: If still pain or severe pain — medical consult including possible role for antivenom especially in children
Amoxicillin oral 3 times a day (tds) for 5 days – adult 500mg, child 15mg/kg/dose up to 500mg (doses) Amoxicillin oral twice a day (bd) for 5 days – adult 1g, child 25mg/kg/dose up to 1g (doses)	Chest infections — over 5 years	STM	Sinusitis	Antibiotic not necessarily needed even when not improving after a few days
Amoxicillin oral — adult 1g, child 25mg/kg/dose up to 1g — doses — 3 times a day (tds) for 2 more days	Chest infections — over 5 years	STM	Mild or moderate pneumonia	Editorial committee decision
Roxithromycin oral twice a day for 5 days - adult 150mg child 4mg/kg/dose u[to 150mg	Chest infections — over 5 years	STM	Mild or moderate pneumonia If allergy to penicillin And sinusitis	Now medical consult Roxithromycin no longer features in the eTGs.

Famciclovir oral 3 time a day (tds) for 7 days – adult 250mg, child 5mg/kg/dose up to 250mg	Chickenpox and shingles	STM	Shingle, zoster	Aciclovir listed as safer for children and pregnancy In pregnancy—there are more safety data to support the use of aciclovir in pregnancy compared with valaciclovir or famciclovir. Famciclovir is not used in children.
Azithromycin oral once a week for 4 weeks – child 30mg/kg/dose up to 1g (doses)	Chronic suppurative lung disease and bronchiectasis in children	STM	Exacerbation (acute episode) of CSLD	Rationalisation of ATB choice First line: Amoxicillin-clavulanic acid oral
Cefaclor oral twice a day (bd) for 14 days – child 25mg/kg/dose up to 1g (doses)	CSLD	STM	Acute exacerbation	Was initially 2nd line if allergy to penicillin Replaced by cefuroxime bd 14d
Exenatide	Diabetes	STM		Discontinued
Glimepiride	Diabetes	STM		Discontinued
Thiazolidinediones	Diabetes	STM		Discontinued
Azithromycin- oral 10mg/kg up to 500mg on the first day, then oral 5mg/kg up to 250mg, once a day for another 4 days	Diarrhoea	STM	Shigella infection	If child unwell and septic (shigella or salmonella) Ceftriaxone IM/IV — doses — 50mg/kg/dose now recommended instead
Tinidazole oral single dose – adult 2g, child 50mg/kg/dose up to 2g (doses)	Diarrhoea	STM	Giardia	Discontinued First line metronidazole oral — child 30mg/kg/dose up to 2g — doses — once a day for 3 days
Imiquimod 5% cream	Genital ulcers and lumps	WBM/STM	Genital warts	Now considered not safe in pregnancy eTG categorises as B1 for pregnancy,
Zinc once a day for 7 days – 20mg elemental zinc	Infant, child and youth growth	STM	Growth faltering	Zinc supplementation removed due to lack of evidence that children in remote areas of Australia are deficient in zinc, multivitamin supplement added, and Vitamin A supplementation included for severe malnutrition.
Ceftriaxone IV single dose – adult 2g, child 50mg/kg/dose up to 2g (doses)	Injuries — abdomen and pelvis	STM	if deep or open wound	eTG recommends cefazolin for deep wounds likely to need surgical management:

ceftriaxone IM/IV single dose – adult 2g, child 50mg/kg/dose up to 2g (doses)	Injuries — chest	STM	Penetrating (open or 'sucking') chest injury	In an effort to reduce 3rd gen cephalosporin (ceftriaxone) use, replaced by cefazolin
Phenoxymethylpenicillin oral 4 times a day (qid) for 5–10 days – adult 500mg, child 12.5mg/kg up to 500mg (doses)	Skin infections	STM	Cellulitis	Cellulitis — added trimethoprim-sulfamethoxazole as first line antibiotic, removed phenoxymethylpenicillin
di/flucloxacillin oral — adult 500mg, child 6 years/20kg or more 12.5mg/kg/dose up to 500mg — doses — twice a day (bd) for 5 days	Skin infections	STM	Boils	Drainage and incision are first line treatments If severe use trimethoprim-sulfamethoxazole
cefalexin oral — adult 500mg, child 12.5mg/kg/dose up to 500mg — doses — 4 times a day (qid) for 5 days	Skin infections	STM	Boils	Drainage and incision are first line treatments If severe use trimethoprim-sulfamethoxazole
Trimethoprim oral once a day for 7 days – 12+ years 300mg	Testicular pain	STM	if infected testes, Men 45 years or over with no discharge	Replace by nitrofurantoin oral — 100 mg, 4 times a day (qid) for 7 days Do not use for prostatitis OR if CrCl <45mL/min
Amoxicillin-clavulanic acid oral twice a day (bd) for 5 days – child 22.5mg/kg/dose up to 875+125mg (doses)	Urine problems — 2 months to 12 years	STM	UTI	Cefalexin replaces amoxicillin-clavulanic acid oral twice a day (bd) for 5 days – child 22.5mg/kg/dose up to 875+125mg (doses)
Ceftriaxone IM/IV single dose – adult 2g	Water-related skin infections	STM	Moderate infection after exposure to Fresh or brackish water	Ed 2017 recommended ceftriaxone IV/IM and ciprofloxacin oral Now recommend trimethoprim-sulfamethoxazole - oral CA recommendation (Fabian and pharmacist) - given that ciprofloxacin is not available in remote)
Ciprofloxacin oral twice a day (bd) until review – adult 500mg, child 12.5mg/kg/dose up to 500mg (doses)	Water-related skin infections	STM	Moderate infection after exposure to Fresh or brackish water	Ed 2017 recommended ceftriaxone IV/IM and ciprofloxacin oral Now recommend trimethoprim-sulfamethoxazole - oral CA recommendation (Fabian and pharmacist) - given that ciprofloxacin is not available in remote)

Doxycycline oral single dose – adult 200mg, child 4mg/kg/dose up to 200mg (doses)	Water-related skin infections	STM	Moderate infection after exposure to salt water	Now recommended ciprofloxacin oral — adult 500mg, child 12.5mg/kg/dose up to 500mg — doses — twice a day (bd) AND trimethoprim-sulfamethoxazole oral — adult 320+1600mg, child 8+40mg/kg/dose up to 320+1600mg — doses — twice a day (bd)

Changes to medicines and other recommendations in established protocols

Emergencies and assessments chapter

Protocol name	Addition	Deletion	Medicines	Other
Life support- DRS ABC		Delete 15:2 compressions – replace 30:2 for all ages except newborn	Additional amiodarone dose (infusion 2.5mg/kg) added for paediatric patient when normal rhythm is restored	Change compression per minute from 100 to 100-120
Resuscitation reference table	Defibrillation values to 6mth 02 sats, maintenance rates	ETT tube LMA cuff volumes 50% glucose		Age/weight and associated doses updated in line with RCH guidelines
Chest pain		Deleted flow charts, referred to local ACS flowcharts if available		Troponin test done first and using POC test Protocol divided into treatment for angina (nitrate therapy) and heart attack (thrombolysis)
Choking	Added ANZCOR flowchart for adults, APLS flowchart for children			
Fits- seizures	ECG (in ongoing care)		Removed paracetamol for fever Added levetiracetam as second line if person still fitting after 2nd dose midazolam	
Injuries- abdomen and pelvis		Rectal examination Logrolling	Changed antibiotic from ceftriaxone to cefazolin and metronidazole Added tranexamic acid if signs of shock	
Injuries- bleeding	POC blood tests including INR		Added tranexamic acid	
Injuries- chest	RR to danger signs, cardiac monitoring and ECG		For penetrating chest injury: antibiotic changed from ceftriaxone to cefazolin	
Injuries- head	Hourly observations for at least 4 hours		Infusion time for levetiracetam IV changed from 30mins to 15mins	
Injuries- limbs			For injuries heavily contaminated or immersed in water: added metronidazole or ciprofloxacin to cefazolin	For fractured major bones and if in shock: fluid boluses altered from 10mL/kg for child, 1L adults to adult 250mL, child 20mL/kg

Injuries- spinal				Sandbags/rolled up towels/IV fluid bags are prioritised over semi-rigid collars
Injuries- soft tissue	Sub-section on necrotising fasciitis		For mild contamination of soft tissue injury: changed antibiotic from amoxicillin-clavulanic acid or cefalexin to di/flucloxacillin or cefalexin If allergy: changed antibiotic from rofloxacin/clindamycin to trimethoprim-sulfamethoxazole For animal/human bites: changed antibiotic from amoxicillin-clavulanic acid or procaine benzylpenicillin IM, ciprofloxacin and clindamycin If allergy: amoxicillin-clavulanic acid or cefazolin IV (with med consult), metronidazole and trimethoprim-sulfamethoxazole For spear and knife wounds and if shock or internal bleeding: added tranexamic acid For major wounds cefazolin and metronidazole IV added, clindamycin if allergic (with med consult) For minor wounds: recommended antibiotics are linked to the soft tissue protocol	
Hypoglycaemia (low blood glucose)	Medical emergency if BGL less than 4mmol/L (previously different measurements used if under or over 10 years old).			Glucose administrated before thiamine (previously vice versa)
Mental health emergency			IM antipsychotics change from haloperidol and benztropine to haloperidol OR Droperidol, benztropine, may be needed with haloperidol if side effects	

Meningitis	POC test for WBC; medical consult re dexamethasone if child under 2mth	Positive Kernig's sign	Changed ceftriaxone dose for child (from up to 4g to up to 2g)	
Nose bleeds (epistaxis)	POC INR if taking warfarin		Added tranexamic acid If transfer delayed: added amoxicillin	
Pulmonary oedema/ acute heart failure	Monitor urine output – aim for 0.5mL/kg/hr		Changed glyceryl trinitrate – from 300-600microgram to 400microgram	
Hypothermia		Deleted: do not give Hartmanns		
Bites – animal or human			Changed from amoxicillin-clavulanic acid or procaine benzylpenicillin IM and ciprofloxacin and clindamycin if allergic - TO amoxicillin-clavulanic acid or cefazolin IV (with med consult) and metronidazole and trimethoprim-sulfamethoxazole if allergic	
Injuries – spear and knife (stab) wounds			Added (if shock/internal bleeding) tranexamic acid; for major wounds cefazolin and metronidazole IV, clindamycin if allergic (with med consult); minor wounds antibiotics via link to: Soft-tissue protocol	

Child and youth health

Protocol name	Addition	Deletion	Medicines	Other
School aged and young person's health check	diabetes risk factor check for 10 years and over HEADDS interview			Changed age group from 6 – 14 to 6 – 17 years
Child abuse, neglect and cumulative harm	New subsection cumulative harm with brief explanation Note that it may be an obligation to share information with other agencies To inform parent/carer where possible that report is being undertaken			Defined recent (in recent sexual abuse) as 7 days post-assault
Infant, child and youth growth (0-15 years)	BMI and waist for height ratio; expect weight gain; growth action plan flowchart	Nutrition section moved to separate protocol	Deleted zinc and added vitamin A for severe growth faltering	Protocol extended to include youth age group to 15 years
Anaemia (weak blood) in children and youth	Protocol extended to provide guidance for identification and treatment of anaemia in school aged children and youth. Clarity on what to do when treatment course not completed, and treatment of acutely unwell children. Non-invasive monitoring added to the protocol. Assessment of comparative data between venous, haemocue and non-invasive testing did not support a change to the previous diagnostic values.		Oral iron supplementation (OIS) of all high-risk infants, both breast and formula fed to prevent anaemia, is included following an extensive review of the literature (available from RPHCM website). Preventative OIS is continued to 12 months of age to increase likelihood of adequacy of dietary intake. Folic acid supplementation a review of the literature did not support the addition of folic acid treatment in this protocol. Treatment doses of oral iron updated to align with weight-based dosing recommended by major hospitals such as the Royal Children's Hospital. A quick dose table is provided in the protocol.	Restructured for better identification of prevention and treatment strategies.

Asthma in children	Physical examination added to diagnosis		Added puffer and spacer option to severe asthma For infrequent/intermittent asthma: added low dose inhaled corticosteroid as first line for wheeze for children under 6 years	Children over 12 years directed to adult protocol Emphasis on lung function test if over 6 years
Chest infections-2 months to 5 years			For severe and moderate pneumonia: increased benzathine benzylpenicillin dose from 30mg/kg to 50mg/kg dose (up to 1.2g) For mild pneumonia: increased amoxicillin dose from 25mg/kg to 40mg/kg dose (up to 1.5g)	
Chronic suppurative lung disease and bronchiectasis in children			If allergic to penicillin: cefuroxime replaces cefaclor, azithromycin deleted	Acute episode defined as 3 days in duration
Diarrhoea			For special situations: deleted azithromycin For if signs of sepsis: added ceftriaxone For Giardia: deleted tinidazole option	
Urine problems- 2 months to 12 years	Do medical consult before using urine test as an STI screen		For cystitis: cefalexin replaces amoxicillin-clavulanic	
Infant and child nutrition	Indications child ready for solids	Deleted (moved to WBM) the immediate postnatal period		Protocol separated from Infant and child growth protocol
Child health check (0-5 years)	Special considerations for preterm and low birth weight babies moved into this protocol Updated advice provided on safe co-sleeping, wellbeing, safety and protective behaviours.			Protocol moved to Standard Treatment Manual and updated to reflect national and relevant jurisdictional programs. Early postnatal checks cross-referenced back to postnatal protocols to encourage holistic care of both baby and mother.

Child development concerns (0-5 years)	New protocol developed to provide guidance on timely assessment and referral of child development concerns. Includes information on NDIS.			

Chronic disease

Protocol name	Addition	Deletion	Medicines	Other
Assessing and reducing cardiovascular risk	To high CVR: CKD with eGFR less than 45 or urine ACR more than 25 in males or more than 35 in females			
Coronary artery disease			Ivabradine added to management choices For recurrent angina under risk of/past heart attack: added second line ticagrelor For chest pain: glyceryl trinitrate tablet deleted, spray retained	
Chronic kidney disease				CKD risk now calculated using KDIGO nomenclature BP target updated from 130/80 to 120/80
Diabetes	Check ketones if high BP and/or taking a SGLT-2 inhibitor and unwell HbA1c target for under 18yrs (48mmol/mol or 6.5%) Doctor, nurse practitioner or diabetes educator consult if adjusting insulin dose	Recommendation to start metformin/insulin for children and young people under 18yrs and added to consider starting insulin if under 18 years with type 2 diabetes and HbA1c more than 8.5%	Deleted pioglitazone and glimepiride Added gliclazide Glargine insulin starting dose changed from 12 units to 10units if BMI 25 or less Foot problems linked to soft tissue injuries for antibiotic guidance	BGL targets for random/2 hours after meal adjusted from 4–10mmol/L to 5–10mmol/L
Hypertension (high BP)	Tests for TFTs and CMP		Starting dose of Ramipril reduced from 5mg to 2.5mg	
Adult health check				Moved back to STM. Changed: from 15 years and over to 18 years and over
Combined checks for chronic disease	Added to align with Medicare: GP management plan, patient priorities and self-management plan.	X-ray, O2 sats, spirometry, echocardiogram, from pathology - TSH, BGL		Separated pathology from other checks, updated recall times.

Mental health and drug problems

Protocol name	Addition	Deletion	Medicines	Other
Depression	Hb, HbA1c, B12, Folate, HIV, syphilis added to tests Lifestyle considerations and education	List of non-SSRI/SNRIs Fasting lipids, Ca, ECG, waist circumference		Time taken for antidepressants to take effect adjusted from 2 weeks to 4 weeks
Alcohol withdrawal			Thiamine dose adjusted to daily for first 3 days and increased from 200mg to 300mg Diazepam tapered over 3 days (was 2-3 days)	
Amphetamines and other stimulants		Amphetamine withdrawal table		
Cannabis	Cannabis hyperemesis syndrome Warning re using diazepam for more than one week		Added antiemetic	
Tobacco	NRT initial dosage guideline flowchart		Nicotine spray	
Volatile substance misuse	Medical consult for children's doses of diazepam and olanzapine (children not included previously)			
Psychosis	Minor changes for clarity		Antipsychotic medicines side effect ordered by importance of seriousness	

Sexual health

Protocol name	Addition	Deletion	Medicines	Other
STI checks for men	POC Tests for chlamydia/ gonorrhoea/trichomonas and syphilis Medical consult for PrEP if behavioural risks			Changed highest risk group from sexually active under 19 to under 25
STI management	Mycoplasma to list of conditions		For chlamydia: added to give doxycycline oral for anal infections For gonorrhoea: separated oral from anal (azithromycin oral 2g, anal 1g)	
Genital ulcers and lumps			For genital herpes if pregnant: Valaciclovir replaces acyclovir For genital wart treatment: deleted imiquimod as option	
Penile discharge or dysuria	NAAT for mycoplasma genitalium if ongoing symptoms		If ongoing symptoms caused by another STI: give doxycycline (with metronidazole if trichomonas status unknown) If resistance and amoxicillin given for initial treatment: give azithromycin and ceftriaxone	

General topics

Protocol name	Addition	Deletion	Medicines	Other
Pain management (acute)	Side effects of opioid administration	Table: types of pain Sub-sections on nerve pain and chronic pain	For moderate pain: added combined paracetamol and ibuprofen, and oxycodone	Focus changed from general pain conditions to acute pain
Abdominal pain	Addition of sepsis consideration for complicated gall bladder disease and general peritonitis		Ceftriaxone removed in general peritonitis and bowel obstruction - medical consult instead and cross reference to the Sepsis protocol	Major restructure with separation of causes of abdominal pain requiring and not requiring hospitalisation
Acute rheumatic fever (ARF, RHD)	Table for how long to use Bicillin L-A		Added option to add lignocaine to reduce pain of IM injection Deleted endocarditis prophylaxis except for dental procedures	
Anaemia in adults	Slow push for IV iron		Lower iron dose and alternative day dosing option	
Joint problems	Anti-CCP added to blood test for Rheumatoid arthritis 2010 ACR/EULAR classification criteria for diagnosis		For gout: added option of ibuprofen	
Dementia	Pathology: ERS, CRP, Mg, lipid profile Follow-up Geriatrician, hearing and vision			
Dental and oral problems			For Children: can combine paracetamol and ibuprofen For Periodontal abscess: antibiotics changed from amoxicillin or phenoxymethylpenicillin to amoxiciliin+clavulanic acid or clindamycin if allergic	
Eye problems	Hordeolum (stye) Chalazion			

Ear and hearing problems	Warning signs prompting further referral Note that problems are often asymptomatic Tympanometry		Azithromycin given as option to amoxicillin if compliance an issue For AMOwop: amoxicillin then amoxicillin–clavulanic acid NOW azithromycin or amoxicillin (trimethoprim-sulfamethoxazole if allergic) then amoxicillin–clavulanic Amoxicillin then amoxicillin–clavulanic acid NOW azithromycin or amoxicillin (trimethoprim-sulfamethoxazole if allergic) then amoxicillin–clavulanic AOMwip was amoxicillin with ciprofloxacin ear drops then amoxicillin–clavulanic acid with ciprofloxacin ear drops NOW azithromycin or high dose amoxicillin plus ciprofloxacin or if on high dose amoxicillin	Protocol restructured to align with current OM guidelines as relevant to remote practice
Hepatitis	All Indigenous persons to be checked for Hepatitis once			Altered pathology tests for Hepatitis B
Melioidosis			First line antibiotic changed from ceftriaxone to ceftazidime (if available)	
Asthma in adults			For severe asthma: added to also consider magnesium sulphate IV and to give adrenaline if unresponsive For moderate asthma: add magnesium sulphate IV For ongoing asthma: updated medications for including new	

			combinations and progression	
Chest infections- over 5 years			For Severe pneumonia: ceftriaxone AND azithromycin AND gentamicin have replaced ceftriaxone AND gentamicin only. If IV not possible — give ceftriaxone and gentamicin IM, azithromycin orally. For Mild or moderate pneumonia: added doxycycline to procaine benzylpenicillin; changed alternative if allergic to penicillin from roxithromycin to moxifloxacin. For Sinusitis: removed antibiotics	
Skin infections			For boils: antibiotic only for severe or other specified conditions For cellulitis: trimethoprim-sulfamethoxazole added as first line antibiotic, removed phenoxymethylpenicillin For Severe cellulitis: added probenecid to cefazolin. Added re benzathine benzylpenicillin dose that if dose for RHD given in previous 7 days to do a medical consult.	Drainage is now first line treatment for boils
Water-related skin infections			For moderate infection (fresh water): ceftriaxone changed to trimethoprim-sulfamethoxazole For if soil or sewerage contaminated: added metronidazole For moderate infection (salt water): Low MRSA risk: ciprofloxacin and ceftriaxone (changing from ceft to cefalexin if improvement after 24 hrs)	Moderate infections (salt water) divided into high or low MRSA risk

			High MRSA risk: ciprofloxacin and trimethoprim-sulfamethoxazole	
Chicken pox and shingles			Removed famciclovir as antiviral option	Effectiveness of varicella zoster immunoglobulin (VZIG) extended from 4 days to 10 days
Rashes			For Nappy rash: added trimethoprim-sulfamethoxazole as an alternative to procaine penicillin	
Scabies	Consideration of ivermectin-based mass drug administration (MDA) program		Oral ivermectin added as first option for scabies treatment Removed option of benzyl benzoate 25% lotion mixed with tea tree oil	
Tinea	Medicated shampoo for treatment of tinea capitis			
Sore throat			Seek medical consult if benzathine benzylpenicillin dose for RHD given in previous 7 days	
Urine problems over 12 years			For Possible cystitis in males: antibiotics removed For females: trimethoprim or cefalexin replaced with trimethoprim or nitrofurantoin For Mild kidney infection: trimethoprim or cefalexin replaced with amoxicillin + clavulanic acid	
Warfarin	POC test for INR	Tables - starting doses and dose adjustments		
Worms	Asymptomatic eosinophilia advice and treatment Albendazole advice - do not give to females who are in first trimester of pregnancy (previously do not give if pregnant)		For hookworm and threadworm: repeat doses of pyrantel after 2 weeks For dwarf tapeworm: repeat dose of praziquantel if heavy infection For people with weakened immune system: may need 4 or more doses of ivermectin/extended treatment	

Minor/no changes

Emergencies and assessments

Anaphylaxis- severe allergic reaction Update contents of anaphylaxis kit (syringes)
Bites and stings- snake, spider, centipede and scorpion no major changes
Bites, stings and poisoning- marine Added: pain relief for moderate box jellyfish sting and pressure immobilisation bandage for blue ring octopus bite
Burns Fluid replacement calculation method updated, Indwelling catheter if burns to 10% of body (previously 15%). Palm areas used to estimate extent of burnt skin
Domestic and family violence Added to definition of violence: stalking and online/phone abuse. Added to groups at higher risk: gender and sexually diverse people
Hyperthermia (heat illness) no major changes
Poisoning Added xref to opioid overdose

Child and youth health

Dental care- 6 months to 5 years Added: info on tooth eruption and pain. Updated information on fluoride

Mental health and drug problems

Anxiety no major changes
Kava No major changes
Opioids No major changes

Sexual health

STI checks for young people Added to discuss consent and healthy intimate relationships, protective behaviours

General topics

Bone infection Changed: consider bone infection if pus after 14 days (was 7-14 days)
Sprains and strains No major changes
Eye assessment No changes
Eye Injuries No major changes
Nausea and vomiting no changes
Breathing related sleep disorders no major updates
Chronic obstructive pulmonary disease (COPD) and bronchiectasis in adults no major changes
Tuberculosis Changed BCG information: no longer recommended for newborns or adults in NT, consideration maybe given to newborns and children in high-risk areas or as directed by TB unit
Testicular pain No major changes