Reference document for the Remote Primary Health Care Manuals 2017

Medicines Book for Aboriginal and Torres Strait Islander Health Practitioners 4th edition
This reference document provides the evidence and rationales for the recommendations in the 2017 edition of the Remote Primary Health Care Manuals.

Copyright © 2017 Flinders University through the Centre for Remote Health.

Copying and reproduction
This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported Licence.
You may only copy, distribute, display or perform the work (and make derivative works) subject to the terms of the Creative Commons licence that applies to it (which, among other things, preserves the moral rights of the Remote Primary Health Care Manuals joint venture and imposes obligations of attribution upon users). You may not make use of this work for commercial purposes.
www.creativecommons.org/licenses/by-nc-sa/3.0

Published by the Centre for Remote Health
PO Box 4066, Alice Springs, NT, 0871, Australia
E-mail: remotephcmanuals@flinders.edu.au

dio 10.4226/86/5a9d00bd385 Pdf – online version only.
Contributors
Primary reviewers

Remote Primary Health Care Manuals Editorial Committee
Lyn Byers (chair), Christine Connors, David Atkinson, Frances Vaughan, George Tripe, Kerrie Gell, Lesley Neiwoudt, Margaret Gaff, Nicholas Williams, Peter McCormack, Robbie Charles.
Contents

Bites and stings.............................................................................................................................................. 14
Bites – insect, spider and snake (STM p35)................................................................................................. 14
Immobilising a snake bite (CPM p72)........................................................................................................... 14
Marine bites, stings, and poisonings (STM p94)....................................................................................... 15

Burns .................................................................................................................................................................. 16
Burns (STM p38)........................................................................................................................................... 16

Child health ...................................................................................................................................................... 17
Asthma in children (STM p134).................................................................................................................... 17
Chronic suppuratives lung disease and bronchiectasis in children (STM p131)........................................... 18
School-aged health check (6-14 years) (CPM p121).................................................................................... 19
Providing care for young people (CPM p102) .............................................................................................. 19
Clinical assessment of children (CPM p98)................................................................................................. 19
Anaemia in children (STM p116).................................................................................................................. 22
Babies under 2 months who are sick or have a fever (STM p121).............................................................. 27
Breathing problems in children (STM p123)............................................................................................... 27
Chest infections – 2 months to 5 years (STM p124)................................................................................... 27
Child abuse and neglect (STM p143)............................................................................................................ 29
Child development issues – Fetal alcohol spectrum disorder (STM p152) ................................................. 29
Child development issues – Preterm birth or very low or low birth weight (STM p151).......................... 30
Diarrhoea (STM p165)................................................................................................................................. 30
Ear and hearing problems (STM p177)......................................................................................................... 32
Ear examination (CPM p158)...................................................................................................................... 37
Ear procedures (CPM p164).......................................................................................................................... 37
Infant and child growth and nutrition (STM p154)....................................................................................... 37
Infant feeding guidelines (WBM p234)......................................................................................................... 37
Infant and child growth and nutrition - Obesity (STM p162)....................................................................... 40
Making up oral rehydration salts (CPM p80)............................................................................................... 40
Rashes (STM p403)....................................................................................................................................... 41
Reduction of a tight foreskin (CPM p207) ................................................................. 41
Urine problems – 2 months to 12 years (STM p184) ............................................. 41
Child health check (0-5 years) (CPM p118) ................................................................. 43

Childbirth .................................................................................................................. 48
Labour and birth (WBM p158) .................................................................................. 48
Birth of twins (WBM p53) ......................................................................................... 48
Breech birth (WBM p47) .......................................................................................... 48
Cord prolapse (WBM p42) .......................................................................................... 49
Shoulder dystocia (WBM p44) .................................................................................. 49
Fetal distress in labour (WBM p40) .......................................................................... 49
Preterm labour (WBM p26) ....................................................................................... 50
Premature rupture of membranes (WBM p29) ........................................................... 50
Stopping labour (tocolysis) (WBM p32) .................................................................. 50
Checking the placenta (WBM p169) ....................................................................... 51
Manual removal of placenta (WBM p63) ................................................................. 52
Retained placenta (WBM p178) ................................................................................ 53
Primary postpartum haemorrhage (WBM p58) ....................................................... 54
Bimanual and aortic compression (WBM p62) ........................................................ 54
Uterine inversion (WBM p65) .................................................................................... 54
Episiotomy (WBM p56) ............................................................................................ 55
Tears of the birth canal (WBM p173) ..................................................................... 55
Repairing tears or episiotomy (WBM p176) ............................................................. 55
Resuscitation flowchart (WBM p68) .................................................................... 57
Newborn resuscitation (WBM p70) ....................................................................... 57
Birth and resuscitation equipment (WBM p156) ...................................................... 57

Dental ......................................................................................................................... 58
Oral health messages (STM p335) ........................................................................... 58
Oral and dental problems — 6 months to 5 years (STM p164) ................................. 58
Pain in teeth or gums (STM p335) ............................................................................ 58
Broken jaw (STM p342) ........................................................................................... 58
Dental care procedures (CPM 177) ................................................................. 58
Ulcers (STM p338) ................................................................. 61
Dental trauma (STM p341, CPM 182) .................................................. 62
Protective dental procedures (fluoride vanish) (CPM p173) ............. 63
Dental materials and equipment (STM p176) .................................. 64

**Diabetes** ........................................................................................................... 64
Diabetes (STM p254) .................................................................................. 64
Interpreting results (STM p234) ............................................................... 64
Combined checks for chronic diseases (STM p239) ......................... 64
Diabetes in pregnancy (WBM p118) .......................................................... 66
Feet (CPM p259) ....................................................................................... 66

**Drug problems** ................................................................................................. 67
Alcohol withdrawal (STM p209) .............................................................. 67
Opioids (STM p221) .................................................................................. 68
Tobacco (STM p223) .................................................................................. 68
Amphetamines and other stimulants (STM p214) ............................... 69
Cannabis (STM p218) .................................................................................. 70
Volatile substance misuse (STM p226) ................................................... 71

**Eyes** .................................................................................................................. 72
Checking near and distance vision (CPM p148) .................................. 72
Eye injuries (STM p354) ........................................................................... 72
Eye conditions (STM p346) ................................................................. 74
Eye assessment (STM p343) ................................................................. 79
Eye procedures (CPM p151) ................................................................. 79

**Fertility and contraception** ........................................................................... 79
Unplanned pregnancy (WBM p314) ......................................................... 79
Naming contraceptives (WBM p334) ...................................................... 79
Contraception – general principles (WBM p335) ................................ 80
Long-acting reversible contraception (LARC) (WBM p343) ............... 80
Contraceptive pills (WBM p349) .............................................................. 80
Emergency contraceptive pill (ECP) (WBM p353) .............................................. 80
Barrier contraception (WBM p355) ................................................................. 80
Permanent sterilisation (WBM p358) .............................................................. 80
Termination of pregnancy (WBM p315) .......................................................... 81

Gynaecology .......................................................................................................... 84
Looking after women’s health (WBM p6) ......................................................... 84
Heavy vaginal bleeding (WBM p12) ................................................................. 84
Vulval problems (WBM p305) .......................................................................... 85
Breast examination (WBM p270) .................................................................... 85
Investigating breast problems (WBM p287) .................................................... 86
Screening for breast cancer (WBM p285) ....................................................... 86
Bimanual examination (WBM p278) ................................................................. 87
Menopause (WBM p321) .................................................................................. 88
Polycystic ovary syndrome (WBM p307) ......................................................... 88
Infertility (WBM p309) ..................................................................................... 89
Pregnancy testing (WBM p279) ....................................................................... 90
Urinary incontinence (WBM p318) .................................................................. 90
Pelvic floor exercises (WBM p283) .................................................................. 90
Speculum examination and Cervical Screening Test (WBM p272) ............... 91
Prevention and screening for cervical cancer (WBM p289) ......................... 91
Vault smears (WBM p297) ................................................................................ 91
Colposcopy (WBM p300) ................................................................................ 91
Abnormal vaginal bleeding in non-pregnant women (WBM p301) ............... 91

Hepatitis ............................................................................................................... 91
Hepatitis (STM p363) ....................................................................................... 91
Hepatitis in pregnancy (WBM p144) ............................................................... 93

Infection control ................................................................................................. 93
Personal protection (CPM p312) ..................................................................... 93
Clinical and related waste management in remote areas (CPM p317) ....... 93
Cleaning, disinfecting and sterilising reusable medical equipment (CPM p321) 93
Infectious diseases and skin

Bone infection (STM p306) ................................................................. 94
Chickenpox and shingles (STM p332) ............................................. 95
Melioidosis (STM p375) ................................................................. 95
Scabies (STM p394) ................................................................. 96
Skin examination (CPM p266) ......................................................... 97
Skin infections (STM p387) ............................................................ 98
Tinea (STM p400) ................................................................. 98
Sore throat (STM p407) ............................................................... 100
Tuberculosis (STM p408) ............................................................. 101
Urine problems in pregnancy (WBM p149) .................................... 101
Urine problems - over 12 years (STM p411) ................................ 101
Water related skin infections (STM p392) .................................... 102
Worms (STM p416) ................................................................. 102

Kidney disease

Chronic kidney disease (STM p244) .............................................. 103
Kidney disease in pregnancy (WBM p143) .................................... 103
Continuous ambulatory peritoneal dialysis (CPM p210) ............ 104

Major injuries

Injuries – abdominal and pelvic (STM p64) .................................. 104
Injuries – bleeding (STM p66) ....................................................... 107
Injuries – soft tissue (STM p82) ..................................................... 108
Injuries – chest (STM p68) ............................................................ 109
Chest procedures (CPM p57) ......................................................... 109
Injuries – head (STM p72) ............................................................ 111
Pupil reactions (STM p73) ............................................................ 112
Near hanging (STM p108) ............................................................. 113
Preparation for trauma and emergencies (CPM p28) .................. 114
Immobilising the spine (CPM p64) .............................................. 114
Injuries – spinal: risk and assessment (STM p88) ................. 114
Unconscious person (STM p113) ................................................................. 120
Coma scales (STM p74) ............................................................................. 122

**Medical emergencies** ........................................................................... 123
Abdominal examination (CPM p198) ......................................................... 123
Abdominal assessment and pain (STM p18) .............................................. 123
Anaphylaxis (STM p30) ............................................................................. 124
Chest pain (STM p47) ................................................................................ 125
Early recognition of sick or deteriorating patients (STM p6, WBM p8) .... 127
Fits – seizures (STM p57) .......................................................................... 135
Fits in the second half of pregnancy (WBM p19) ....................................... 135
Headaches (STM p358) ............................................................................ 136
Heat illness (STM p360) ............................................................................ 136
Hypothermia (STM p62) ........................................................................... 137
Low blood glucose (hypoglycaemia) (STM p91) .................................... 138
Meningitis (STM p101) ............................................................................. 139
Nasal packing procedures (CPM p169) ....................................................... 141
Nose bleeds (epistaxis) (STM p110) ......................................................... 141
Nausea and vomiting (STM p104) .............................................................. 141
Poisoning (STM p112) ............................................................................ 142

**Giving medicines** ................................................................................ 142
Giving intravenous medicines (CPM p352) ............................................. 142
Giving iron by IV infusion (CPM p353) ................................................. 142
Giving medicines (CPM p338) ................................................................. 143
6 steps to follow when supplying a medicine (MED p16) ......................... 144
Giving medicines and injections to infants and young children (CPM p351)... 144
Giving injections (CPM p345) ................................................................. 145
Patient education (MED p5) ................................................................... 146
How the medicines protocols are set out (MED p8) .................. 146
Anatomy dictionary (MED p307) ............................................................... 146
Glossary (MED p302) ............................................................................. 146
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting up and managing a remote clinic dispensary (CPM 332)</td>
<td>146</td>
</tr>
<tr>
<td>Storing and transporting vaccines and medicines to remote and rural clinics (CPM p335)</td>
<td>147</td>
</tr>
<tr>
<td><strong>Mental health</strong></td>
<td>147</td>
</tr>
<tr>
<td>Anxiety (STM p196)</td>
<td>147</td>
</tr>
<tr>
<td>Confusion – delirium and dementia (STM p198)</td>
<td>148</td>
</tr>
<tr>
<td>Depression (STM p201)</td>
<td>149</td>
</tr>
<tr>
<td>Loss and grief (CPM p136)</td>
<td>150</td>
</tr>
<tr>
<td>Mental health assessment (CPM p112)</td>
<td>150</td>
</tr>
<tr>
<td>Mental health emergency (STM p192)</td>
<td>151</td>
</tr>
<tr>
<td>Perinatal depression and anxiety (WBM p221)</td>
<td>151</td>
</tr>
<tr>
<td>Psychosis (STM p205)</td>
<td>151</td>
</tr>
<tr>
<td>Suicide risk (STM p207)</td>
<td>152</td>
</tr>
<tr>
<td>Transport person who may become violent (CPM p23)</td>
<td>153</td>
</tr>
<tr>
<td><strong>Musculoskeletal</strong></td>
<td>154</td>
</tr>
<tr>
<td>Reducing dislocated or pulled joints (CPM p244)</td>
<td>154</td>
</tr>
<tr>
<td>Joint problems (STM p369)</td>
<td>156</td>
</tr>
<tr>
<td>Stiff neck (CPM p257)</td>
<td>156</td>
</tr>
<tr>
<td>Using crutches (CPM p242)</td>
<td>157</td>
</tr>
<tr>
<td>Joint sprains (STM p373)</td>
<td>157</td>
</tr>
<tr>
<td><strong>Pathology</strong></td>
<td>158</td>
</tr>
<tr>
<td>Collecting body fluids, viral cultures and skin specimens (CPM p385)</td>
<td>160</td>
</tr>
<tr>
<td>Collecting faeces and parasites (CPM p398)</td>
<td>160</td>
</tr>
<tr>
<td>Estimating kidney function (CPM p401)</td>
<td>160</td>
</tr>
<tr>
<td><strong>Pharmacy</strong></td>
<td>161</td>
</tr>
<tr>
<td><strong>Postnatal</strong></td>
<td>162</td>
</tr>
<tr>
<td>APGAR score (WBM p180)</td>
<td>162</td>
</tr>
<tr>
<td>Newborn needing special care (WBM p76)</td>
<td>162</td>
</tr>
<tr>
<td>Care of normal newborn for first 24 hours (WBM p184)</td>
<td>162</td>
</tr>
<tr>
<td>Keeping baby warm after birth (WBM p182)</td>
<td>163</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Stillbirth (WBM p188)</td>
<td>164</td>
</tr>
<tr>
<td>Care of mother for first 24 hours after birth (WBM p171)</td>
<td>165</td>
</tr>
<tr>
<td>Postnatal care of mother (WBM p195)</td>
<td>166</td>
</tr>
<tr>
<td>Mother’s 6 week postnatal check (WBM p219)</td>
<td>168</td>
</tr>
<tr>
<td>Newborn screening test (WBM p226)</td>
<td>170</td>
</tr>
<tr>
<td>Postnatal care of baby (WBM p228)</td>
<td>171</td>
</tr>
<tr>
<td>Baby’s 6 week postnatal check (WBM p231)</td>
<td>171</td>
</tr>
<tr>
<td>Breastfeeding (WBM p199)</td>
<td>173</td>
</tr>
<tr>
<td>Common breastfeeding problems (WBM p204)</td>
<td>174</td>
</tr>
<tr>
<td>Infections after childbirth (WBM p215)</td>
<td>174</td>
</tr>
<tr>
<td>Secondary postpartum haemorrhage (WBM p212)</td>
<td>175</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>176</td>
</tr>
<tr>
<td>Antenatal care (WBM p88)</td>
<td>176</td>
</tr>
<tr>
<td>Antenatal care in twin pregnancy (WBM p96)</td>
<td>176</td>
</tr>
<tr>
<td>Antenatal checklist (WBM p86)</td>
<td>177</td>
</tr>
<tr>
<td>Antenatal education and planning for birth (WBM p109)</td>
<td>177</td>
</tr>
<tr>
<td>Pre-pregnancy counselling (WBM p84)</td>
<td>178</td>
</tr>
<tr>
<td>Common discomforts of pregnancy (WBM p115)</td>
<td>179</td>
</tr>
<tr>
<td>Antepartum haemorrhage (bleeding in pregnancy) (WBM p14)</td>
<td>180</td>
</tr>
<tr>
<td>Anaemia (weak blood) in pregnancy (WBM p132)</td>
<td>181</td>
</tr>
<tr>
<td>Epilepsy in pregnancy (WBM p140)</td>
<td>183</td>
</tr>
<tr>
<td>Listening to baby’s heart rate (WBM p101)</td>
<td>184</td>
</tr>
<tr>
<td>Measuring fundal height (WBM p98)</td>
<td>184</td>
</tr>
<tr>
<td>Palpating the baby (fetus) (WBM p99)</td>
<td>184</td>
</tr>
<tr>
<td>Obstetric ultrasound (WBM p103)</td>
<td>185</td>
</tr>
<tr>
<td>Testing for fetal abnormalities (WBM p103)</td>
<td>185</td>
</tr>
<tr>
<td>Thromboembolism (blood clots) in pregnancy and postnatal (WBM p138)</td>
<td>185</td>
</tr>
<tr>
<td>Group B Streptococcus (WBM p147)</td>
<td>186</td>
</tr>
<tr>
<td>Prevention</td>
<td>186</td>
</tr>
<tr>
<td>Adult health check (CPM p123)</td>
<td>186</td>
</tr>
<tr>
<td>Procedure</td>
<td>Page</td>
</tr>
<tr>
<td>-----------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Brief interventions (CPM p138)</td>
<td>189</td>
</tr>
<tr>
<td>Health life style choices (CPM p143)</td>
<td>192</td>
</tr>
<tr>
<td><strong>Procedures</strong></td>
<td>193</td>
</tr>
<tr>
<td>Bandaging (CPM p224)</td>
<td>193</td>
</tr>
<tr>
<td>Slings (CPM p227)</td>
<td>193</td>
</tr>
<tr>
<td>Splinting (CPM p229)</td>
<td>193</td>
</tr>
<tr>
<td>Plaster of Paris slabs (CPM p234)</td>
<td>193</td>
</tr>
<tr>
<td>Taking off a cast (CPM p240)</td>
<td>193</td>
</tr>
<tr>
<td>Clinical assessment of adults (CPM p94)</td>
<td>194</td>
</tr>
<tr>
<td>Clinical measurements (CPM p105)</td>
<td>194</td>
</tr>
<tr>
<td>Injuries to fingers (CPM p270)</td>
<td>195</td>
</tr>
<tr>
<td>Injuries to fingernails and toenails (CPM p273)</td>
<td>195</td>
</tr>
<tr>
<td>Closing a wound (CPM p292)</td>
<td>195</td>
</tr>
<tr>
<td>Taking out sutures and staples (CPM p292)</td>
<td>195</td>
</tr>
<tr>
<td>Examining and cleaning a wound before closing (CPM p287)</td>
<td>195</td>
</tr>
<tr>
<td>Giving local anaesthetic before closing a wound (CPM p289)</td>
<td>195</td>
</tr>
<tr>
<td>Nerve blocks — hands and feet (CPM p305)</td>
<td>195</td>
</tr>
<tr>
<td>Ring blocks — digital (finger, thumb, toe) (CPM p305)</td>
<td>195</td>
</tr>
<tr>
<td>Cutting and draining an abscess (CPM p268)</td>
<td>195</td>
</tr>
<tr>
<td>Female catheterisation (WBM p281)</td>
<td>196</td>
</tr>
<tr>
<td>Male catheterisation (CPM p205)</td>
<td>196</td>
</tr>
<tr>
<td>General wound assessment and wound dressings (CPM p277)</td>
<td>196</td>
</tr>
<tr>
<td>Mouth and throat examination (CPM p172)</td>
<td>197</td>
</tr>
<tr>
<td>Recording in the file notes (CPM p116)</td>
<td>197</td>
</tr>
<tr>
<td>Rectal examination (CPM p203)</td>
<td>198</td>
</tr>
<tr>
<td>Removing a tick (CPM p275)</td>
<td>198</td>
</tr>
<tr>
<td><strong>Remote Context</strong></td>
<td>200</td>
</tr>
<tr>
<td>Assessing or treating someone in custody (STM p40)</td>
<td>200</td>
</tr>
<tr>
<td><strong>Respiratory disease (adult)</strong></td>
<td>201</td>
</tr>
<tr>
<td>Lungs and respiratory system examination (CPM p186)</td>
<td>201</td>
</tr>
</tbody>
</table>
Asthma in adults (STM p323) ................................................................. 201
Breathing problems in adults (STM p307) ........................................... 202
Chest infections – over 5 years (STM p309) ........................................... 202
Chronic lung disease in adults (STM p314) ........................................... 202
Breathing related sleep disorders (STM p330) ...................................... 202
Inhalation devices for respiratory medicines (CPM p360) ..................... 203
Spacer devices for respiratory medicines (CPM p364) ........................... 203
Chest physiotherapy (CPM p194) .......................................................... 204
Resuscitation ...................................................................................... 205
Life support - DRS ABC (STM p10)...................................................... 205
Oxygen flow rates (Giving oxygen protocol) (CPM p355) ...................... 206
Resuscitation reference table (STM p16) ............................................. 209
Clinical observation table (STM p422, WBM p362) .............................. 209
Assessing trauma - Primary and secondary survey (CPM p35) ............... 215
Keeping airway open and assisting breathing (CPM p44) ....................... 218
Advanced airway management (CPM p49) ........................................... 219
Putting in IV cannula (CPM p84) ......................................................... 220
Putting in IV butterfly (CPM p86) ......................................................... 220
Putting in IO needle (CPM p88) ........................................................... 221
Putting in a nasogastric tube (CPM p81) .............................................. 221
Choking (CPM p62) ............................................................................ 221
Rheumatic ......................................................................................... 222
Rheumatic fever and heart disease (STM p294) ..................................... 222
Rheumatic heart disease in pregnancy (WBM p136) ............................. 223
Warfarin (STM p299) ......................................................................... 223
Sexual health ..................................................................................... 225
STI management for women (WBM p245) ........................................... 225
Abnormal vaginal discharge (WBM p253) ............................................ 225
STI checks for men (STM p272) .......................................................... 227
STI checks for women (WBM p238) ..................................................... 227
STI management (STM p278) ................................................................. 229
STI management for women (WBM p245) .............................................. 229
Abnormal vaginal discharge (WBM p253) ............................................. 229
Discharge from penis or pain on passing urine (STM p286) ................... 229
Genital ulcers and lumps (STM p288, WBM p256) ................................. 229
Painful scrotum (STM p384) ................................................................. 229
Pelvic inflammatory disease (WBM p260) ............................................. 229
STIs in pregnancy (WBM p241) ............................................................ 229
STI checks for women (WBM p238) ...................................................... 229

**Palliative and supportive care** ............................................................ 232
Palliative Care (CPM p133) ................................................................... 232
Disability (CPM p131) .......................................................................... 232
Pain management (STM p377) ............................................................... 232

**Vascular disease** ............................................................................. 242
Interpreting results (STM p234) ............................................................ 242
Anaemia in adults (STM p303) .............................................................. 242
Assessing and reducing cardiovascular risk (STM p230) ....................... 243
Abnormal blood fats (STM p242) .......................................................... 243
Coronary artery disease (STM p250) ..................................................... 243
Heart failure (STM p264) ..................................................................... 244
High BP (hypertension) (STM p268) ..................................................... 246
Severe pre-eclampsia (WBM p21) ......................................................... 246
High BP (hypertension) in pregnancy (STM p127) .................................. 247

**Violence and assault** ....................................................................... 248
Sexual assault in adults (WBM p327, CPM p73) .................................... 248
Domestic and family violence (STM p54, WBM p324) ........................ 248
**Bites and stings**

**Bites – insect, spider and snake (STM p35)**

**Immobilising a snake bite (CPM p72)**

*Primary reference*


*Additional references*

**Snakebite**


**Scorpion bite**


**Redback spider venom**


Comment: There is no evidence that IM antivenom will be absorbed rapidly, we have published and demonstrated that IM redback spider antivenom is still not in the circulation after 5 hours

Centipede bite

Whole blood clotting time in snake bites

Marine bites, stings, and poisonings (STM p94)

Primary reference
Additional references


Comment: Evidence summary is much more comprehensive with multiple references compared to the guideline.

http://www.uptodate.com/contents/jellyfish-stings


Comment re new evidence: Currently there is in vitro laboratory work that is suggesting acetic acid can stimulate nematocyst discharge and therefore potentially worsen envenoming. But this has not yet been published.

Burns

Burns (STM p38)

Primary references


**Chronic suppuratives lung disease and bronchiectasis in children (STM p131)**

*Primary reference*

School-aged health check (6-14 years) (CPM p121)
Providing care for young people (CPM p102)
Clinical assessment of children (CPM p98)

**Primary references**


Additional references


Context specific references

http://ccde.menzies.edu.au/sites/default/files/resources/EarlyChildhoodDevelopmentintheNT.PDF


20. AIMhi mental health assessment form. Darwin: Menzies School of Health Research; 2006. Available from: 
https://www.menzies.edu.au/page/Resources/Mental_health_assessment_form/


22. NACCHO/RACGP. National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people. 2nd ed. South Melbourne: The RACGP; 2012. 
Anaemia in children (STM p116)

Suggested research

- Effectiveness of supervised weekly oral iron treatment in the remote Aboriginal setting.
- Micronutrients besides iron that contribute to iron deficiency anemia, and may contribute to treatment failure.
- Translational research that will assist in improving adherence to anaemia guidelines.
- Safety of IV ferinject for children. Currently product information limits administration to over 14, but there are papers describing safe use in young children with renal failure and cancer.

Primary reference


Additional references


Version of Record online: 22 DEC 2016 DOI: 10.1111/ped.13174


Context specific references

24. Ferguson H. Prevention of Anaemia and Growth Faltering in Young Children in Remote NT. Child Youth Health Strategy Unit, Department of Health NT. 2014
Controlled document, available on request. Not peer reviewed. Expert
opinion – context specialist.


Babies under 2 months who are sick or have a fever (STM p121)

Primary reference


- Comprehensive review of clinical signs deemed important in recognising the sick infant (traffic light system= a quick visual tool based on signs and symptoms that stratify a patient as low risk (green column), intermediate risk (amber) and high risk (red). This guideline is also designed to be used by non-paediatric practitioners or clinicians taking a phone call (this is deemed as ‘remote’) as a tool to decide when to seek specialist opinion in the UK setting.
- Do not prescribe oral antibiotics to infants with fever without an apparent source.
- If antibiotics are indicated for under 2months of age without a clear source of infection, a third generation cephalosporin (ceftriaxone) plus a penicillin active against listeria should be given.

Breathing problems in children (STM p123)

See Asthma in children AND Chronic suppurative lung disease and bronchiectasis in children

Chest infections – 2 months to 5 years (STM p124)

Primary references


Additional references

Context specific references


Child abuse and neglect (STM p143)

Primary reference

Additional reference

Child development issues – Fetal alcohol spectrum disorder (STM p152)

Suggested research

Primary references
   https://depts.washington.edu/fasdpn/htmls/4-digit-code.htm
   Comment: Best researched and widely published guideline currently available. Canadian guidelines also exist and validated but this guideline is the basis of both the Canadian and soon to be published (validation of) Australian guidelines.

2. Expert opinion – context specialists:
   a) Dr Deborah Fearon (FRACP, DTMTH) Paediatrician and Senior lecturer in rural and remote health medicine, Alice Springs Hospital/Flinders University
   b) Professor David Atkinson, Head of the Rural Clinical School of WA, Broome.
Child development issues – Preterm birth or very low or low birth weight (STM p151)

Primary references


3. Expert opinion – context specialist: Dr Deborah Fearon (FRACP, DTMTH) Paediatrician and Senior lecturer in rural and remote health medicine, Alice Springs Hospital/Flinders University.

Diarrhoea (STM p165)

Primary references


   http://apps.who.int/iris/bitstream/10665/43209/1/9241593180.pdf

Comment:
The guideline written by Guarino et al. is of high quality. It utilises the GRADE approach for assessing evidence quality and informing the
strength of its recommendations. The previous version has been assessed using the AGREE tool in two separate papers, both of which recommended its use clinically (see below for references). The newest version has implemented the GRADE system and taken into account most of the latest evidence, which is why it was chosen for use here instead of the NICE guideline published in 2009.


Additional references


  https://www.nice.org.uk/advice/esuom34/chapter/Key-points-from-the-evidence


Ear and hearing problems (STM p177)

Suggested research

• Comparing the efficacy of amoxicillin and Augmentin for AOM  
  o There are few RCTs looking at antibiotics in treatment of AOM – these trials are heterogenous in participants, treatment regimens and outcome measures therefore coming to strong evidence based conclusions with systematic reviews etc is difficult. While most guidelines recommend Augmentin as the antibiotic of choice after initial treatment failure with amoxicillin, there have been no studies comparing the efficacy of Augmentin vs higher dose amoxicillin. Augmentin is associated with higher rates of side effects (mainly diarrhoea) and is broad spectrum therefore there is risk of building antibiotic resistance. These guidelines recommend Augmentin due to the epidemiology and microbiology of middle ear effusions, with the theory that if initial therapy with amoxicillin fails then the pathogen may be a beta lactamase producing H. influenza (for example). S. pneumonia resistance and intermediate resistance is relatively uncommon in Australia but can be treated with higher dose Amoxicillin – which is what we recommend as second line
Determining the local resistance pattern is in theory very important however, in reality very few samples of middle ear effusion are taken to see which pathogens are present.

- The use of povidine iodine syringing in CSO
- Very little research / trials into CSOM and treatment choices and efficacy.

Primary references


people-2.pdf


Comment:
Prevention Strategies
- Vaccinations- Pneumococcal-vaccine as per the National Immunisation Program Schedule. Flu vaccination for more than 6 months is also recommended – has been shown to reduce the incidence of AOM as a secondary complication of influenza.

Diagnosis: AOM and OME
- There is no gold standard for the diagnosis of AOM, and AOM has a spectrum of signs and symptoms – there needs to be a clear definition of AOM to accurately distinguish between AOM and OME.
- America Academy of Pediatrics (reference 2) in this update have chosen criteria based on recent evidence to achieve high specificity (recognising that the reduced sensitivity may exclude less severe presentations of AOM).
- It is important to distinguish between OME and AOM as OME is not an acute infectious process and thus does not warrant the use of
antibiotics therefore being able to distinguish normal middle ear structures and OME from AOM will avoid the unnecessary use of antibiotics which leads to increased adverse effects of medication and facilitates antimicrobial resistance.

- Pneumatic otoscopy is the standard tool for diagnosing OM – if the child presents with severe pain avoid this.
- Moderate to severe bulging of the tympanic membrane represents the most important characteristic in the diagnosis of AOM
- Some studies have shown only 50-60% of children with AOM experience pain – in our Indigenous population anecdotal evidence suggests a majority of kids are asymptomatic with AOM (absence of pain or systemic symptoms) which means diagnosis is often missed – hence as recent studies have shown, the importance of viewing the tympanic membrane and looking for bulge or middle ear effusion.
- And the concept of ‘Every child, every ear’ ie opportunistic examination.

Otitis Externa
- First step should be analgesia – can be exquisitely painful.
- Aural toilet or tissue spears to clear out debris.
- Otowick (compressed cellulose) soaked in topical antibiotic + steroid is generally needed in severe OE, where the external auditory canal is oedematous and narrowed. It provides a delivery system of antibiotic to the end of the external auditory canal. If not severe, ear drops can be directly instilled – pump on tragus (if not too painful). This is different to the gauze ‘wick’ that the ‘ear procedures’ manual talks about. (NB ear wicks such as otowick have since been added to the CPM).
- Dry ear precautions for 2 weeks.

Additional references


20. Thanaviratananich S, Laopaiboon M, Vatanasapt P. Once or twice daily versus three times daily amoxicillin with or without clavulanate for the treatment of acute otitis media. Cochrane Database Syst Rev.


Comment:
Most of the evidence in the above guidelines and reviews have been updated and published in the last 5 years and include the primary studies that are new to the literature. 

The new systematic reviews and primary studies published in the past year or two have not added any changes to the evidence in the existing literature, rather they support the current guidelines.

Ear examination (CPM p158)
Ear procedures (CPM p164)

Primary references

2. Sydney Tafe. Audiometry: otoscopy [Internet]. Available from: 
http://audiometry.sydneyinstitute.wikispaces.net/otoscopy


Infant and child growth and nutrition (STM p154)
Infant feeding guidelines (WBM p234)

Suggested research
• Systems approaches for early identification and management of growth faltering in the remote Indigenous context
• The effectiveness of routine child growth monitoring, combined with health and nutrition promotion on measureable health outcomes such as anthropometric indicators of nutrition, health service use, nutritional behaviour and knowledge
• Use of supplement drinks for nutritional repletion/catch-up growth with undernourished children in the NT remote context. Research should focus on measuring regimen compliance and outcomes
• Evidence around catch up length/height after 2 years of age with stunted children

Primary references

Comment:
The revised NHMRC Infant Feeding Guidelines (2012) provide stronger evidence for recommending exclusive breastfeeding until around six months of age. At around six months of age, the guidelines recommend that iron rich complementary (solid) foods are introduced, with increasing textures until around 12 months when most family foods are suitable. These guidelines complement other International guidelines (eg WHO, UNICEF, American Academy of Paediatrics, Infant Feeding Joint Working Group, Canada) in the developing and developed world. The guidelines are intended for healthy, term infants of normal birth weight (more than 2500g). Individualised care is recommended for high risk infants, eg low birth weight/preterm.

Additional references

three months to five years. Cochrane Database Syst Rev. 2015(3):CD009924.

Comment:
- Supplementary feeding showed positive effects on growth in low- and middle-income countries. Supplementary food was generally more effective for younger children (under two years of age) and for those who were poorer/less well-nourished
- Meta-analysis of the RCTs showed that supplemented children gained an average of 0.12 kg more than controls over six months (95% confidence interval (CI) 0.05 to 0.18, 9 trials, 1057 participants, moderate quality evidence). For height, meta-analysis of nine RCTs revealed that supplemented children grew an average of 0.27 cm more over six months than those who were not supplemented (95% CI 0.07 to 0.48, 1463 participants, moderate quality evidence)
- When feeding was given at home, children benefited from only 36% of the energy in the supplement. However, when the supplementary food was given in day cares or feeding centres, there was less leakage; children took in 85% of the energy provided in the supplement

Context specific references

Comment:
- While potentially outside the scope of RPHCM, this review highlights the need for improvements in clinical governance and accountability to reduce the prevalence of underweight, stunting and wasting across the NT.
- This will require improving the coverage (identification), compliance (treatment) and timeliness of HU5K growth checks and better targeting of vulnerable groups (eg LBW infants, children under 2 years of age) with appropriate follow up.

**Infant and child growth and nutrition - Obesity (STM p162)**

*Primary reference*


**Making up oral rehydration salts (CPM p80)**

*Primary reference*


*Comment:*

- This is the only study we could find that directly measured and compared the osmolarities of different ORS compositions. It is a small study and its results are interpreted with caution as there was a range of osmolarities for each formula with varying concentrations of salt and glucose.
- However, based on total osmolarity of the solution, it appears that formula D is most suitable. It contains 1/2 a level teaspoon of salt and 8 level teaspoons of sugar. The mean teaspoon volume for formula D was 3.5 mL.
- We recognise that due to the varying teaspoon size this recommendation is subject to error depending on what utensils the maker of the ORS has access to. A standard measuring teaspoon is normally 5mL, which if used may significantly alter the composition.
Rashes (STM p403)

Primary reference

Additional reference
2. DermNet New Zealand [Internet]. Available from: https://www.dermnetnz.org/

Reduction of a tight foreskin (CPM p207)

Primary references


Urine problems – 2 months to 12 years (STM p184)

Primary references


Glomerulonephritis
3. Centre for Disease Control. Northern Territory guidelines for acute

Additional references


Comment re UTI:
- Do not need to do renal US for every first episode of UTI in children over 6 months of age
- Possible alternate method of urinary collection in children before the age of being able to void on request – article attached- might be helpful to condense into dot points and add pictures as an appendix for ease of use. Anecdotal evidence is that is does work even in girls, and in children a few months old as well. Worth a try before doing a more invasive method. Also means one does not send people away with a pot asking them to collect urine.
- Dipstick readings – important to wait the 2 minutes as it colour change may occur late and if read too early would lead to a wrongly read negative.

Comment re Glomerulonephritis:
- BP reference values- important to use correct chart to avoid unnecessary treatment with anti-hypertensives. I would strongly recommend attaching the charts as an appendix so that they are easily on hand when needed.
- Treatment of BP. At 5mmhg+99th centile for age and height (grade 2 hypertension) for treatment, not 95th- as above.
- APSGN is a self-limiting disease requiring adequate treatment of hypertension (which is due to fluid overload) and one should not over-treat.
Follow-up: there is no advantage to weekly or twice weekly urine tests. Once BP has returned to normal, does not need frequent checking either.

Need to check at 12 weeks – for return of C3 and C4 blood tests to normal, check urine for clearance of microscopic hematuria and repeat BP.

**Child health check (0-5 years) (CPM p118)**
(previously Child growth and development)

_Suggested research_

Screening tools that have been determined to be diagnostically accurate (specificity and sensitivity) for Aboriginal and Torres Strait Islander children under 5 years is lacking. However, there are a number of validated screening tools available for other populations. In addition, there are a number of guidelines available in Australia for Indigenous and non-Indigenous children yet the evidence for programs is lacking for:

1. What is the best screening tool to use for rural and remote Aboriginal children (i.e. Valid, reliable, sensitive and specific)
2. At what age is best to use these screening tools
3. Should all children receive a screening tool compared to surveillance where the latter is the process of recognising a child who may be at risk of development delay. This is completed within routine care and may involve watching the child to see if they are meeting their milestones, or a small checklist of one-liners’ that identify development milestones for a child’s age
4. If using surveillance what ‘checklist’ or ‘one-liners’ should be used for each area of development.

Research is currently being conducted for the first point by Anita D’prano’s group with validation of the ASQ-TRAK (adapted ASQ for remote Aboriginal children) underway.

Question 2 – there has been no evidence yet to determine at what age is the best to provide screening tools or whether screening tool should be applied at all ages when completing the child health assessment. Currently this is determined by country specific policy and their accompanying guidelines.
Question 3 will be determined by the primary reviewers of this guideline (Child growth and development) with a Cochrane review currently being completed to determine the clinical and cost effectiveness of standardised screening and case finding tools in improving identification of neurodevelopmental delay in children aged under 5 years. Question three will be determined by the authors of this guideline with a Cochrane review currently being completed to determine the clinical and cost effectiveness of standardised screening and case finding tools in improving identification of neurodevelopmental delay in children aged under 5 years.

The final question (4) is currently based on expert opinion, no evidence is provided in the Evidence Review below for this part of the child development assessment.

**Screening tools**

Primary references


   http://www.health.gov.au/internet/main/publishing.nsf/content/AFF3C1C460BA5300CA257BF0001A8D86/$File/NFUCFHS.PDF

https://publications.qld.gov.au/dataset/chronic-conditions-manual/resource/bbe5439c-be87-45b6-b704-3b557fbee1e0


Comment:  
We have looked through the guidelines above and mapped the sections of child development to the screening tools discussed and the resources that support the use of these tools. The evidence provided for these is largely based on consensus, usual practice, expert opinion, or case series. There is no consensus between guidelines for which screening tools to provide, at what ages to provide them and what one-liners are used.

The AAP Guidelines discusses that screening tools with a sensitivity and specificity of 70%-80% would be deemed acceptable for developmental screening tests and that choosing appropriate screening tools for the population being assessed is appropriate. There has yet to be a consensus in what is an acceptable screening tool for Australian Aboriginal children, however, current research is being completed on an adapted Ages and Stages Questionnaire for remote Aboriginal children.

Comment re new evidence:  
Currently the ASQ-TRAK is being validated and a Cochrane review is
currently being completed to determine the clinical and cost effectiveness of standardised screening and case finding tools in improving identification of neurodevelopmental delay in children aged less than 5 years. Therefore there are no changes being recommended.

It is likely that the next RPHCM version will have changes recommended based on current research being completed.

Comment re Indigenous/remote context

Currently the ASQ-TRAK is being validated with rural and remote Aboriginal children. It is likely that the next RPHCM version will have changes recommended based on current research being completed.

Anticipatory guidelines

Suggested research

Anticipatory guidance, defined as information provided to families to encourage optimal child health and developmental outcomes, plays a fundamental role in primary health care prevention. This information can empower parents to nurture their child’s development at a time when early experiences shape social, emotional and cognitive trajectories. In our current societal structure, where parents are not always supported by role models, the role of the primary care practitioner (PCP) in providing this information becomes paramount. However, there is evidence that anticipatory guidance is not only inconsistently provided by PCPs, but also inconsistently retained by families. In this current climate, where there is pressure to deliver health services as effectively and efficiently as possible, there is a great need to improve the delivery of anticipatory guidance from PCPs to families. Currently there are a number of anticipatory guidance topics available. These are:

- Transition to parenthood
- Settling babies
- Supporting fathers
- Breastfeeding
- SIDS prevention
- Introducing solids
- Mother’s physical needs
- Exercise
- Family mental health
- Vaccination
- Child behaviour
The most appropriate information to provide on each of these topics is likely to be covered in each individual section of the RPHCM guidelines (where available). As is when the information should be provided to the family. For example, exclusive breastfeeding until 6 months is the recommended practice. This part of the guideline is to determine the most effective way of delivering information to parents for anticipatory guidance (eg verbally, DVD or handouts).

**Primary references**


**Comment:**
Both systematic reviews although valid at the time are currently out of date. Overall, anticipatory guidance about parent-child interaction, infant sleep patterns, injury prevention, and reading at home has been associated with improved functional outcomes of children. Topics on injury prevention and promotion of reading at home were supported by the best quality evidence. However, many studies have looked at outcomes such as parent knowledge, understanding and behaviour rather than supported by long term improvements in a child’s health and well-being.

Researchers at Princess Margaret Hospital and NHMRC Centre for Research Excellence Improving health services of Aboriginal and Torres Strait Islander children (ISAC) have submitted in the Learning and
Development group a systematic review entitled ‘Interventions for the delivery of anticipatory guidance in child health and development by primary care practitioners’. The aim of this review will be to determine the effectiveness of interventions to improve the delivery of anticipatory guidance in child health and development for primary care practitioners.

**Childbirth**

**Labour and birth (WBM p158)**

**Birth of twins (WBM p53)**

*Primary references*

   https://www.nice.org.uk/guidance/cg190/chapter/1-recommendations#care-throughout-labour


**Breech birth (WBM p47)**

*Primary reference*

Cord prolapse (WBM p42)

*Primary reference*


*Additional reference*


*Comment re Indigenous/remote context*

RCOG Green-top Guideline states for optimal management in community settings during emergency ambulance transfer, the knee–chest position is potentially unsafe and the exaggerated Sims position (left lateral with pillow under hip) should be used.

Shoulder dystocia (WBM p44)

*Primary reference*


Fetal distress in labour (WBM p40)

*Primary reference*


*Comment:*
The guideline is a high quality review of intrapartum care from the UK which describes evidence based care for low risk women in the home or hospital setting.
**Context specific references**


   http://www.cochrane.org/CD002255/PREG_calcium-channel-blockers-for-inhibiting-preterm-labour-and-birth

**Comment re Indigenous/remote context**

In a remote context, where transfer is required to a hospital setting, tocolysis may have a more important role in managing fetal distress and allowing transfer or delaying delivery until more assistance is available.

**Preterm labour (WBM p26)**

**Premature rupture of membranes (WBM p29)**

*Primary reference*


**Stopping labour (tocolysis) (WBM p32)**

*Primary references*


   http://www.cochrane.org/CD002255/PREG_calcium-channel-blockers-for
inhibiting-preterm-labour-and-birth


Checking the placenta (WBM p169)

Primary references


Additional references


Comment re Indigenous/remote context

Being observant for signs and symptoms of infection may be more important in the Indigenous health context due to a higher risk of
infection. If signs/symptoms present, ensure swabs of placenta are sent, and possible histology.

**Manual removal of placenta (WBM p63)**

*Primary references*


*Comment:*

- Medicines san Frontiers guideline – description of procedure consistent with current RPHCM.

- eTG (Antibiotic) – does not provide guidance on use of prophylaxis for MROP or post-partum intrauterine procedures. It recommends cephazolin 2g IV for caesarian prophylaxis and for vaginal approach for hysterectomy it recommends metronidazole 500mg IV.

- RDH Guideline : no description of procedure but recommend catheterisation, Oxytocin infusion 40 units in 500ml Hartmann’s @125ml/hr, cephazolin 1g and metronidazole 500mg.

(Primary reviewer noted: unable to find any high quality guidelines specifically relating to the procedure of Manual Removal of Placenta).

*Additional references*

   (Available to RDH staff only)


*Comment re Indigenous/remote context*

All guidelines recommend transfer to hospital for retained placenta and bleeding for MROP in theatre. Nevertheless if the woman’s life is in danger then manual removal in the remote setting without adequate anaesthesia (GA, regional) is supported by above guideline.

### Retained placenta (WBM p178)

*Primary references*


*Additional references*


*Comment:*

Objective: To assess the effectiveness and safety of pharmacologic interventions for the treatment of retained placenta (when the placenta remains undelivered after 30 minutes of active management of the third stage of labor).

Authors' conclusion: There is no robust evidence currently to support the use of pharmacologic interventions for the treatment of retained placenta. When retained placenta is diagnosed, outside of a research...
context, immediate manual removal of the placenta should be considered.

This is consistent with the NICE guidelines assuming that the diagnosis of retained placenta is following ‘active management’ of the third stage.

**Primary postpartum haemorrhage (WBM p58)**

**Bimanual and aortic compression (WBM p62)**

**Uterine inversion (WBM p65)**

*Primary references*


*Additional references*


Comment re Indigenous/remote context
Recommendations from the primary references targeted at hospital interventions are not included in the review.

Episiotomy (WBM p56)

Primary reference

Tears of the birth canal (WBM p173)

Primary reference

Additional reference

Repairing tears or episiotomy (WBM p176)

Primary references
http://guidance.nice.org.uk/cg190


Additional references


**Resuscitation flowchart (WBM p68)**

**Newborn resuscitation (WBM p70)**

**Birth and resuscitation equipment (WBM p156)**

*Primary references*


   
   b. ANZCOR Guideline 13.3 - Assessment of the newborn infant; January 2016.
   
   c. ANZCOR Guideline 13.4 - Airway management and mask ventilation of the newborn infant; November 2016
   
   d. ANZCOR Guideline 13.6 - Chest compressions during resuscitation of the newborn infant; January 2016
   
   e. ANZCOR Guideline 13.7 - Medications or fluids for the resuscitation of the newborn infant; January 2016
   
   f. ANZCOR Guideline 13.9 - After the resuscitation of a newborn infant; January 2016

Dental

Oral health messages (STM p335)
Primary reference

Comment re Indigenous/remote context
There is the potential to expand the information regarding oral health issues for people with conditions of high prevalence in remote communities. These conditions include, but are not limited to diabetes, rheumatic heart disease, and kidney disease.

Oral and dental problems — 6 months to 5 years (STM p164)
Primary references


Pain in teeth or gums (STM p335)
Broken jaw (STM p342)
Dental care procedures (CPM 177)
including Lancing a pointing abscess, Problems after tooth extraction, Bleeding tooth socket
Primary references
current remote manual is covered in several different chapters in the Therapeutic Guidelines: Oral and Dental. These chapters include; p55 Periodontal Disease, p61 Acute odontogenic and salivary gland infections, p91 Orofacial pain, 127 Post treatment pain management, p191 Management of dental problems for medical practitioners (which includes guides to diagnosing acute dental pain and common presenting problems in table format).

   **Comment:** See Ch 10 Maxillofacial surgery, p492 Mandibular fractures

   **Comment:** This study describes the differential diagnosis of toothache, highlighting that not all 'toothache' is of dental origin. Correct diagnosis is essential. It includes useful descriptions and tables of diagnostic categories of odontogenic (tooth related) and non-odontogenic orofacial pain.

   The key practical issue in dealing with 'toothache with a hole in the tooth' is firstly a cooperative patient, and whether or not a temporary cover over the hole/cavity is indicated. As noted above in the Therapeutic Guidelines reference (pp192-193), covering an obvious cavity may be indicated in cases of reversible and irreversible pulpitis.  
   
   A temporary covering of a hole in a tooth is of itself, no therapeutic benefit if the nerve/pulp of the tooth has died (save reducing discomfort of sharp edges and/or food trapping), and may in fact exacerbate symptoms of an infected dental pulp by potentially blocking drainage of pus or exudate via an open pulp chamber.  
   
   Where a temporary filling of a hole in a tooth is indicated, it may take the form of proprietary dental materials formulated for straightforward use 'out of the jar' (eg Cavit), or if such material is not available, an inert material such as chewing gum may be useful. A plug of cotton wool in a
cavity can also be useful to temporarily reduce the discomfort of sharp edges of a cavity that may be irritating or cutting the cheek.

There are authoritative dental textbooks describing principles of restoration of teeth (eg Preservation and Restoration of Tooth Structure, 2nd Edition, Mount GJ, Hume WR, Knowledge Books and Software, Sandgate, Queensland, 2005.) In a context of limited access to dental care, it is ideal for health staff to remove any debris from the cavity (eg warm saline syringe, cotton pellets used with tweezers etc) as described on page 206 in the 3rd edition of Clinical Procedures Manual (NB on page 177 or the current edition). The temporary filling may then be placed using a gloved finger, ideally into a tooth cavity with undercuts to effect retention.

**Context specific references**

**Comment:** A letter (expert opinion) to Australian Prescriber on the issue of antibiotics and access to dental care

**Comment:** Notes (in a section primarily for rural or remote areas, where access to timely dental care may be difficult) that, ‘Treatment with antibiotics alone, without active dental treatment, can lead to more severe episodes of acute odontogenic infection with risk of airway compromise’.

**Comment:** ‘Antibiotics should be considered only when the infection has spread beyond the jaws and has produced facial swelling, or when there are systemic symptoms and fever. ... Antibiotics should not be used for dental pain, pulpitis or infection localised to the teeth or to delay providing dental treatment’

**Comment re Indigenous/remote context and the above references**

It is therefore proposed that the use of antibiotics in treatment of Dental and Oral problems requires specific qualification in the guidelines under review, consistent with the current Therapeutic Guidelines advice.
Comment re Indigenous/remote context

It is self-evident that suitable management of presenting clinical problems must be based upon appropriate clinical assessment and diagnosis. This is emphasised by the ADJ study of Linn and Trantor (reference 7).

As is apparent from the preceding discussion, in the case of 'Toothache from a hole in a tooth', placing a filling in a tooth is not necessarily the most appropriate initial management. Diagnosis of the nature of the 'toothache' is a necessary precursor to appropriate primary dental care.

It is suggested that a table format of A Guide to assessing and diagnosing common dental problems with recommended primary dental care will be a more effective and efficient clinical tool for non-dental staff to utilise.

Where clinical dental procedures complementing the diagnostic tables might require further detailed description to (eg placing a temporary filling, administering a local anaesthetic, analgesia etc), these can be described similarly to that as currently exists in the CPM. This could be under the heading: A Guide to dental treatment procedures. Both the Guides to assessment and procedures would benefit from an index at the beginning of the Dental section of the manual, as well as in the main Index of the Manual.

Ulcers (STM p338)

Primary reference

Comment: Ulcerative conditions are covered as a component Therapeutic Guidelines chapter on ‘Oral Mucosal Disease' pp71- 90. There is a useful classification of the broad groups (traumatic, infective, dermatological, neoplastic, and other) as well as a description of common conditions and their management. It includes reference to Medications in dentistry supplement. Aust Dent J 2005;50(4 Suppl 2):S1-81.

Additional reference

Comment re Indigenous/remote context

- Oral ulceration as a result of trauma is common (eg sharp/hot foods, sharp/broken tooth/filling, aspirin burn). In remote communities, it also commonly presents in association with native tobacco use, where the tobacco/ash quid in prolonged contact with the labial or buccal oral mucosa may result in a localised keratosis and associated ulceration.

- It is accepted that smokeless tobacco (including chewing tobacco and snuff) presents a risk for oral cancer however there do not appear to be any studies in the Indigenous Australian context. Nevertheless, smoking, excessive alcohol consumption, and smokeless tobacco use are all recognised risk factors for oral cancer, of which clients should be made aware.

Dental trauma (STM p341, CPM 182)

Primary references


2. International Association of Dental Traumatology. Dental Trauma Guidelines. Revised 2012
   - Section 1. Fractures and luxations of permanent teeth
   - Section 2. Avulsion of permanent teeth
   - Section 3. Traumatic injuries to primary teeth
   Available at www.iadt-dentaltrauma.org/for-professionals.html

   Comment: Benchmark textbook of dental traumatology, with pp 869-875 Chapter 35, Information to the Public, Patients and Emergency Services on Traumatic Dental Injuries including Guidelines to the public: first aid and treatment of trauma to permanent teeth. It also includes information for emergency services, first aid for treatment of primary teeth, crown fracture and avulsion. It is a key reference for the Dental Trauma Guidelines.
Comment re Indigenous/remote context

In the case of avulsion, if the tooth is dirty and saline or milk is not available, a brief wash (10 seconds) with water is acceptable in Guideline references 1 and 3. The current guideline CPM p 211 does not include this option.

Protective dental procedures (fluoride vanish) (CPM p173)

Primary references


Comment re Indigenous/remote context

- Those able to legally apply the fluoride varnish:
  a. Registered dentists, dental and oral health therapists, dental hygienists and General Practitioners (who practice dentistry according to the Dental Act ie apparently no requirement for training).
  b. In the NT, RNs and AHWs who have completed accredited training in fluoride varnish application and who work in coordination with a dental team.

- In SA, dentists only. WA is looking at the NT model but nothing in place yet, same with other jurisdictions.

- Restriction re who can apply is related to fluoride Varnish being a S4 medication.

Additional references


**Context specific references**


**Dental materials and equipment (STM p176)**

*Primary reference*


**Diabetes**

**Diabetes (STM p254)**

**Interpreting results (STM p234)**

**Combined checks for chronic diseases (STM p239)**

*Primary references*


   http://care.diabetesjournals.org/content/suppl/2014/12/23/38.Supplement_1.DC1/January_Supplement_Combined_Final.6-99.pdf


Additional references


6. Food and Drug Administration. FDA Drug Safety Communication: FDA warns that SGLT2 inhibitors for diabetes may result in a serious condition of too much acid in the blood. 2015.
   https://www.fda.gov/Drugs/DrugSafety/ucm475463.htm


Context specific references

**Diabetes in pregnancy (WBM p118)**

*Suggested research*

Optimal frequency of follow-up checks.

*Primary references*


**Feet (CPM p259)**

*Primary references*


Drug problems

Alcohol withdrawal (STM p209)

*Primary references*


*Additional references*


Comment:
- The scores marking severity of withdrawal are reduced to acknowledge and provide a buffer against the difficulties of assessment in circumstances of differing language and cultural medium within the context of extremely limited health supports and geographical distance from mainstream health support.
- With consideration of alcohol withdrawal treatment within contexts of limited health support and monitoring resources in the remote setting, lower doses with regular review enable appropriate management with safe titration of medication that has potential for significant and prolonged risk of over sedation and CNS depression.

Opioids (STM p221)

Primary references


Tobacco (STM p223)

Primary references


Amphetamines and other stimulants (STM p214)

Primary references


Comment:
The main concern with these 2 documents is that they are nearly 10 years old and things have moved on. There has been some research and change in practice in the management of people with acute agitation in particular, and this usually occurs in the context of people intoxicated with alcohol or methamphetamine.

The draft Local Hospital Network (South Australia) guideline for management of acute agitation, which reflects some of the changed views on the best way to manage this problem. I would not put it in as a reference, but it demonstrates the thinking going on around this.
**Additional references**


**Comment:** This clinical summary probably incorporates some of the North American and Queensland findings.


**Comment:**
There has been some research and change in practice in the management of people with acute agitation in particular, and this usually occurs in the context of people intoxicated with alcohol or methamphetamine.

There are two papers from QLD which describe their EDs experience with using droperidol safely in these situations. They reflect other work done in Canada. The main thrust is that droperidol can be used with relative safety and provides better longer term sedation which might be relevant when transporting someone from a remote area.

**Cannabis (STM p218)**

**Primary references**


**Comment:**
6 years old - has not been reviewed and there has been no other nationally accepted replacement. Review of major recommendations within guidelines appear still current and relevant.


## Additional references


   **Comment:** Reviewed article to look at prevalence specific to NT remote communities. Also contains information of likelihood of specific harms.

## Volatile substance misuse (STM p226)

**Suggested research**

More research in dependence in human – toline, only animals; recommendations for symptomatic management.
Primary reference


Eyes

Checking near and distance vision (CPM p148)

Primary reference


Eye injuries (STM p354)

Primary references

Comment: A Cochrane review is planned for the use of topical non-non-steroidal anti-inflammatory drugs for analgesia in traumatic corneal abrasions and should be considered when concluded.


Lippincott Williams & Wilkins; 1999.


Additional references


http://www.msdmanuals.com/professional/injuries-poisoning/eye-trauma/posttraumatic-iridocyclitis


Comment: There are very few current evidence sources for this topic, as there have been no changes to the long standing management of this injury.

Eye conditions (STM p346)

Suggested research

Much is known about Trachoma and Gonococcal conjunctivitis but excluding these 2 conditions more could be known about the following:

- Prevalence of conjunctivitis in remote locations not known
- Prevalence of conjunctivitis in Indigenous Australian population not known
- Breakdown of prevalence of each type of conjunctivitis (infective vs non infective) and cause (viral, bacterial, allergic, other) in remote locations not known
- Breakdown of prevalence of each type of conjunctivitis (infective vs non infective) and cause (viral, bacterial, allergic, other) in Indigenous Australian population not known
- Do the above prevalence’s differ to the rest of Australia? worldwide?

Primary references

Conjunctivitis


Gonococcal conjunctivitis


Cellulitis around the eye


Comment:
Clinical Practice Guidelines developed by the Royal Children's Hospital involve two groups - the Clinical Practice Guideline group and the Clinical Effectiveness Committee. The guidelines are reviewed every 12 to 24 months and their Guideline Development Process is well documented.

The Clinical Management Guidelines published by the College of Optometrists are produced by their Guideline Development Group. Guidelines were then peer reviewed by the Primary Eye Care Group. Their process of evidence review and guideline development can be found in their Explanatory Notes.

Trachoma


Comment:
These guidelines took 18 months to develop. Extensive consultation was undertaken with national and international trachoma experts, with all jurisdictions in Australia that have endemic trachoma, with trachoma practitioners in the field and public health experts. Extensive literature reviews were undertaken, and the guidelines were developed based on the best evidence available in the Australian context (differs somewhat from the developing country context). These national guidelines are now used to inform the trachoma strategy in all Australian jurisdictions with
endemic trachoma. Given that endemic trachoma only occurs in remote Aboriginal communities, these guidelines very specifically address trachoma management and control in these contexts. These guidelines were released in 2014, and remain current and relevant.

Inflammation of eye


Acute glaucoma


Eye surface (cornea) ulcers or infection


Flybite


Comment:
Fly bite is an acute allergic reaction, most commonly due to contact with plant or insect matter, occasionally may be due to insect bite. Usually seasonal, often after rain.

Rationale:
The fly bite phenomenon occurs only in central Australia, potentially due to environmental factors, hygiene and insect prevalence. Whilst some
cases are due to insect bite, most are probably due induced by plant or insect matter. There is therefore no evidence based literature specifically relating to the Fly bite condition.

While no references to this phenomenon were found in literature, from my experience (and from discussing this phenomenon with Dr Tim Henderson* several years ago), because the response is very vigorous, people often assume the insect has bitten the ocular surface however it is probably just plant or insect matter coming into contact with the mucosal surface.

*Dr Tim Henderson (MBChB, BSc [Anat], FRC OPHTH, MBBS), Ophthalmologist, Alice Springs Hospital and central Australia and Barkly regions Northern Territory. Expert – local context.

Additional references
Conjunctivitis


Comment re Indigenous/remote context
Drug choice for treatment of conjunctivitis may be limited by availability in remote location. Remote hospitals/community health service should have access to at least one type of each drug required.

Gonococcal conjunctivitis

http://www.uptodate.com/contents/conjunctivitis

https://www.uptodate.com/contents/gonococcal-infection-in-the-newborn

http://www.nature.com/eye/journal/v29/n7/full/eye201557a.html

Acute glaucoma
http://www.uptodate.com/contents/angle-closure-glaucoma

Comment:
As this resource is designed for primary health care practitioners and is limited to acute glaucoma it is a more useful resource than the primary source (which is designed for eye specialists). The ‘Rapid Overview’ table in the appendix is particularly pertinent to remote practice as it sets out a step by step best practice response to an acute case of glaucoma where specialist attention is not readily available to the primary health care practitioner.
None of the papers referenced in this evidence summary published since the primary reference alter its recommendations.

Comment re Indigenous/remote context
Eye specialists (ophthalmologists and optometrists) and primary health care practitioners from the NT have been revising the protocol from the Standard Treatment Manual over the past year as it relates to a project in which dilating drops are used that increases the chances of causing acute glaucoma. The recommendations issued by this group take into consideration the remote and Indigenous context, which alter the recommendations of the primary source and new evidence in the following ways:

- Workup: excludes the measuring of intraocular pressure
- Treatment: preference for drugs that readily available in remote clinics, and the inclusion of an 'emergency kit' contents list.
- Treatment: altering the drop regime (dose and repeats)

Inflammation of eye


Eye assessment (STM p343)
Eye procedures (CPM p151)

Fertility and contraception

Unplanned pregnancy (WBM p314)
Naming contraceptives (WBM p334)
Contraception – general principles (WBM p335)
Long-acting reversible contraception (LARC) (WBM p343)
Contraceptive pills (WBM p349)
Emergency contraceptive pill (ECP) (WBM p353)
Barrier contraception (WBM p355)
Permanent sterilisation (WBM p358)

Primary reference
   http://contraceptionhandbook.org.au/
   ISBN: 9780987296214

Comment:
The guideline presents the nationally recognised and utilised clinical practice guidelines for contraception.

The guidelines were developed in collaboration between Family Planning NSW, Family Planning Queensland and Family Planning Victoria.

They are ‘based on extensive research, review and critical analysis of the most recent literature and research into contraceptive methods and practice’ (Foreword, electronic version, http://contraceptionhandbook.org.au/acknowledgements-foreword/, accessed 23rd July 2015). References are provided for each topic section, and the evidence base is summarised in the Introduction:

- ‘[The] handbook references evidence based information wherever possible. Where there is no clear evidence base available, international expert opinion is quoted. If there is a lack of international opinion, the information given is a consensus of opinion and recognised practice of Australian Family Planning Organizations’.

- ‘Consideration is also given to agreed practice in the United Kingdom (UK) as published by the Faculty of Sexual & Reproductive Healthcare UK (FSRH)’.
UK Medical Eligibility Criteria for Contraceptive Use, 2009 [UKMEC]...is the key evidence based document for this third edition of Contraception: an Australian clinical practice handbook

- Information about contraindications, health risks and contraceptive methods in this handbook is generally based on the UKMEC.

Comment re Indigenous/remote context


Termination of pregnancy (WBM p315)

Primary reference


Comment: This is a very extensive and comprehensive evidence based guideline. All available evidence (to 2011) has been allocated a level in it. It covers all clinical aspects of abortion care and a number of other issues such as access, confidentiality and a treatise on UK abortion law (not so relevant to Australia).

Additional references

Mifepristone U.S. Postmarketing Adverse Events Summary through 2011 Mar 4.  

3. NPS Medicineswise. RADAR: Mifepristone (Mifepristone Linepharma) followed by misoprostol (GyMiso) for medical termination of pregnancy of up to 49 days gestation. Surry Hills: NPS; 2013 Aug.  


**Additional references (new evidence)**

   **Comment:** Provides most current data on abortion rates, adverse events etc. in South Australia

   **Comment:** High quality website presenting current research and data on abortion.
   **General comment:** Rather than changing the recommendations in the references above, these sources are useful in providing up to date data to inform those recommendations.

**Context specific references**

   **Comment:** This abstract is not new, but I just rediscovered it. It seems to me to contribute something useful to the discussion over whether medical abortion in remote communities is ‘safe’.


15. Bracken H, Lohr PA, Taylor J, Morroni C, Winikoff B. RU OK? The acceptability and feasibility of remote technologies for follow-up after

Comment:
The first two studies address the issue of distance from hospital in Alaska and Norway for medically induced abortion. The issues primarily resolve around treatment of serious complications such as infection and haemorrhage. These are exactly the same as risks associated with spontaneous miscarriage (Suggest to insert cross reference into Termination of pregnancy protocol for the Bleeding in early pregnancy protocol pathway if there are issues). The final study addresses the feasibility of follow up by remote technologies.

Gynaecology

Looking after women’s health (WBM p6)
No changes. Reviewed and endorsed by content experts.
Katherine Coulthard, ATSIHP, central Australia.
Gwen Paterson-Walley, Elder, Remote Community educator/trainer, Alice Springs.

Heavy vaginal bleeding (WBM p12)
Additional reference

No significant changes. Endorsed by expert Gynaecology working group and editorial committee
**Vulval problems (WBM p305)**

*Primary references*


*Additional references*


**Breast examination (WBM p270)**

*Primary references*


*Comment:* States there is no formal guideline to clinical breast examination.

*Additional references*


4. Barton MB, Harris R, Fletcher SW. The rational clinical examination. Does this patient have breast cancer? The screening clinical breast examination:
Comment:
Ref 2 – Up to date states several randomized trials included both mammography and clinical examination, the extent of independent contribution of these methods is not clear. In these studies, mammography detected approximately 90 percent of screen-detected cancers and clinical breast examination approximately 50 percent.

Ref 3 – This is the only randomized trial comparing mammography to a systematised thorough clinical breast examination (CBE) taking 5 to 10 minutes.

Ref 4 – This article is referred to in Uptodate. It looks at the evidence behind recommendations for different aspects of the clinical breast examination. Clinical breast examination (CBE) contributes to cancer detection independent of mammography. Sensitivity of CBE 54%.

Investigating breast problems (WBM p287)

Primary references


Screening for breast cancer (WBM p285)

Primary references
Bimanual examination (WBM p278)

Primary references
Evidence not to use bimanual examination to screen for ovarian cancer

Oestrogen before pap smear


Sampling implements


Menopause (WBM p321)

Primary reference


Polycystic ovary syndrome (WBM p307)

Primary reference
1. Evidence-based guidelines for the assessment and management of polycystic ovary syndrome. Melbourne: Jean Hailes for Women’s Health on behalf of the PCOS Australian Alliance; 2015. 

Infertility (WBM p309)

Primary references
https://www.nice.org.uk/guidance/cg156.
Partial update due to be published August.


3. Evidence-based guidelines for the assessment and management of polycystic ovary syndrome. Melbourne: Jean Hailes for Women’s Health on behalf of the PCOS Australian Alliance; 2015. 

Additional references
http://adips.org/downloads/ADIPSConsensusGuidelinesGDM-03.05.13VersionACCEPTEDFINAL.pdf

Pregnancy testing (WBM p279)

*Primary reference*

*Additional references*

Urinary incontinence (WBM p318)

*Primary references*

*Comment re Indigenous/remote context*
Recommendation that pelvic floor training by a specialised nurse or physiotherapist be the first line in conservative management. This can be limited by the logistics and staff skill set of the remote setting.

Pelvic floor exercises (WBM p283)

*Suggested research*
Doseage needs further investigation – it is unclear how often/how many exercises are required to get a strength gain.

*Primary reference*

*Context specific references*
2. Sutherland A, Billimoria J. Aboriginal and Torres Strait Islander continence training in rural and remote Australia. Brunswick VIC: Continence
Speculum examination and Cervical Screening Test (WBM p272)
Prevention and screening for cervical cancer (WBM p289)
Vault smears (WBM p297)
Colposcopy (WBM p300)
Abnormal vaginal bleeding in non-pregnant women (WBM p301)

Primary reference

Hepatitis

Hepatitis (STM p363)

Primary references
http://www.journal-of-hepatology.eu/article/S0168-8278(13)00794-0/abstract


Additional references

Comment: EASL references are relevant, but no changes needed to the RPHCM Hepatitis protocol.


Comment on guidelines: European Association for the Study of the Liver EASL references (no 5.) are relevant, but no changes needed to the RPHCM Hepatitis protocol.

Context specific references


**Hepatitis in pregnancy (WBM p144)**

*Primary references*


**Infection control**

*Personal protection (CPM p312)*

*Clinical and related waste management in remote areas (CPM p317)*

*Cleaning, disinfecting and sterilising reusable medical equipment (CPM p321)*

*Primary references*

2. Expert opinion (members 2014 editorial committee) – re use of incinerators until viable alternatives are available to clinics on remote communities.

Infectious diseases and skin

Bone infection (STM p306)

Primary references


Additional references


Chickenpox and shingles (STM p332)

Primary references


Melioidosis (STM p375)

Primary references


Scabies (STM p394)

*Suggested research*

- Efficacy of scabies treatments in comparison with each other
- Optimum follow-up of scabies and crusted scabies patients
- Efficacy of and optimum regimen for long term prophylaxis for recurrent crusted scabies
- Optimum approach for engagement of patients and families regarding scabies and crusted scabies in different cultural contexts
- Efficacy of environmental interventions such as insecticide bombs for the houses of crusted scabies patients.

*Primary references*


*Context specific references*


5. Every Voice Counts and One Disease. Managing crusted scabies in remote Aboriginal communities. Tiwi NT: One Disease; 2014. [https://static1.squarespace.com/static/56b141b11bbe06392b16f36/t/59c05cae8a02c7dae8d23b1f/1505778880018/ONED0004-16-17_Scabies-}


References regarding change in recommendation from crotamiton to permethrin as first line treatment for babies under 2 months with scabies


Skin examination (CPM p266)

Primary references

2. Expert opinion – Dr Ian McCrossin (MBBS, FACHSHM, FACD) Dermatologist, Conjoint Senior Lecturer, South Western Sydney Clinical School, University of NSW.

**Skin infections (STM p387)**

*Primary references*


**Cellulitis**


**Tinea (STM p400)**

*Primary references*


**Comment:**
Guideline 1 – This guideline has not been updated since 2009. No specific recommendations are included for the Indigenous/remote context.

Guideline 2 – These guidelines were released in September 2014 by the British Association of Dermatologists (BAD). The guidelines highlight that the choice of systemic therapy for tinea capitis should be directed by causative dermatophyte and/or local epidemiology: if dermatophyte isolated is Microsporum spp., griseofulvin or itraconazole is recommended; if dermatophyte isolated is Trichophyton spp. (the predominant spp. causing Tinea in remote communities in the Northern Territory), terbinafine is recommended. This recommendation is in line with current RPHCM guidelines.

Guideline 3 – These guidelines were released in November 2014 by the British Association of Dermatologists (BAD). Although the guidelines rank oral itraconazole and terbinafine as dual first line agents, terbinafine is considered first choice based on its higher efficacy and tolerability.

**Additional references**

**Comment:**
Recommendations different to those in the guideline: There is currently insufficient evidence to determine if one particular class of topical antifungal is superior in terms of mycological cure and clinical cure to another (this differs from the therapeutic guideline recommendation, which ranks terbinafine ahead of bifonazole, clotrimazole, econazole, ketoconazole and miconazole). Overall evidence quality low – very low.
**Comment:**  
Recommendations different to those in the guideline: a range of topical treatment options are available for tinea cruris and tinea corporis but it is unclear which is the most effective.

**Comment:**  
Recommendations different to those in the guideline: None. Conclusion = in the majority of studies, terbinafine treatment showed a higher cure ratio than the other drugs for dermatophyte onychomycosis.

**Comment:**  
Recommendations different to those in the guideline: None. Conclusion = individuals who are over 40 years old treated with terfinafine for 3-4 weeks are at highest risk for acute liver injury.

**Comment:**  
Recommendations different to those in the guideline: precaution should be taken when using terbinafine in combination with perhexilene as terbinafine is a moderate inhibitor of CYP2D6 and therefore may inhibit perhexilene metabolism, consequently increasing the risk of toxicity.

**Sore throat (STM p407)**  
*Primary reference*
* Professor Bart Currie Director (MBBS, FRACP, FAFPHM, DTM&H) Director RHD Australia; Team leader, Tropical and Emerging Infectious Diseases, Menzies School of Health Research. Member of Expert Group for eTG Antibiotic, version 14.

**Tuberculosis (STM p408)**

*Primary references*


**Urine problems in pregnancy (WBM p149)**

*Primary references*


**Urine problems - over 12 years (STM p411)**

*Primary references*


*Additional references*

8 Feb.


Water related skin infections (STM p392)

Primary reference

Additional references

Worms (STM p416)

Primary references
1. eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2015 Jul. Available from:
2. Expert opinion – Professor Bart Currie Director (MBBS, FRACP, FAFPHM, DTM&H) Director RHD Australia; Team leader, Tropical and Emerging Infectious Diseases, Menzies School of Health Research.

Kidney disease

Chronic kidney disease (STM p244)

*Primary reference*


Kidney disease in pregnancy (WBM p143)

*Primary references*

1. Krane KN. Renal Disease and Pregnancy. Medscape. Last updated 2015 Dec 01. Available at:
   https://emedicine.medscape.com/article/246123-overview#a1


   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3139682/

   http://www.bmj.com/content/336/7637/211.full
Lockwood CJ, Curhan GC, eds. Waltham, MA: UpToDate; last updated 
2017 Jan 06. 

Continuous ambulatory peritoneal dialysis (CPM p210)

Primary references

2. Kidney Health Australia. Peritoneal dialysis [Internet]. Melbourne: Kidney Health Australia, 2015. Available from: 

Major injuries

Injuries – abdominal and pelvic (STM p64)

Primary references
1. Pascoe S, Lynch J. Adult trauma clinical practice guidelines: 
Management of hypovolaemic shock in the trauma patient. North Ryde: 
NSW Institute of Trauma and Injury Management (ITIM); 2007 

2. Heetveld M. Management of haemodynamically unstable patients with a pelvic fracture. North Ryde: NSW Institute of Trauma and Injury Management (ITIM); 2007. 

Comment: Two good guidelines, with recommendations (including level of recommendation) and evidence (including level of evidence). Neither cover the management of abdominal trauma in detail, hence using the evidence summaries below for the management of blunt and penetrating
abdominal trauma.

3. UpToDate evidence summaries on blunt and penetrating trauma. All have completed literature reviews up to July 2015:


   **Comment:** This evidence summary is challenging the dogma that all trauma patients should have a digital rectal examination (DRE). The current edition of the manual has already adopted this approach (selective DRE) and limited the examination to those patients with tachycardia, abdominal pain or suspected pelvic fracture.

   After spending some time researching other approaches to DRE I agree with the sentiment of the current edition - a criteria for performing DRE should be described. Perhaps adding penetrating buttock / perineal injuries to the list of indications.
Articles below that are found in reference above:


   Comment: This article followed 423 patients with trauma to see if the rectal examination changed management and found that it rarely does. Extrapolating this to the remote context the management changes were focused around penetrating perineal trauma and buttock and the blood on PR finding led to the decision for exploration in theatre. A POSITIVE finding in a rural setting would change management (confirm need to commit retrieval resource).

   Comment: This article looked at 512 trauma patients with 30 'index injuries' that have findings on digital rectal examination (DRE). The purpose was to find if DRE added any information to the other clinical findings exhibited by the patient. Their conclusion that the omission of DRE in nearly all patients appears to be safe. In that case series, all of the index injuries that did not display other clinical findings, also had negative DRE’s. I have been considering how to relate this to the remote setting - In serious cases, all information is potentially useful in assisting the retrieval consultant to triage the case both for timing and destination.

Comment re evidence review summary: In depth exploration of the initial evaluation and management of the patient. Many of their recommendations do not seem relevant to the remote area health practitioner.

Comment re Indigenous/remote context
Minor changes mostly revolve around omission of therapies or procedures that are not appropriate for remote locations.

Sometimes (esp. recommendations around early use of blood as trauma resus product) these recommendations are not relevant unless blood is available. Is potentially confusing to include the 'newest evidence' in a plain english manual to be used in times of high stress.

**Injuries – bleeding (STM p66)**

*Primary references*


   **Comment:** Advanced trauma life support (ATLS)/ Early Management of Severe Trauma (EMST) provides evidenced based teaching, supported by the course book on Shock and limb injury: Controlled fluid resuscitation, pressure application, proscriptions against removing penetrating objects without good wound exploration (in OT), consideration of tourniquets, proscriptions against blind clamping of vessels and the reduction of fractures. Also reminds the clinician to identify and manage other causes of shock in trauma including tension pneumothorax.


   **Comment:** QAS CPG 2015 also supports the application of tourniquets in specific circumstances.


   **Comment:** Emphasises haemorrhage control, the application of pressure and controlled fluid resuscitation. Also supports the use of
arterial tourniquets for control of life-threatening bleeding when direct pressure to the wound has failed to stop the bleeding or when protruding objects prevent direct pressure.


Comment: Supports the use of tourniquets as a life-saving measure in exsanguinating limb trauma.

Additional references

Comment: Recommends a variety of measures for haemorrhage control including direct pressure, sutures, infiltration of local anaesthetic agents with adrenaline and brief (40 minute) repeated application of inflatable tourniquets


Comment: The authors review the military and civilian literature and provide recommendations for the application of arterial tourniquets in civilian prehospital settings with important and helpful information on the clinical context, judgment and consequences.

Comment re Indigenous/remote context
I have omitted ATLS/EMST recommendations for the insertion of chest tubes, relief of pericardial tamponade and FAST ultrasound as these are at present beyond the scope of most remote practitioners.

Injuries – soft tissue (STM p82)

Primary reference
1. eTG complete [Internet]. Melbourne: Therapeutic Guidelines Limited; 2015 Mar. Acute Pain: Minor Trauma and Wound Infections. Available from:
http://www.tg.org.au

Injuries – chest (STM p68)

Primary references


Comment: Evidence in assessing chest injuries is evolving though this remains largely irrelevant to the scope of practice seen in rural/remote Australia. There has been minimal/no change to initial assessment of chest-injured patient. RHPCM manual provides clear and concise direction in this regard.

Comment re Indigenous/remote context

Rural and remote settings in Australia will often require Medical Retrieval teams to access a site to allow provision of skills and treatment for critically injured patients with chest injury.

Temporising measures (i.e. emergency decompression of tension pneumothorax) should be (and are) adequately described in this manual though there are procedures that require greater practitioner skill to perform and these should not be addressed in significant depth.

The current RPHCM does this adequately and provides an appropriate amount of depth into both assessment and management of chest injury.

Chest procedures (CPM p57)

Primary references

Comment: High quality guidelines published in Thorax (BMJ) though this guideline is focussed on In-Hospital (not 'Primary Health Care') and assumes a high level of resource and skill availability for adhering to this guideline. Much of this is NOT relevant to rural/remote Australian practice, though some features can be incorporated. This guideline also incorporates ultrasonography heavily in both diagnosis of pathology and for guidance of procedures. Of note, ultrasound equipment and ultrasound training is sparse in rural/remote Australia and this is not ready to be incorporated into rural/remote Australian guidelines.

Additional references
Presumptive antibiotic use in chest drain insertion (for haemothorax):


Comment:
Do presumptive antibiotics reduce the incidence of empyema or pneumonia in tube thoracostomy (TT) for traumatic hemothorax?
There is insufficient published evidence to support any recommendation either for or against the use of presumptive antibiotics to reduce the incidence of empyema or pneumonia in TT for traumatic hemothorax.


NB: These are high level intervention based and are of more
relevance to the ICU / period AFTER retrieval of the critically ill trauma patient – these interventions will often be UNAVAILABLE at rural/remote sites

Summary of relevant major recommendations:
1. No level I (RCT) evidence for any
2. Level II (Clinical study) recommendations:
   • Provide adequate fluid resuscitation and though meticulous care to avoid over-resuscitation once perfusion is established
   • Optimal analgesia and chest physiotherapy to minimize likelihood of mechanical ventilation
3. Level III (retrospective) recommendations:
   • Trial CPAP mask in alert compliant patients
   • Multiple recent systematic reviews into ONGOING care of chest-injured patient, with regard to ventilation strategy (Invasive vs. non-invasive) and analgesia strategy (parenteral vs. regional anaesthesia) exist in reputable journals / core-clinical journals, though these are of LITTLE RELEVANCE to remote/rural practice. They are of use to chest injured patients in Intensive Care Units.

Comment re Indigenous/remote context
As written above. Current advances in evidence in area of chest procedures are more relevant to ICU/major trauma centre/tertiary hospitals. There are minimal changes that need to be made to current RPHCM in area of chest injury.

Injuries – head (STM p72)

Primary references
  Comment: Adult trauma clinical practice guideline is a comprehensive guideline from NSW health. It is due to be revised in 2015.


http://www.rch.org.au/clinicalguide/guideline_index/Head_Injury_Guideline/  

Comment: These 3 guidelines focus on paediatric head injury. Infants and children – acute management of head injury was released by NSW health and last revised in 2011. It is also due for review in 2015.

Additional references


Comment: UpToDate has reviewed the current evidence for prophylactic anticonvulsants in head injury.

Pupil reactions (STM p73)

Primary references


2. Tapsell S. Eye learning: Pupil examination [Internet]. Devon, UK: Eye learning; 2011 Feb. Available from:  
http://eyes.gp-surgery.com/key-skills/pupil-examination/
Near hanging (STM p108)

Suggested research
- Role of cervical spine precautions in near hanging.

Primary references
   Accessed 2015 Nov 2 from:

Comment:
The chapter represents a synthesis of information from case reports, application of physiology, pathophysiology, pathology and experience. There are no systematic trials of management of hanging.

The case report and discussion by Berdai et al lends support whilst also seeming to quote either from Tintinalli or a shared source:

The textbook and evidence reviewed in the case report align well with the protocol as it stands. A change of emphasis is recommended for those with hypoxia or other indicators of pulmonary oedema, away from Lasix and towards mechanical ventilation.

Comment re Indigenous/remote context
- Reference: as above
- The remote context imposes a time delay to retrieval in the advent of hypoxic brain injury, pulmonary oedema or impending airway obstruction. This forces an early decision to seek immediate retrieval of the comatose or combative patient or those with stridor, altered phonation or hypoxia
Preparation for trauma and emergencies (CPM p28)

Primary reference

1. Expert opinion – Peter May (B Med [Hons], FALEM, FACRRM) Director of Emergency Training, Tamworth Regional Referral Hospital, Emergency and Critical Care Hunter and New England Area Health Service.

Immobilising the spine (CPM p64)

Injuries – spinal: risk and assessment (STM p88)

Suggested research

- The ILCOR recommendation on Spinal Immobilization is under review and will be released after October 2015. This is highly likely to change the recommendation for spinal immobilization in Trauma (for extrication, for transport and for management within the ED or clinic pending spinal injury clearance.

- In fact the current debate/conversation on this topic does not represent a big departure from what was written in the current edition; reflecting the fact that the evidence for relaxing the requirement or method of immobilization has been there for some years and was recognized by the writing team.

- The big departure is the move towards self-extrication without spinal immobilization, reflecting the fact that immobilization fails to immobilize, that the patient will protect their spine if conscious, and that immobilization prior to extrication prolongs scene time and places some patients at greater risk of harm, deterioration and death. There are published protocols in the EMS literature for a selective approach to immobilization. We need to be vigilant as this is an area of change.

- Another change is a recommendation to avoid using sandbags as they are heavy and difficult to secure adequately. Sandbags may force the head to the side if there is a sudden movement of the vehicle.

- This is not an area where there is Level 1 evidence.
Primary references


Comment:
• Recommends the application of spinal immobilization for transport in trauma with a backboard and rigid collar except when the patient is alert, cooperative, not distracted by other painful injuries, free of spinal tenderness and without neurological symptoms or signs. This recommendation no longer takes mechanism of injury as a stand-alone criteria for spinal immobilization.

• Recommends against taping and sandbags only. Recommends a rigid collar, rigid backboard, blocks (eg foam) and strapping, or preferably a vacuum mattress for transport.

• This guideline does not address gunshot wound to the head, penetrating neck injury nor spinal immobilization during extrication (see Section 4. Primary studies).

• This guideline also addresses penetrating neck injury and recommends against spinal immobilization referencing Haut RE et al (See section 4. Primary studies).


Excess mortality associated with cervical spine immobilization in penetrating neck injury. Retrospective review of 45,284 cases of penetrating trauma. Number needed to treat 1:1,032. Number needed to harm 1:66. Notes that those who had spinal immobilization had twice the...
mortality. Possibly due to scene delays, diversion of first responder’s attention from life threatening injuries, problems with airway management and jugular vein compression. Also makes note that the Pre-hospital Trauma Life Support Course (UK) protocols no longer recommend cervical immobilization in penetrating trauma.

International Liaison Committee on Resuscitation (ILCOR)  
http://www.ilcor.org/home/  
Draft recommendation 2015  
(The information provided is currently in DRAFT format and is NOT a FINAL version)  
Treatment Recommendation:  
‘We suggest against spinal motion restriction, defined as the reduction of or limitation of cervical spinal movement, by routine application of a cervical collar or bilateral sandbags (joined with 3-inch-wide cloth tape across the forehead) in comparison to no cervical spine restriction in adults and children with blunt suspected traumatic cervical spinal injury (weak recommendation, very low quality of evidence). Values and preferences statement: Because of proven adverse effects in studies with injured patients, and evidence concerning a decrease in head movement only comes from studies with cadavers or healthy volunteers, benefits do not outweigh harms, and routine application of cervical collars is not recommended.’

Comment:  
With respect to penetrating neck trauma there is good evidence that cervical immobilization is not beneficial and probably harmful. This topic is not really addressed in RPHCM.

It is generally recommended that cervical immobilization is not indicated for gunshot injury of the head and or the neck. This topic is wrongly addressed briefly in RPHCM in Spinal: Risk and assessment. Needs correction.

With respect to blunt trauma: There is no high level evidence for spinal immobilization. There is no high level evidence against spinal immobilization. There are theoretical reasons for both an aggressive and for a more relaxed approach. The current momentum is towards a more relaxed/selective approach. The latter is in keeping with the approach recommended in the current iteration of RPHCM. There has been some recent work with healthy volunteers indicating that immobilization
increases movement in extrication and that conscious victims do a better job of protecting their own necks from movement than can be achieved using conventional immobilization methods. There is a lot of evidence from prospective trials that a selective approach to immobilization is not associated with an increased risk of neurological deterioration. There is a suggestion from an observational comparison between two very different countries that immobilization for extrication may be associated with increased death rates. There is good evidence that there are significant complications arising from cervical immobilisation. There are numerous case reports of neurological deterioration following spinal cord injury (the exact mechanism for this is conjectural). There is evidence from retrospective studies and prospective studies that delay to diagnosis of spinal injury is associated with an increased risk of delayed complications. Whilst this may reflect preventable progressive injury it is possible that the apparent deterioration is not real but reflects a failure to detect symptoms/signs at the initial assessment in some cases.


‘We did not find any randomised controlled trials that met the inclusion criteria. The effect of spinal immobilisation on mortality, neurological injury, spinal stability and adverse effects in trauma patients remains uncertain. Because airway obstruction is a major cause of preventable death in trauma patients, and spinal immobilisation, particularly of the cervical spine, can contribute to airway compromise, the possibility that immobilisation may increase mortality and morbidity cannot be excluded. Large prospective studies are needed to validate the decision criteria for spinal immobilisation in trauma patients with high risk of spinal injury. Randomised controlled trials in trauma patients are required to establish the relative effectiveness of alternative strategies for spinal immobilisation.’

Comment: The Cochrane Database review was conducted in 2001 and really cannot be considered current. Having said that, there still remains no high level evidence for the benefits of spinal immobilization.

Additional references

Comment: Author not supportive of routine cervical immobilization in cases of isolated gunshot wound to the head in the absence of other indicators of acute spinal cord injury. In line with other recommendations that other acute live-saving measures should not be compromised by cervical spine immobilization.


Comment:
Recommends a selective approach to spinal immobilization in blunt trauma, with much less emphasis on mechanism in the absence of other clinical indicators. ‘In the conscious patient with no overt alcohol or drugs on board and with no major distracting injuries, the patient, unless physically trapped should be invited to self–extricate and lie on the trolley cot. Likewise, for the non-trapped patient who has self-extricated, they can be walked to the vehicle and the laid supine, examined and then if necessary immobilized.’ (It should be noted that this statement fails to discuss the patient who has neurological symptoms/signs).

Although Connor et al identify the consensus group as The Faculty of Pre-hospital Care, this groups is not defined. They are affiliated with the Royal College of Surgeons Edinburgh. The quality of their statement makes me question their status. However what they do say is in keeping with the current conversation and emerging evidence.


This study in healthy subjects gives further support to previous studies indicating that attempts to impose spinal immobilization may cause more cervical movement than enabling the patient to manage their own neck and head movement.

7. Burton JH, Dunn MG, Harmon NR, Hermanson TA, Bradshaw JR. A statewide, prehospital emergency medical service selective patient spine

Conducted in Maine USA in rural communities, 2002 with a prospective chart review following implementation of a selective approach to cervical immobilization not based on mechanism. If the patient was attentive (calm, cooperative, sober and alert), had no neurological symptoms, no distracting injury (‘any painful injury that might distract’) and no midline cervical tenderness they were extricated and transported without cervical immobilization. 31,885 trauma patient transports of which half were identified as potential spine injured cases, and of which 12,988 had spinal immobilization. 154 patients with identified spinal fractures. One potentially unstable thoracic fracture and 19 patients with stable fractures transported without immobilization. 99.9% of those not immobilized had no spinal fracture. 87% of those who had a fracture were identified and immobilized. However, the incidence of spinal fractures in this study was 0.48% which is lower than most studies (2-4%).


Comment: Rural, suburban and urban. 13,357 patients, 451 (3% ) had spinal injuries and 50 had spinal cord injuries. 33/451 with spinal injuries were not identified (8%). All with spinal cord injuries were identified. 39% reduction in the application of spinal immobilization. These authors defined a distracting injury as a limb fracture. Other authors suggest that chest and torso injuries are more predictive of distraction (making the rule out of midline cervical tenderness less reliable).

Comment re Indigenous/remote context
- None of the references address the Indigenous/remote context specifically, but many of the concepts and issues discussed are highly relevant.
- These studies give support to practice that in cases where the patient is alert and cooperative, free of neurological symptoms, and where they can be expected to be aware if their neck or back is painful in the midline that they can be safely instructed to self-extricate if possible
and then be assessed for spinal injury. They also give support to the practice of transport without spinal immobilization, despite mechanisms previously identified as warranting spinal immobilization, when there is no other evidence of spinal injury.

- The remote setting is resource poor, especially with respect to trained personnel. Events are often multi-casualty. Transport times are long. These changes would speed up extrication, reduce scene time, contribute to patient comfort and safety whilst freeing the first responders to manage other life and limb threats.

**Unconscious person (STM p113)**

*Primary references*


**Comment:**

Current protocol reads ‘if in doubt between 2 levels – score at higher level’ I would welcome other opinions, but I would be thinking that
scoring at the lower of the two levels would be more conservative and safer. I couldn’t find any evidence either way.

Additional references


Comment re Indigenous/remote context

- UpToDate comments on evidence for use of glucose and thiamine in unselected patients. Given the higher incidence of HONK (Hyperglycaemic Hyperosmolar Nonketotic Coma) in the remote Indigenous community there is risk of further harm if glucose is given prior to testing. A compromise for the remote setting could be that if there is a delay to glucose testing providing dextrose (as 50mL of 50% dextrose) while awaiting testing. I would therefore recommend under Do ‘treat for low glucose, if proven low BSL or if testing not available.’

- The current guidelines and expert opinion agree that naloxone and flumazenil only be used in setting of known or strongly suspected drug overdose. The current RPHCM protocol aligns with this.
• I would recommend adding under Do: ‘if ongoing seizure activity, not waking up 30min after seizure or suspected nonconvulsive load with phenytoin.’

Although most of the expert opinion suggests EEG in suspected status, this will not be available in the remote setting. In this case UpToDate suggests a therapeutic trial of phenytoin or lorazepam is reasonable.

• Ask: any preceding symptoms – weakness, dizziness, fever, headache.

• Add as note: In paediatric patients ‘Toxic ingestions, infections, and child abuse all have a greater frequency and importance.’ (Tintinalli)

Coma scales (STM p74)

Primary references


Comment:
There have been some studies to assess alternative assessment tools and compare them to GCS. The Full Outline of Unresponsiveness (FOUR) has been suggested to provide more reliable assessment of brainstem function and respiratory pattern in the intubated ICU patients, however this does not apply to the rural and remote first provider setting. A small study of paediatric patients, Kochar FS et al, did not find a difference between FOUR and GCS in predicting outcome. While the GCS is widely taught, understood and accepted by the medical community it remains the preferred assessment tool.

Medical emergencies

Abdominal examination (CPM p198)

Primary reference

Abdominal assessment and pain (STM p18)

Primary references


**Anaphylaxis (STM p30)**

*Primary references*

https://www.nice.org.uk/guidance/cg134

http://www.waojournal.org/content/pdf/1939-4551-4-2-13.pdf

http://resus.org.au/guidelines/


*Comment on guidelines:*
Amongst the evidence there is some controversy regarding initial position of patient (lie flat (ARC and ASCIA) or have patient supine with legs elevated (UptoDate, WHO, NHMRC, Medscape).

*Additional references*

http://cursoenarm.net/UPTODATE/contents/mobipreview.htm?37/12/38
http://emedicine.medscape.com/article/135065-overview#showall


**Comment:** Evidence update for WAO guidelines 2011. No changes to guidelines recommendations on the basis of new evidence.

**Context specific references**


**Chest pain (STM p47)**

**Primary references**


Comment:
Guidelines do not cover all possible causes of chest pain. Aim to concentrate on the coronary disease. Also limited information on the pre-hospital setting, resource poor environment that we have to deal with. Primarily relate to non-PCI centres. Information is therefore extrapolated.

Comment re new evidence
Mainly cumulative evidence from summaries cited above:

- New left bundle branch block (LBBB) has finally been removed from the Guidelines as an indication for emergent reperfusion. Although not specifically addressed in the Guidelines, LBBB + hemodynamic instability or LBBB + Sgarbossa criteria should probably still result in acute reperfusion therapy

- Universal definition of myocardial infarction. A rise in cardiac biomarkers (preferably cardiac troponin) with at least 1 value above the 99th percentile of the upper reference limit and/or a fall in cardiac biomarkers, together with at least 1 of the following: acute coronary syndromes (including myocardial infarction), symptoms of ischaemia ECG changes indicating new ischaemia (new ST-segment-T wave changes or new left bundle branch
block), pathological Q wave changes in the ECG imaging evidence of new loss of viable myocardium, or new regional wall motion abnormality.

**Context specific references**


**Comment:**

- High burden of coronary disease and risk factors for coronary disease.
- Often remote location from hospital, and even further from PCI centre.
- A framework for overcoming disparities in management of acute coronary syndromes in the Australian Aboriginal and Torres Strait Islander population. A consensus statement from the National Heart Foundation of Australia.

**Early recognition of sick or deteriorating patients (STM p6, WBM p8)**

**Comment:**

As in most aspects of remote management and pre-hospital medicine there is little in the way of quality evidence to direct how we assess and manage patients presenting to a remote clinic acutely unwell.

In hospital there has been a great deal of interest in the development of early warning score systems to identify patients both at risk of and at the commencement of deterioration.

Most hospitals have introduced one or other score to this effect and statewide, national and international strategies have been adopted to reinforce this. One of the Australian standards of care addresses the ‘early recognition of the deteriorating patient’. Published literature shows in-patient early warning scores can prevent ICU admission and improve mortality.
As long ago as 2001 Subbe et al followed up on a 2000 study by Stenhouse et al looking at physiological parameters in post-operative colo-rectal surgery patients and a correlation with the need for ICU ad HDU admission with a sensitivity and specificity of 75% and 83% respectively with a study on medical patients and found a link to mortality. Cretikos et al (2007), Hodgetts et al (2002), Bellomo et al (2003), Dacey et al (2007) and Duckitt et al (2007) also showed aggregate scores of increased heart rate, respiratory rate, low systolic blood pressure and a decrease in Glasgow Coma Score were specific predictors of cardiac arrest, unplanned ICU admission and unexpected death. DeVita et al demonstrated a 17% decrease in in-patient cardiac arrest.

A randomised controlled trial by Priestley et al in 2007 demonstrated a statistically significantly reduction in hospital mortality after the introduction of a critical care outreach team triggered by a physiological scoring early warning tool.

Stiver et al demonstrated a statistically significant reduction in both the length of stay of patients and mortality rates in in-patients after introduction of a hospital wide MEWs protocol. Interestingly expected mortality based on physiology was higher after protocol introduction suggesting that physiological measurements were performed more diligently and accurately in the post intervention group.

Several studies have demonstrate either lack of positive or equivocal results showing no benefit; Hillman et al (2005), Bristow et al (2000), Bellomo et al (2004) and Kenward et al (2004) but all of these studies report either poor or very poor uptake of the recording of physiological scores; in the study by Bristow et al only 150 out of a number of 706 MET calls that should have been activated actually were so.

It is unclear how well such systems would translate into remote community assessment but there is an emerging evidence base looking at clinician support scoring and triage systems in emergency care.

As early as 2008 Burch et al correlated MEWs scores in patients presenting to the Emergency Department (ED) with increasing need for admission and mortality.

Kennedy et al demonstrated that a structured approach looking at physiological parameters and co-morbidity status on first presentation to
ED could accurately predict the need for ICU admission. Delayed recognition and subsequent need for ICU transfer from the ward was associated with a 5% absolute increase or more than 25% relative increase in mortality.

Chamberlain et al reported an 18% relative decrease in mortality amongst patients accurately identified at ED triage using the ATS (Australian Triage Scale), which uses physiological parameters in conjunction with presenting symptoms compared to a patients in whom ATS was not followed.

Nelson et al suggested good accuracy in identifying children requiring PICU admission on first ED attendance although there was significant pre-hospital transport modality bias and the control group were ward patients.

Leung et al showed that pre-hospital physiological scoring accurately predict the need for ED intervention and ICU admission.

Two separate internal Central Australian Retrieval Service audits carried out over two years into patients referred with a provisional diagnosis of an infective presenting complaint show that physiological parameters correlate closely with the need for immediate ICU admission and intervention or ICU transfer within 24hrs of arrival in Alice Springs Hospital.

Remote patient assessment and telephone referral, assessment and triage is complex and prone to inter-operator variability dependant on the skill set of both referrer and receiver as well as interpretation and commonality of language.

Physiological scoring systems reduce inter-operator variability and decisions are made and validated on concrete data. Decision tools also tend to have an inbuilt capacity for alteration to allow some clinician input to specify the decision to the particular patient and situation. This allows up-triage of normal values with a ‘concerning story’ and down-triage of abnormal values with familiarity of patient specific ‘normal’ values, for instance sats in COPD patient.

Most aeromedical providers have decision tools using physiological data to assist in triage and coding of retrievals. In 2013 the South Australian
Ambulance Service aeromedical retrieval wing MedSTAR introduced a physiological scoring system based on experience to predict in-flight deterioration to help crew configuration decision-making in the inter-facility transfer of patients. Known as ‘Flightlights’ it has subsequently been validated in that paradigm. In 2015 the Central Australian Retrieval Service with permission from MedSTAR took the Flightlights physiological scoring and modified the decision tree to match local logistics. This was agreed through the Joint Aero-medical Services Operational Committee also representing CAHS remote health and RFDS to be used as the decision tool for coding and prioritisation and crew configuration. This scoring system and decision tool has been named Central Australian Flightlights.

Review of the preceding 2 years critical incident reviews reveals that every one of the non-trauma based reviews would have resulted in different decisions being made in terms of timing and crew configuration of retrieval if the Flightlights score had been calculated and the decision tree followed. A number of these patients, on this review would have been referred and retrieved at least 24hrs prior to their eventual referral should the score had been calculated on the first assessment by a remote health provider. Two of these episodes may represent avoidable deaths. Due to that discussion was had at JAMSOC involving the representatives from both Remote Health and AMSANT, who welcomed the consideration of the role out of Flightlights across the clinics.

Concurrent to this discussion there was also concern amongst receiving critical care physicians in Alice Springs Hospital that patients seen and assessed in remote clinic with sepsis were being unrecognised and receiving inappropriate fluids and delayed antibiotics/referral. It was suggested by the Emergency Medicine Working group for the RPHCM manual review that a ‘recognition of sepsis’ protocol would be useful. This evolved through several iterations and discussion with the Editorial group that the aim would be better served by a protocol more generically looking at the ‘recognition of the deteriorating patient’.

The addition of a physiological scoring system to the revised RPHCM manual will benefit staff in remote clinics by giving them a structure and commonality in language in referral to the RMP and retrieval systems. As suggested by critical incident reviews it will benefit patients by speeding up the recognition and referral as well as institution of treatment and retrieval. It will allow empowerment of clinic staff concerned by abnormal
physiology of patients in the referral process as it has been shown to do with flight crews; increased utilisation of medical escorts in paediatric patients with abnormal physiology following the institution of a physiological scoring system, on going local research (as yet unpublished). It will also benefit the receiving clinicians, both in remote health/retrieval and Alice Springs Hospital by being able to rapidly assess patient severity allowing timely decision making and tracking progress through the commonality of terminology. In line with the rollout of the protocol into remote clinics the name of the scoring system will be changed from the Central Australian Flightlights to the Remote Early Warning Score (REWS).

One of the underlying principles of pre-hospital and retrieval medicine is the provision of emergency medical care as close to the gold standard level of hospital care as is practically possible; indeed in the Central Australian Retrieval Service orientation and induction programme it is frequently stressed that there is little we don’t offer that ASH ED and ICU can’t. I believe that this principle should be applied further to remote health within the obvious resource limitations of staffing levels, training and equipment. The assessment of basic physiological parameters is rapid, easy, non-invasive and cheap (no cost) and is easily repeatable to track changes. This process will standardise remote clinics practise with the referral pathway and receiving services.

As demonstrated by the studies; Hillman et al (2005), Bristow et al (2000), Bellomo et al (2004) and Kenward et al (2004) one important step in the introduction of such a system is staffing uptake and preceding education. Presentation of the REWS score and decision tool at the front of the revised RPHCM manual and frequent reference to it will be a huge step forward in this process but it needs backing up with local education and postering and regular feedback and communication. Buy in by the receiving clinicians and reference to the scoring system is also essential to embed the system and provide that commonality of language. A research project looking at willingness to engage and reasons behind non-engagement, run by an ACRRM trainee with academic support from JCU is at ethics committee stage and will be co-authored by myself. This process also has support by senior clinicians within ASH and the Critical Care Management Committee at ASH.

I would like to thank the RPHCM editorial committee for joining me on the journey that has led to this point, this is a really exciting addition to the CARPA manuals and I believe will show some obvious and tangible patient
and provider benefits and close some of the gap between urban and remote Australians, Indigenous and non-Indigenous. I would also like to specifically thank Tracy Walczynski, Alice Springs Hospital Retrieval and Emergency Specialist, for her input and hard work in assisting me preparing this protocol.

Richard Johnson (MBBS, MRCS, DTM&H, FCEM, FACEM), Emergency and retrieval specialist, Director of Retrieval medicine, Alice Springs Hospital.

Primary references

Comment: It is important to point out that this is NOT an exhaustive systematic review, but a commentary with reference to the literature. There are hundreds more articles out there.


20. Kennedy M, Joyce N, Howell MD, Lawrence Mottley J, Shapiro NI. Identifying infected emergency department patients admitted to the hospital ward at risk of clinical deterioration and intensive care unit
Fits – seizures (STM p57)

Primary reference

Comment:
American context – don’t have access to fosphenytoin. Better to use valproate in our population. But otherwise a good summary.

Comment re Indigenous/remote context
Due to the high incidence of drug reaction with eosinophilia and systemic symptoms (DRESS) thought to be secondary to phenytoin administration in the Aboriginal population, valproate or levetiracetam should be used in preference as the anticonvulsant of choice (expert opinion, ICU consultant Penny Stewart). Not sure that we can really include this officially as an indication for valproate.

Note: DRESS has occurred in central Australia but to date no articles regarding this have been published. There are a number of alternative drugs available to remote clinicians and this has been taken into consideration when making drug recommendations. The evidence is anecdotal and seems to be mostly confined to central Australia. For safety RPHCM has recommended valproate.

Fits in the second half of pregnancy (WBM p19)

Primary references

Comment:
Assumes located in tertiary birthing hospital. To be relevant for CARPA, must consider unfamiliarity of clinic staff and limited resources.

Headaches (STM p358)

Primary reference

Additional reference

Comment re Indigenous/remote context
Considerations for Indigenous/remote context:
- Trauma: pupil check needed, as it may indicate recent head trauma, which the client may not disclose due to shame, which has been my experience previously when treating a young man for headache he continued to deny head trauma, but it transpired he had been struck to the head and was too ashamed to say.
- Non-compliance: with medication is common in remote areas due to higher priorities, lack of access and at times patients may miss the BP meds and then present to clinic c/o headache which resolves with administration of medication.

Heat illness (STM p360)

Primary references

Comment re Indigenous/remote context

- Clinics are unlikely to have high reading or specifically designed rectal or oesophageal thermometers or the ability to provide continuous core temperature monitoring therefore a lower threshold for medical consult and evacuation is required.
- The evidence summary suggests chest x-ray to assess for acute pulmonary oedema; this is not available therefore comment needed to remind staff to examine carefully and thoroughly.
- Many other conditions present with high temp, therefore reminders needed to look for these, not to just assume that the patient is sick because the weather is hot.
- High mortality is associated with delayed recognition, delayed treatment and progressive organ failure therefore comments with respect to early consult and the urgency of returning the temp to below 38 degrees are needed.
- The evidence summary lists several advanced investigation modalities to rule out other causes or to assess the presence of complication such as, liver function tests, coagulation studies and CT head/LP. These are obviously not available in a remote setting and therefore again the message is that if there are any concerns with respect to complications, concurrent illness or high risk patients then medical consult should be arranged urgently and a low threshold for evacuation employed.

Hypothermia (STM p62)

Primary references


Comment re Indigenous/remote context

- Low reading rectal and oesophageal thermometers are unlikely to be available in our setting therefore a combination of a low reading on standard thermometry and a low index of suspicion is required.
The full list of lab results suggested is not appropriate to remote clinic practice and I would suggest limiting to BSL, electrolytes and lactate and monitoring to standard clinic practice.

**Low blood glucose (hypoglycaemia) (STM p91)**

*Primary references*


*Additional references*


*Context specific references*

Comment re Indigenous/remote context

Poorly controlled diabetes is a significant issue in the Indigenous health context.

- Patients in this context can function at a higher BGL, and therefore can experience hypoglycaemia even at higher BGL levels such as 5-6mmols.
- Patients may also be malnourished, and may be exposed to excess alcohol intake, altering insulin secretion by the pancreas.
- Patients may also be exposed to more infection, including sepsis and severe sepsis, which impairs liver function and increase glucose demand.
- Often due to maternal risk factors, Indigenous newborn babies are susceptible to low BGL with conditions such as prematurity/low birth weight and require careful monitoring in the first few hours of birth.

Meningitis (STM p101)

Primary reference


Meningitis and the Coroner’s report

Initial changes made to align with coroner’s recommendations. To be considered as part of review.

Following are the relevant findings from the coroner’s report into the Inquest into the death of Braden Brown after contracting bacterial meningitis in his home community of Yuendumu.

Support for changes in the CARPA Manual, so that under the separate subject of headache, the information is cross-referenced to Meningitis.
a) Further improvements to the CARPA Manual so that other symptoms of meningitis (e.g., photophobia, fever, stiff neck) are cross-referenced to the disease itself, and may trigger recognition.

b) An amendment to the CARPA Manual to articulate the need for proactive, risk adverse treatment of suspected meningitis, stressing the importance of early antibiotic intervention.

Recommendations 51. Encourage changes in the CARPA Standard Treatment Manual so that:

a) The sections on recognizing and treating meningitis are referenced to sections on headache, neck stiffness and fever.

b) The Manual is made more explicit about commencement of treatment for meningitis, noting the imperative to avoid delay if diagnosis is suspected.

c) The Manual should explicitly state at what point a Medical Officer must be notified of a condition and, in the case of meningitis, the presence of new headache and fever alone should be a trigger for Medical Officer referral.

A full copy of the report is available:

Meningitis protocol and antibiotic doses
Doses for Benzylpenicillin and ceftriaxone increased as per request from Bart Currie*.

- What I recommend for RPHCM, given that we do have lots of pregnant women and risk group of alcohol etc that we STICK WITH combination as you already have BUT do go with the TG doses.

  o Benzyl Pen should be 60mg/kg up to 2.4g – so double the dose you currently have.

  o Ceftriaxone should be 100mg/kg up to 4g – NOT 2g – this is the special circumstance of meningitis where big doses used – and daily 4g/d rather than 2g 12 hourly is preferred by many – and esp for evacs get the dose in in case delay.
Nasal packing procedures (CPM p169)

Nose bleeds (epistaxis) (STM p110)

Primary references

   http://bestpractice.bmj.com/topics/en-gb/421

Additional references


Nausea and vomiting (STM p104)

Primary references
1. Expert opinion (reviewed by content experts in Medical emergencies working group) – based on evidence supporting the protocols that link from this protocol.

Poisoning (STM p112)

Primary references


Giving medicines

Giving intravenous medicines (CPM p352)

Primary references


Giving iron by IV infusion (CPM p353)

Primary references


Additional references


Giving medicines (CPM p338)

Primary references


Additional references

6 steps to follow when supplying a medicine (MED p16)
Primary references

Comment: The Poisons Standard is the legal title of the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

Giving medicines and injections to infants and young children (CPM p351)
Primary references
1. NPS Medicinewise. How to Give Medicines to Children [Internet]. Surry Hills: NPS; 2017. Available from:


**Additional reference**

**Giving injections (CPM p345)**

**Primary references**


**Additional references**


7. World Health Authority. Immunization in Practice – a practical guide for health staff. Module 5: Managing an immunization session. Geneva:
WHO; 2015.
http://www.who.int/immunization/documents/training/en/


https://www.ncbi.nlm.nih.gov/pubmed/24201242


Patient education (MED p5)

Primary references


How the medicines protocols are set out (MED p8)

Anatomy dictionary (MED p307)

Glossary (MED p302)

Setting up and managing a remote clinic dispensary (CPM 332)

Primary references

2. Expert opinion – Hannah Mann B.Pharm MPS.

Additional references

Storing and transporting vaccines and medicines to remote and rural clinics (CPM p335)

Primary reference

Mental health

Anxiety (STM p196)

Primary references


Confusion – delirium and dementia (STM p198)

Primary references


Comment: Predominantly for older adults. However, specifically relevant to Australian setting.


Comment: Not substantially more recent than AHMAC guidelines, but provide a clearer summary of features of delirium and features that distinguish delirium and dementia.

Additional references (new evidence)


Comment:
Recommendations that differ from primary reference refer primarily to further assessment.

- Recommends against routine use of EEG in screening for Dementia
- Recommends use of MRI or CTB as routine part of workup to exclude other pathology and assist with subtyping dementia.

Other components of assessment are largely the same, including recommendation for specialist assessment for diagnosis of dementia syndrome and specific management.

Accessed on 5/6/2016 at:
http://pathways.nice.org.uk/pathways/delirium#paths/delirium/delirium-overview.xml&content=view-index
Comment: Not specific to the Australian context, and primarily focussed on identifying and managing delirium in inpatient

Depression (STM p201)

Primary references


Context specific references

Loss and grief (CPM p136)

*Primary reference*


Mental health assessment (CPM p112)

*Primary references*

   http://apps.who.int/iris/handle/10665/41892


*Context specific references*

   http://www.aams.org.au/mark_sheldon/

Mental health emergency (STM p192)

Primary references


Context specific references


Perinatal depression and anxiety (WBM p221)

Primary reference


Psychosis (STM p205)

Primary reference

Suicide risk (STM p207)

Context specific references


Additional references

Context specific references

Transport person who may become violent (CPM p23)

Primary references

   Comment: Included as primary evidence rather than systematic review. Addresses only a small portion of protocol – identifying patients at risk of aggression.


summary of medicolegal processes applies, so have used this as source rather than citing individual acts.

**Musculoskeletal**

**Reducing dislocated or pulled joints (CPM p244)**


Joint problems (STM p369)

Primary references


Stiff neck (CPM p257)

Primary references

Comment: Pilot study that has been published since the last review. Methodology was not clearly described however it appeared to be a hold relax active mobilisation technique. This is already included in the manual and based on one low quality, pilot study no change is warranted


Comment: Low quality support for the inclusion of hold-relax.

Using crutches (CPM p242)

Primary reference

1. Bromley I. Tetraplegia and paraplegia: A guide for physiotherapists. 6th ed. London: Churchill Livingston (Elsevier); 2006. Comment: A literature search did not identify any appropriate guidelines, evidence summaries or research-based evidence for using crutches. A relevant, well regarded textbook with detailed recommendations, instructions and images has been selected as the best available current evidence in this area.

Joint sprains (STM p373)

Primary reference


Pathology

All procedures in the Pathology section are supported by the recommendations in:


Additional references for specific procedures are listed below.

Comment on guideline:
- The RCPA Manual is Australia’s national guideline for its purpose. It is electronically available via the RCPA website. Printed editions are no longer available.
- The Guideline considers remote contexts, but not specifically the Indigenous context.

Comment re Indigenous/remote context
The Guideline considers remote contexts, but not specifically the Indigenous context.

- The diagnostic process in the practice of medicine in remote contexts, if it involves the use of laboratory testing, can occasionally be challenged, principally for two reasons.
  1. Some patients’ specimens must reach a laboratory within a short interval of time, or in a given condition (eg frozen), and in the remote context these requirements cannot feasibly be met.
  2. Some uncommon tests are not available even in the central laboratories of a given jurisdiction, eg in the NT – the Royal Darwin Hospital.
     In such cases the only possible course of action, if a given test result is critically essential to the diagnostic process, is to send the patient to, or at least adequately close to, a pertinent laboratory.
- The Guideline provides requirements on a test specific basis in relation to these challenges.
• The absence of Indigenous-specific comments is acceptable, given that Australia’s Indigenous people are all anatomically modern humans.
  o The diseases they suffer differ from those of other humans only inasmuch as their genetic complement increases or reduces their propensity to suffer any given disease.
  o The epigenetic component of disease does not vary in its effect, except inasmuch as it is linked with the genetic.
  o The diagnostic process is identical amongst all anatomically modern humans.

Procedures with additional references

**Collecting blood samples (CPM p370)**

*New evidence*

   [http://clinchem.aaccjnls.org/content/48/5/76666-67](http://clinchem.aaccjnls.org/content/48/5/76666-67)

   **Comment:**
   - The use of clotted blood for PTH assays is now shown to introduce major errors into the results.
   - The required tube is now the Plasma Preparation Tube, [PPT], a white topped tube with EDTA and a proprietary ingredient that stabilises the hormone, and incidentally, other analytes.


Collecting body fluids, viral cultures and skin specimens (CPM p385)

Additional reference
1. TB diagnostics and laboratory strengthening - WHO policy: Reduction of number of smears for the diagnosis of pulmonary TB [Internet]. Geneva: World Health Organisation; 2007. Available from: http://www.who.int/tb/laboratory/policy_diagnosis_pulmonary_tb/en/ Comment: The WHO guideline supporting the recommendation to change collection times for collecting a sputum specimen from 3 days to 24 hours can be found here:

Collecting faeces and parasites (CPM p398)

Additional references (new evidence)

Estimating kidney function (CPM p401)


Additional references (new evidence/context specific reference)

Comment:
- The applicability of the test formulae for estimating glomerular function in other than Europid populations was initially questioned,
and the need for proof of applicability within particular ancestral groups, including specifically Australia’s Indigenous people, posited.

- The work has been done and shows that the formulae are thus usable.

**Pharmacy**

*(MED p19 to 295)*

All protocols in the Medicine book are supported by the following references:

*Primary reference*


*Additional references*


Postnatal

APGAR score (WBM p180)

*Primary reference*


Newborn needing special care (WBM p76)

Care of normal newborn for first 24 hours (WBM p184)

*Primary references*

   c. ANZCOR Guideline 13.3 - Assessment of the Newborn Infant; 2016 Jan.


Keeping baby warm after birth (WBM p182)

Primary references


Comment: South Australian neonatal practice guidelines are normally used in the NT however, they are currently being reviewed, and I have referred practitioners to the Victorian Guidelines. Information on warming babies under 28 weeks taken from here.


Comment: Systemic review is focused on why you keep babies warm. All literature is related to preterm and low birth weight babies, particularly relevant for the Indigenous health context. Interventions to prevent hypothermia at birth in preterm and/or low birthweight infants.
Preventing low body temperature at birth in premature and low birthweight infants may be important to survival and long-term outcome. Babies rely on external help to maintain body and skin temperature particularly in the first 12 hours of life. For vulnerable infants born prematurely or that are very small, abnormally low body temperature (hypothermia) is a world-wide issue across all climates and can lead to a variety of diseases and even death.

Preventative action is taken by reducing heat loss and/or providing warmth using external heat sources. Precautionary steps routinely include: a warm delivery room; drying the newborn immediately, especially the head; wrapping in pre-warmed dry blankets that cover the head; pre-warming surfaces and eliminating draughts.

A review of seven studies involving 391 infants used additional preventative actions in the first 10 minutes of life to prevent problems with hypothermia. Results showed that the use of special plastic wraps or bags, plastic caps, heated mattresses and skin-to-skin contact kept the infants warmer than routine preventative action. Limitations included the small numbers of infants and studies included; variations in the methods and definitions of normal body temperature, routine care; and the use of different materials. Although this review confirmed that some of these measures are effective in preventing hypothermia, we do not yet know the long-term consequences of these interventions therefore the authors recommend that further research is carried out.

**Stillbirth (WBM p188)**

*Primary references*


Comment: The Queensland Maternity and Neonatal Clinical Guidelines Program were by far the most comprehensive and the only guideline available on the NHMRC Clinical Practice Portal. Much of the evidence stemmed from the Perinatal Society of Australia and New Zealand (PSANZ) Perinatal Mortality Group.

Care of mother for first 24 hours after birth (WBM p171)

Primary references


Additional references

Comment re Indigenous/remote context
WHO recommends women remain in clinic for 24/24 post birth prior to discharge—this is not practical in our remote setting. NICE recommends length of stay should be guided by discussion with individual woman and healthcare professional, taking into account health and wellbeing of mum and newborn, and level of support available following discharge. This may guide whether 4/24 discharge appropriate, or indicate need to transfer to town/hospital for further care. (National Institute for Health and Care Excellence. Postnatal Care up to 8 weeks after birth. Clinical guideline [CG37]. London: NICE; February 2015.)

Postnatal care of mother (WBM p195)
Suggested research
- Clinical guidelines specific to primary care – not only region specific, but to strengthen evidence to support recommendations made
- Research area needed, added by Postnatal working group — siblings co-sleeping with babies/infants: prevalence, risks, risk prevention

Primary references


Additional references re SIDS prevention and co-sleeping


Additional references


Comment re Indigenous/remote context

- RPHCM recommends to check women every day for five days, KEMH supports same, WHO recommends daily assessments until end of first week. NICE guidelines recommend an individualised plan be developed with each women detailing plans for follow up in postnatal period.
- Visits for 5 days as recommended appears well supported, same would need to be assessed in individual regions taking into consideration staffing, location and wishes of individual women. (see above for reference details)

Mother’s 6 week postnatal check (WBM p219)

Primary references


Additional references


Comment:
- Recommendation: Change name of Guideline to '6-8 week postnatal check'
  - WHO guidelines continue to recommend a 6 week postnatal review whilst NICE guidelines, UpTo Date and most hospital guidelines and protocols suggest 6-8 week postnatal maternal assessment would be more appropriate. Taking into account the Indigenous risk and often isolation in the early postnatal period, retaining the WHO guidelines of recommending this final perinatal vista at 6 week assessment may be more culturally contextual, however in a remote setting an 8 week period is often more realistic and achievable.

- Recommendation: Suggest continuation of Iron and Folic acid supplementation in the early postnatal period.
WHO recommendations include 'Iron and Folic Acid supplementation for at least three months after delivery', with special notation that 'anaemia is a common problem during and after pregnancy, especially in settings with higher maternal mortality rates, and that the benefit of iron and folic acid supplementation in reducing the burden of ill health associated with anaemia in these settings is likely to outweigh the risk of major harmful side effects'.

- Recommendation: Advise waiting 2 years before becoming pregnant again.
  - WHO recommendations suggest at least 2 years before becoming pregnant again.

**Newborn screening test (WBM p226)**

*Primary references*


available on the Internet only for historical purposes.)
Available from:
https://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/g11_genetics_in_family_medicine.pdf
See also

Additional references

Postnatal care of baby (WBM p228)
Primary references


Baby’s 6 week postnatal check (WBM p231)
Primary references
1. Australian College of Midwives. ACM Position Statement on co-sleeping and bed-sharing [Internet]. Canberra ACT: Australian College of Midwives; 2011. Available from:


https://www2.health.vic.gov.au/about/publications/policiesandguidelines/Postnatal Care Program Guidelines for Victorian Health Services

Additional references


6. Housing for Health: the guide [Internet]. Newport Beach: NSW Healthhabitats; 2013. [Cited 2016 Feb 18]. Available from: 


Comment:
The Service Coordination Tool Templates (SCTT) (Department of Health, 2009) were developed to facilitate and support service coordination. The
SCTT support the collection and recording of initial contact, needs identification, referral and care planning information in a standardised way. This can improve communication and information sharing to support better outcomes for women (infants) and their families.

**Breastfeeding (WBM p199)**

*Primary references*


   http://www.who.int/nutrition/topics/infantfeeding_recommendation/en/


*Additional references*


*Comment re Indigenous/remote context*

- The guidelines for expressing and storing breast milk may be challenging to support in some settings, however should be updated and included for completion and to meet the needs of all clients and health practitioners.
- Current debate and inconsistent guidelines around breastfeeding in the presence of HTLV1 will need discussion at the editorial level regarding inclusion or exclusion the protocol.
Common breastfeeding problems (WBM p204)

Primary reference


Comment re Indigenous/remote context

- Advice to consult midwife or lactation consultant to be added, aimed at remote practitioners who may have minimal experience in dealing with breastfeeding issues.
- Advice regarding medical consult will be emphasised regarding women with breastfeeding issues who are unwell, given potential for serious complications if untreated mastitis or breast abscess.

Infections after childbirth (WBM p215)

Primary references


Secondary postpartum haemorrhage (WBM p212)

Suggested research

- Not for the purposes of developing these guidelines. In the literature accessed, there was a general acknowledgement of the lack of good evidence in regards to best practice management/treatment of secondary postpartum haemorrhage.
- Cochrane found no studies able to be included for review: http://www.cochrane.org/CD002867/PREG_treatments-for-secondary-postpartum-haemorrhag

Primary references


Comment:
- Re intravenous antibiotics to treat suspected endometritis/suspected retained products, protocol recommends ampicillin (or amoxicillin) 1g every four hours (following initial loading dose of 2g).
- Current WBM guidelines state subsequent ampicillin doses to be QID (ie. 6 hourly).


Additional references

   Comment: Includes a good table outlining clinical findings in relation to blood volume lost


Pregnancy

Antenatal care (WBM p88)
Antenatal care in twin pregnancy (WBM p96)

Primary references

Antenatal checklist (WBM p86)

Primary references


Antenatal education and planning for birth (WBM p109)

Primary references


Pre-pregnancy counselling (WBM p84)

Primary references


Common discomforts of pregnancy (WBM p115)

*Primary references*


Common discomforts of pregnancy – leg cramps

*Primary references*


Comment – systemic reviews:
The most recent review of magnesium for skeletal muscle cramps (2012) indicated three studies on leg cramps in pregnant women were collectively inconclusive, and suggested further research.

The earlier review (2002), specific to leg cramp interventions in pregnancy, indicated no benefit of calcium, and a potential benefit of magnesium: ‘If a woman finds cramp troublesome in pregnancy, the best evidence is for magnesium lactate or citrate taken as 5mmol in the morning and 10mmol in the evening’.

The latest review (2015) concluded
- ‘Magnesium supplements did not consistently reduce how often women experienced leg cramps when compared with placebo or no treatment. Studies measured this in different ways, sometimes showing that magnesium helped reduce the number of leg cramps but sometimes showing that it made no difference. Likewise, evidence about whether magnesium reduced the intensity of pain was inconclusive with one study showing a reduction while others showed no difference. There was no difference in the experience of side effects, such as nausea and diarrhoea.’
- ‘It is not clear from the evidence reviewed whether any of the oral interventions (magnesium, calcium, vitamin B or vitamin C) provide an effective and safe treatment for leg cramps in pregnancy. Supplements may have different effects depending on women’s usual intake of these substances.’

It did not recommend any specific dose for magnesium for leg cramps.

Antepartum haemorrhage (bleeding in pregnancy) (WBM p14)

Primary references

Chapter 11, Miscarriage and abortion. Chapter 12, Extra-uterine pregnancy/ectopic gestation.

**Anaemia (weak blood) in pregnancy (WBM p132)**

*Primary references*


*Additional references*


Comment re Indigenous/remote context

- Due to the remote location, providing iron transfusions in community is beneficial in many ways, including cost effectiveness, improved access to treatment and more timely correction of anaemia in pregnancy. The NT Department of health guidelines for iron infusion indicate:
  - ‘The logistics and cost associated with arranging travel to hospital [maternity] unit, social disruption, client preference, and workload in [maternity] unit, may each be factors in making local administration of iron a preferred option’
  - The guidelines state that ‘Ferric Carboxymaltose infusions have a significantly shorter infusion time and an improved safety profile when compared to other iron products. This allows Ferric Carboxymaltose to be infused with reduced client risk and impact on health centre staff and resources.’

- The primary reference guidelines indicate that iron infusions for selected patients is appropriate. On the basis of the potential benefits, the safety profile and the NT DOH guidelines it is recommended that pregnant women in remote locations are considered as potential candidates for iron infusion treatment of anaemia.

NT DOH guidelines available at:
Epilepsy in pregnancy (WBM p140)

Primary references


Additional references


**Listening to baby's heart rate (WBM p101)**

*Primary reference*


**Measuring fundal height (WBM p98)**

**Palpating the baby (fetus) (WBM p99)**

*Primary reference*

Obstetric ultrasound (WBM p103)
Testing for fetal abnormalities (WBM p103)
(TBA)

Thromboembolism (blood clots) in pregnancy and postnatal (WBM p138)

Primary reference
1. National Health and Medical Research Council. Clinical practice
guideline for the prevention of venous thromboembolism (deep vein
thrombosis and pulmonary embolism) in patients admitted to

Additional references
et al. Recommendations for the prevention of pregnancy-associated
venous thromboembolism. The Australian & New Zealand journal of

3. Schwartz DR, Malhotra A, Weinberger SE. Deep vein thrombosis in
pregnancy: Epidemiology, pathogenesis, and diagnosis. Leung LL,
Lockwood CJ, Mandel J, eds. Waltham MA: UpToDate; last updated
2016 Apr.
http://www.uptodate.com/contents/deep-vein-thrombosis-in-
pregnancy-epidemiology-pathogenesis-and-diagnosis

http://www.uptodate.com/contents/use-of-anticoagulants-during-
pregnancy-and-postpartum

5. Tapson VF. Overview of the treatment, prognosis and follow up of
acute pulmonary embolism in adults. Mandel J, Hockberger RS, eds.
Waltham MA: UpToDate; 2016 Apr.
http://www.uptodate.com/contents/overview-of-the-treatment-
prognosis-and-follow-up-of-acute-pulmonary-embolism-in-adults
**Group B Streptococcus (WBM p147)**

*Primary references*


---

**Prevention**

**Adult health check (CPM p123)**

*Primary references*

1. NACCHO/RACGP. National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people. 2nd ed. South Melbourne: The RACGP; 2012.  


Comment:
The guidelines developed and recommended by the Royal Australian College General Practitioners are endorsed by the NH&MRC and have been assessed against the AGREE II Checklist.


http://ebm.bmj.com/content/early/2013/03/18/eb-2013-101229

Comment on above references:
The Cochrane systematic review indicates that while adult health checks do not impact on mortality and morbidity they do offer secondary outcomes. These include early identification of risk factors, early diagnosis of chronic conditions and timely management of these conditions (Krogsboll et al, 2012). While this study shows that adult health checks are not supported by best practice it does suggest that individual components of the adult health checks impact positively on the health of people. The studies reviewed all show some degree of bias and recommendations from the review were that more research was needed in this area, in particular in disadvantaged groups and in people that may not seek out health care regularly.


7. Harris, M. The role of primary health care in preventing the onset of chronic disease, with a particular focus on the lifestyle risk factors of


Content specific references


Comment:
Research into adult health checks in the Aboriginal population is sparse. However the primary studies available suggest that adult health checks within the Aboriginal population have the potential to identify risk factors early and promote health promotion / education messages, establish relationships, and detect and manage early disease in a timely manner (Spurling et al, 2009; Digiacomo, M.et al 2010).

Brief interventions (CPM p138)

Primary references


http://pediatrics.aappublications.org/content/115/4/981


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4318137/


**Context specific references**


**Health life style choices (CPM p143)**

**Primary references**


Additional references (new evidence)

Comment: Specific information about diabetes and exercise

Comment: Specific information about exercise and diabetes

Procedures

Bandaging (CPM p224)
Slings (CPM p227)
Splinting (CPM p229)
Plaster of Paris slabs (CPM p234)
Taking off a cast (CPM p240)

Primary references

Comment: Most of the evidence around bandaging and cast immobilisation is expert opinion – a useful and comprehensive overview of this is provided in Chapters 34 and 50. Provides the rationale behind the need to bandage, splint, immobilise injuries, centres around principles of oedema management and patient comfort which is universal.

Additional reference for POP slabs
3. Expert opinion – Amanda Gill, Educator, National Critic Care and Trauma Response Centre, Darwin NT.

Clinical assessment of adults (CPM p94)

Primary reference

Clinical measurements (CPM p105)
See references for the Clinical observation table (p207) and Early recognition of sick or deteriorating patients (p125).

Note: There is wide definition of normal or acceptable ranges for physiological variables in children. These may be based on different populations and calculations. The RPHCM tables relate to ‘normal’ or ‘well’ values.

Additional references


Injuries to fingers (CPM p270)
Injuries to fingernails and toenails (CPM p273)
Closing a wound (CPM p292)
Taking out sutures and staples (CPM p292)
Examining and cleaning a wound before closing (CPM p287)
Giving local anaesthetic before closing a wound (CPM p289)
Nerve blocks — hands and feet (CPM p305)
Ring blocks — digital (finger, thumb, toe) (CPM p305)

Primary reference
   Comment: The most trusted source of procedural information in Emergency Medicine over many years. A textbook based on evidence from the medical literature and expert opinion

Additional reference
2. Expert opinion – Dr Jacob Koshy (MBBS, DA, MD, FANZCA), Director of anaesthetics and Pain medicine, Alice Springs Hospital.

Cutting and draining an abscess (CPM p268)

Primary reference
   https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2231432/

Female catheterisation (WBM p281)
Male catheterisation (CPM p205)

**Primary reference**


**Comment:** Guidelines refer to ‘catheter pack’ instead of ‘dressing pack’. Size of catheter differ from the CPM. Guidelines also give extensive lists of indications and contra-indications of urinary catheterisation. Guidelines include supra-pubic catheters.

---

General wound assessment and wound dressings (CPM p277)

**Primary references**


Additional references

Comment: Management of diabetic foot wounds with dry gangrene is to keep toes dry, paint with antimicrobial to prevent infection and allow to auto amputate. NMHRC diabetic foot guidelines support non-debridement or application of moist dressings to dry gangrene of toes.

Mouth and throat examination (CPM p172)

Primary reference

Comment: Recognised international text book with extensive editorial team.

Recording in the file notes (CPM p116)

Primary references


Rectal examination (CPM p203)

Primary references


Comment: These 2 texts are well respected sources to reflect good practice as regards to performing a rectal examination in primary health care. These 2 texts both contain useful information that is comprehensive for the purposes of performing a rectal examination, and would suggest additional steps and points to consider for the review.

Removing a tick (CPM p275)

Primary references

Comment: Website indicates that information for the advice comes from the SA and NSW factsheets.


Comment: There are many web sites belonging to health departments of Australian states that are still recommending removal of ticks with fine tipped forceps. This includes the NSW Health fact sheet on tick removal available on the web.
**Additional references** (new evidence)

According to Stephen Doggett, Medical Entomologist at Westmead Hospital, Sydney (in a phone call) there is nearly consensus between Australian States and Territories to adopt new national recommendations for tick removal. NSW is not yet signed up to the new recommendations and is waiting for the immunologist with TiARA to write up the clinical experiences of tick allergic patients who utilise the freezing technique for killing the tick in situ, rather than removing with tweezers (the immunologist is A/Prof. Sheryl van Nunen from Royal North Shore, and results will be published in one of the allergy journals). Once all the states are on-board then the Comm. Dept of Health will make its national recommendation.

Stephen pointed out that although there are a number of tick species in the NT that could bite humans, it is likely that people seeing a doctor in the NT to get ticks removed who have recently visited the east coast of Australia are likely to be hosting paralysis ticks and care should be taken in their removal.

The more recent options for tick removal recommend freezing of adult ticks using a product such as ‘Medi freeze – skin tag remover’ or ‘Wart Off – freeze spray’. Treatment for juvenile ticks includes the application of skin cream containing permethrin such as Lyclear scabies cream over the ticks and leaving for 24 hours.


   **Comment:** A web based article dated 12/02/15 contains quotes from Dr Cameron Webb, Medical Entomologist at Westmead Hospital, Sydney NSW. Treatment with permethrin containing cream and with freeze spray is mentioned in the on-line article below within the Catalyst program story.


   **Comment:** A web based article by ASCIA was updated in January 2014 (the article above refers to ASCIA recommendations). Treatment with
freeze spray is mentioned in the on-line article.


**Comment:** The website contains the following recommendation about tick removal: ‘If a tick is detected that is attached, never attempt to place any chemical such as methylated spirits onto the tick, nor should it be touched or disturbed, as the tick will inject saliva into the skin, which could make the situation worse. Rather the tick should be sprayed with an aerosol insect repellent preferably containing pyrethrin or a pyrethroid (if a repellent cannot be found which contains a pyrethroid, then Lyclear, a scabies cream containing permethrin will work fine). The combination of hydrocarbons and the pyrethrin acts as a narcotic and a toxicant, and prevents the tick from injecting its saliva. The tick should be sprayed again one minute later (or dabbed with the Lyclear) and left. After 24 hours it should drop off naturally or be gently removed with fine-tipped forceps. It is normal for a tick bite to remain slightly itchy for several weeks, however if other symptoms develop, then a doctor should be consulted immediately.’


**Comment:** The TIARA website promotes both the freezing and permethrin removal methods by providing a link to the Catalyst program story on tick removal.

---

**Remote Context**

**Assessing or treating someone in custody (STM p40)**

*Primary reference*

Expert opinion provided by

1. Dr Sally Banfield – Acting Senior RMP, central Australia
2. Dr Belinda Greenwood-Smith – Alice Springs Correction Centre
3. Dr Kerrie Gell – Senior doctor and Consultant Medical Officer, Nganampa Health Council
4. Dr Nick Williams – Senior doctor and GP Supervisor, Aboriginal Health Council of South Australia (AHCSA)
5. Lyn Byers – RAN, RM, MRH, GradDip Mental Health Nursing, BSci(Hons)

Additional references

Respiratory disease (adult)

Lungs and respiratory system examination (CPM p186)

Primary reference
1. Expert opinion – Graeme Maguire, general and respiratory physician and NHMRC Practitioner Fellow, Head of Clinical Research Domain Baker Heart and Diabetes Institute, Melbourne Vic.

Additional references for Spirometry

Asthma in adults (STM p323)

Primary reference
Breathing problems in adults (STM p307)

Primary reference
1. Expert opinion – Graeme Maguire, general and respiratory physician and NHMRC Practitioner Fellow, Head of Clinical Research Domain Baker Heart and Diabetes Institute, Melbourne Vic. Based on evidence supporting the protocols that link from this protocol.

Chest infections – over 5 years (STM p309)

Primary references
Therapeutic Guidelines

Chronic lung disease in adults (STM p314)

Primary references

Breathing related sleep disorders (STM p330)

Primary references
Inhalation devices for respiratory medicines (CPM p360)

**Primary references**


Spacer devices for respiratory medicines (CPM p364)

**Primary references**


Chest physiotherapy (CPM p194)

Primary references


Additional references

Resuscitation

Life support - DRS ABC (STM p10)

Suggested research
- The role of adrenaline and of vasopressin and of steroids in Advanced Life Support for cardiac arrest.
- Active cooling after cardiac arrest with return of spontaneous circulation
- Optimal oxygen flow rates after initial resuscitation

Primary references
   - ANZCOR Guideline 8 – Cardiopulmonary Resuscitation: applicable to adults, children and infants; 2010 Dec.
https://eccguidelines.heart.org/index.php/guidelines-highlights/

Comment on guidelines:
Some of the ARC Guidelines have been updated since the last iteration of the Manual.

The latest ILCOR guidelines were published on-line on Oct 13th 2015, as were the updated AHA guidelines. The ARC guidelines quoted are the most recent. I expect that there will be minor changes more or less in line with the AHA guidelines: the major departure being the use of abdominal thrusts in European and American Choking Victim Guidelines but not in ARC Guidelines.

Comment re Indigenous/remote context
I have not included recommendations for waveform capnography as this generally wouldn't be available and the recommendations were not strong.

Oxygen flow rates (Giving oxygen protocol) (CPM p355)
Suggested research
There is a move towards reducing the concentration and the duration of oxygen therapy in resuscitation. This has been seen in recent times with recommendations by the ARC for oxygen therapy in neonatal resuscitation, acute chest pain, cardiac arrest and stroke. This evidence review describes what is recommended at present although this may change in coming years.
Primary references

https://resus.org.au/guidelines/

Comment on guideline:
This guideline quotes some evidence for deleterious effects of oxygen therapy and gives oxygen saturation targets for various conditions.

Oxygen therapy should only be used by personnel trained in its use, and its effects should be monitored whenever possible, usually by the use of pulse oximetry. In patients requiring advanced life support, oxygen should be administered if the oxygen saturation (SpO2) falls below 94% unless contraindications exist (Paraquat poisoning and bleomycin lung injury, and COPD).

- Cardiac arrest. Treatment Recommendation: In the absence of any other data there is no reason to change the current treatment algorithm, which includes use of 100% oxygen during adult cardiac arrest.

- Following return of spontaneous circulation (ROSC). Treatment Recommendation: despite the low level of published evidence that is currently available it is recommended that once ROSC has been established and the oxygen saturation of arterial blood (SaO2) can be monitored reliably (by pulse oximetry [SpO2] and/or arterial blood gas analysis [SaO2]), it is reasonable to titrate the inspired oxygen to achieve a target saturation between 94 – 98%.

- Acute coronary syndromes (ACS). Treatment recommendation: in patients with suspected or proven acute coronary syndromes, the routine use of supplemental oxygen is not recommended. [Class A, LOE Expert Consensus Opinion] Oxygen therapy is indicated for patients with hypoxia and those with evidence of shock, to correct tissue hypoxia. It is recommended that oxygen administration be targeted to achieve an oxygen saturation (SpO2) of 94-98%.

- Stroke. Treatment recommendation: patients who have experienced an acute stroke and are hypoxic should be given supplemental oxygen. It is recommended that oxygen administration be targeted to achieve an oxygen saturation (SpO2) of 94-98%. The routine use of
supplemental oxygen is NOT recommended in the acute stroke patient who are not hypoxic.

- Other critical illnesses. Treatment recommendation: all patients with shock, major trauma, sepsis or other critical illness should be managed initially with high concentration oxygen therapy from a reservoir mask. It is recommended that oxygen administration be targeted to achieve an oxygen saturation (SpO2) of 94-98%.

- Carbon monoxide poisoning. Treatment recommendation: the routine use of supplemental oxygen high-dose oxygen via a reservoir mask is recommended for a patient with carbon monoxide poisoning.

- Diving emergencies. Treatment recommendation: patients developing symptoms of decompression sickness after diving should be treated with high flow oxygen as soon as possible.

- Paraquat poisoning and bleomycin lung injury. Treatment recommendation: in patients with Paraquat poisoning or bleomycin lung injury the routine use of supplemental oxygen is not recommended [Class A, LOE Expert Consensus Opinion]. It is recommended that oxygen administration be targeted to achieve an oxygen saturation (SpO2) of 88-92%.

- COPD. Treatment recommendation: in patients who are at risk of hypercapnic respiratory failure, the routine use of supplemental oxygen is not recommended [Class A, LOE Expert Consensus Opinion]. In these patients, it is recommended that oxygen administration be targeted to achieve an oxygen saturation (SpO2) of 88-92%.


Comment: This guideline does refer to giving unhumidified oxygen by nasal prongs at 4L/min in over 2yo. For the remote context and especially in acute care this begs the question, ‘Why are we not using a mask?’


Additional references


Comment: Although written in 1998 this is a landmark paper which is referred to by contemporary writers which clearly explains the mechanics and theory of oxygen therapy and delivery devices and corrects the description of the entrainment mask (commonly misnamed as the Venturi mask)

Resuscitation reference table (STM p16)

Clinical observation table (STM p422, WBM p362)

Primary references


Comment: The intended outcomes of the new standards regarding the content of IV fluids in children and neonates include:

- Reducing the risk of hyponatraemia through increased sodium content and limiting the use of low sodium containing fluids
- Addressing glucose requirements of children and neonates through increased glucose content and
- Consistent inclusion of potassium chloride as early as considered safe and appropriate.

In essence and for the purposes of the Aboriginal and Remote context these new standards are met by changing empiric maintenance fluids to 0.45% saline with 5% dextrose, with the potential to add potassium at 20mmol/L once the serum electrolytes are known.


Comment: Gives guidance for oxygen saturation targets in the newborn and gives the recommendation - for resuscitation of term infants initiate resuscitation with air or a blended oxygen and titrate the oxygen concentration to achieve an SpO2 in the target range described using pulse oximetry. If the baby is bradycardic (HR 60 per minute) after 90 seconds of resuscitation with a lower concentration of oxygen, oxygen concentration should be increased to 100% until recovery of a normal heart rate. Perhaps this could be included as a boxed comment in this section or linked to a similar comment elsewhere in the manual.


   **Comment:** This excellent guide recommends an oxygen flow rate of at least 5L/minute for a self-inflating bag in resuscitation of the newborn.

   **Comment:** The product information specifies that an FiO2 of 100% can be delivered using a paediatric bag (500mls) with a oxygen flow rate of 8L/minute up to a delivered Tidal Volume of 300mls at 24 breaths/minute. With the adult bag (1600mls) an FiO2 of 100% can be delivered with an oxygen flow rate of 15L/minute breaths/minute up to a Tidal Volume of 1000mls at 24 breaths per minute.

    **Comment:** In compensated shock, blood pressure remains normal; it is low in decompensated shock. Hypotension is a systolic blood pressure less than the 5th percentile of normal for age. There are more complicated data but this is easy to work with.

**Comment:** Defines what is normal BP in children

   **Comment:** Gives numbers for upper limits of normal BPs.

   **Comment:** Gives limits for BPs and other parameters in shock

   **Comment:** Specifies IM adrenaline doses as 300mcg and 500mcg based on age (under 5yrs and over 5yrs)

   **Comment:** Reinforces that there is no guideline in under 1yo and clarifies the use of adult AEDs in the absence of paediatric AEDs.

   **Comment:** Confirms the lack of evidence for adrenaline over salbutamol in the management of asthma (however see Rainbow J, Browne GJ below who make a compelling case that some deaths from asthma may have been anaphylaxis).
Comment: Suggest adrenaline in cases of sudden severe asthma (acute asphyxic asthma) which they suggest may be a variant of anaphylaxis

Comment: Measured FiO2 at various flow rates and inspiratory pressures in neonatal manikins during PPV with a self-inflating bag (as would be available at most clinics, where Neopuff may not be available). Found that delivered FiO2 during PPV depends on 3 factors: oxygen flow rate, peak inspiratory pressures, and time elapsed. At all oxygen flow rates the delivered FiO2 was .85% and .95%, after 1 minute of PPV at 25 and 35 cm H2O, respectively which is reassuring.

Comment: Measured oxygen saturation transcutaneously and defines the normal pattern after delivery.

Additional references
Comment: I've taken the upper limits for systolic and diastolic BPs for neonates and infants from this reference.

Comment: Confirms the assessment for neonatal shock including BP, PR, RR, cerebral perfusion (responsiveness and tone).
Additional references (Dr Deb Fearon*)

Comment: We need to emphasise that blood pressure measurement is different in acute illness versus screening for chronic disease/post-strep GN. I would use the RCH table for BP as it is simple but it is just a guide.


Comment: These are guidelines only and are really aimed at the acutely sick patient.

(*Dr Deborah Fearon (FRACP, DTMTH) Paediatrician and Senior lecturer in rural and remote health medicine, Alice Springs Hospital/Flinders University.)

Comment re Indigenous/remote context

- The John Hunter guideline attached earlier alludes to premixed appropriate bags being available for 5% dextrose with either 0.45% saline or 0.9% saline with or without potassium 20mmol/L. I would be interested to have input from the NT Paediatricians as I understand (but could be wrong) that these changes have not been made at Alice Springs Hospital. Having said that there is a shift occurring elsewhere with good reason.

- Invasive monitoring is not available for clearer measures of shock in the neonate. Hence the recording of systolic and diastolic BPs rather than mean BP.

- Some clinics will not have paediatric pads or paediatric AEDs. This deserves a boxed comment in the resuscitation protocol suggesting that the adult AED be used with the pads front and rear to ensure adequate...
separation and accepting that the Joules delivered will be greater than 4 joules per Kg. Cannot be recommended for under 12 months of age (infants) as per ARC.

Assessing trauma - Primary and secondary survey (CPM p35)

Suggested research
There is no strong scientific evidence for the application of the Primary and Secondary Survey in trauma. The role of cervical collars is under review. There is an evolving refining of the purpose and timing of the log roll in the initial assessment. This is particularly relevant to the austere/remote context where every care needs to be taken not to burden the initial responders with procedures and interventions which are not of actual benefit.

Primary references
   Comment: Provides a credible description of the Primary and Secondary Survey as it applies to children.

   Comment: The Advanced Trauma Life Support (ATLS), taught in Australia as the EMST-RACS, has taught the approach to the Primary and Secondary survey described in this protocol. This course also addresses the concepts of mass casualty triage and the change of focus to doing the greatest good for the greatest number.


Comment: This document supports the sieve and sort of triage in mass casualty events including the concepts of not diverting critical resources to the resuscitation and urgent transport of those who are deceased or who have injuries incompatible with survival.

Comment: This document also supports the sieve and sort of triage in mass casualty events including the concepts of not diverting critical resources to the resuscitation and urgent transport of those who are deceased or who have injuries incompatible with survival.

Comment: Guideline recommend against using taping and sandbags only. The authors recommend a rigid collar, rigid backboard, blocks (eg foam) and strapping, or preferably a vacuum mattress for transport. The authors comment that sandbags, because of their weight and inertia with acceleration or sudden changes in direction, may be hazardous to the patient.

Comment: This documents lends support to the concept that a head injury with a GCS of 13 or less should not be regarded as mild as this cohort has a 10-15% mortality with up to 30% requiring neurosurgery.

Additional references: Log rolling
General comment:
- There is no convincing evidence in favour of log rolling trauma patients for clearance of the spine. There is the potential for log
rolling to aggravate spinal cord injury, induce bleeding from pelvic fractures, aggravate chest injuries and cause unnecessary pain and patient anxiety. If there is polytrauma, or if there are neurological deficits or coma the spine should be immobilized and log roll examination of the back deferred, unless there is concern for penetrating trauma. Log roll examination for penetrating injury is recommended in the primary survey if there is respiratory or haemodynamic instability.

- If the patient is alert, co-operative, sober and without back pain or neurological deficit they can be asked to roll on their side or sit up to enable examination of their back.

- Otherwise the patient will be CAT scanned (elsewhere) prior to clearance.

- There are brief evidence summaries, some primary research and conversations around this topic, referenced below.

   **Comment:** The authors present a review of the literature confirming that log rolling produces movement of the spine. The focus of this article is directed to the management following the initial assessment, and transport.

    **Comment:** This study provides further evidence that imaging is usually required to clear the spine unless the patient is asymptomatic, attentive, sober and free of distracting injury.

    **Comment:** Once again the focus is after the initial assessment and transport. The author makes the point that there are indications for a log
roll, eg vomiting when there is concern for a spinal cord injury, however he reinforces the potential for adverse outcomes from log rolling.

Comment: Esposito et al are not examining log rolling but one of the oft quoted reasons for undertaking the procedure, the rectal exam. They argue that it is a test of little predictive value or reliability and rarely lends information that wasn’t otherwise known whilst subjecting the patient to the discomfort and risk and potentially exposing the ED staff to harm.

Comment: Moss et al make similar comments about pain and potential to aggravate pelvic injury in log rolling but don't advise against it as part of the initial assessment. Although the title of the group sounds impressive they make ‘guidelines’ without explaining the evidence base. Consequently I have relegated their consensus statement to Expert Opinion.

Comment re Indigenous/remote context
- The direction that ‘if the patient is alert, co-operative, sober and without back pain or neurological deficit they can be asked to roll on their side or sit up to enable examination of their back, otherwise the patient will be CAT scanned (elsewhere) prior to clearance’ would ensure better stewardship of the key resources of personnel and time in the remote context.

Keeping airway open and assisting breathing (CPM p44)

Primary references
https://resus.org.au/guidelines/  
- ANZCOR Guideline 2 – Managing an emergency; 2012 Nov.
Advanced airway management (CPM p49)

Primary references
https://resus.org.au/guidelines/
   • ANZCOR Guideline 11.1 – Introduction to Adult Advanced Life Support; 2010 Dec.


Additional references
Evidence to support recommendations regarding cricoid pressure
http://www.trendsanaesthesiacriticalcare.com/article/S2210-8440(14)20057-8/abstract


Putting in IV cannula (CPM p84)

*Primary references*

*Additional references*

Putting in IV butterfly (CPM p86)

*Primary references*


**Comment:** It is difficult to find good quality contemporary references for this procedure as most focus on using the vacutainer system to collect
blood, or using butterflies for subcutaneous fluids/infusions in a palliative care setting.

**Putting in IO needle**  (CPM p88)

*Primary reference*
   http://emedicine.medscape.com/article/908610-overview#a8

**Putting in a nasogastric tube**  (CPM p81)

*Primary references*


   https://doclibrary-rcht.cornwall.nhs.uk/GET/d10225196

   http://www.nrls.npsa.nhs.uk/alerts/?entryid45=129640

**Choking**  (CPM p62)

*Primary references*
Rheumatic fever and heart disease (STM p294)

Primary reference

1. RHD Australia (ARF/RHD writing group), National Heart Foundation of Australia and the Cardiac Society of Australia and New Zealand. Australian guideline for prevention, diagnosis and management of acute rheumatic fever and rheumatic heart disease. 2nd ed. 2012.
   https://www.rhdaustralia.org.au/node/950/attachment
   Comment: The RHD Australia guidelines (2012) provide an excellent and comprehensive summary of the management issues faced in Acute Rheumatic Fever and Rheumatic Heart Disease in the Australian setting. They are very well referenced and the evidence used to inform their recommendations remains current.

Additional references (new evidence)

   Comment: Recommendations for antibiotic prophylaxis contain different doses than primary reference.
Comment: No significantly different recommendations to primary reference.

Rheumatic heart disease in pregnancy (WBM p136)
Primary reference
Comment: This guideline is scheduled for review 2016. It is thought minimal areas need changing: update the diagnosis pathways, ensure 21-18 days is clear, and increase primordial support.

Additional references


4. Expert opinion – Kylie Tune (RN), Research nurse, Menzies School of Health Research.

Warfarin (STM p299)
Primary references

**Comment:** This is an in depth document produced by Queensland Health and has been reviewed by all major stakeholders in Queensland namely

- Community Warfarin Working Party (includes representatives from Royal Flying Doctor Service, Home Based Acute Care Service, Hospital in the Home, private pathology, haematology, medical advisers, general practice, pharmacy, nursing, patient safety and medication safety)
- Safe and Quality Use of Medicines Advisory Group
- Statewide Cardiac Clinical Care Network
- Statewide General Medicine Clinical Care Network
- Statewide Stroke Clinical Care Network
- General Practice Queensland
- Medicare Locals Queensland
- Queensland Health Office of Rural and Remote Health


**Comment:**
Excellent existing guideline. This is not in as much detail as the QLD guideline but is a little more user friendly.

The therapeutic guidelines are published in a number of areas and are validated in the Australian context by Australian experts. This is used in most Queensland remote centres as a guide and meshes nicely with the management in the same issue in the hospitals and urban settings.

The therapeutic guidelines are a mainstay of Australian clinical practice.

An account is required but all Queensland Health computers can access this through CKN (clinician knowledge network).

I seem to recall that all NT government computers have access to it.

I use these guidelines - antibiotic, cardiovascular, endocrine etc - numerous times in my every day practice. They can also be accessed via tablet and mobile phone.
References for the warfarin section


Comment:
These have been reviewed for the therapeutic guidelines by a panel who represent a range of Australian experts from different areas of practice (primary, tertiary, academic etc).

Additional references (remote context)


Comment: Online tool published by RHD Australia is ideal for the management of warfarin in the remote setting. Health care workers and nurses are the target audience.

The main issue with the two primary guidelines cited is that they refer to medications which may not be available in remote settings, eg Prothrombinex for warfarin reversal.

They also are primarily written for doctors (although remote area nurses would usually have the skill mix to interpret them).

Sexual health

STI management for women (WBM p245)
Abnormal vaginal discharge (WBM p253)

Primary references
   CDC Guidelines:
   **Comment:** Treatment is recommended for all symptomatic pregnant women.

   **Comment:** Trichomoniasis - Symptomatic pregnant women, regardless of pregnancy stage, should be tested and considered for.

   **Comment:** Treatment is recommended for all pregnant women with symptoms, although the evidence is conflicting in terms of the benefits of treatment on the outcomes of pregnancy. Women undergoing termination of pregnancy should be treated to reduce risk of post-termination PID.

**Additional references**

   http://apps.who.int/medicinedocs/en/d/Jh2942e/1.html


   http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2924808/


**STI checks for men (STM p272)**

**STI checks for women (WBM p238)**

*Primary references*


2. Clutterbuck DJ, Flowers P, Barber T, Wilson H, Nelson M, Hedge B. UK national guidelines on safer sex advice. The Clinical effectiveness Group of the British Association for Sexual health and HIV (BASHH) and the British

3. US Preventive Services task Force. Recommendations for primary care practice [Internet]; August 2015. Available at: 
http://www.uspreventiveservicestaskforce.org/Page/Name/recommendations/

http://www.uptodate.com/contents/screening-for-sexually-transmitted-infections


Context specific references


Management of symptomatic presentations and positive pathology
Includes:

**STI management (STM p278)**

**STI management for women (WBM p245)**

**Abnormal vaginal discharge (WBM p253)**

**Discharge from penis or pain on passing urine (STM p286)**

**Genital ulcers and lumps (STM p288, WBM p256)**

**Painful scrotum (STM p384)**

**Pelvic inflammatory disease (WBM p260)**

**STIs in pregnancy (WBM p241)**

**STI checks for women (WBM p238)**

*Primary references*


first-trimester-prenatal-care


19. NACCHO/RACGP. National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people. 2nd ed. South Melbourne: The RACGP; 2012.

Palliative and supportive care

Palliative Care (CPM p133)

Primary reference
http://www.tg.org.au

Disability (CPM p131)

Primary reference
http://www.who.int/classifications/icf/en/

Pain management (STM p377)

Comment:
Assessment and Management of Pain
What is it?
Pain is considered to be an experience involving the perception of the body responding to potential dangers and risks. It is considered to have three important roles of a) bringing a person’s awareness to a potential threat, b) facilitating healing process and minimising further potential tissue changes, and c) communicating distress to others. Pain brings activity, behaviour, thought processing, endocrinological and immunological system responses.
Variation in people’s pain, for similar conditions, can relate to processes occurring within symptomatic tissue, however it is more related to the context of the experience. Research has demonstrated that any concurrent challenges in internal or external environments can modulate pain, for those who are asymptomatic and particularly for those in pain states. Any physical, psychological or social strains can elevate the perceived threat response attached to pain. Therefore pain is impacted by, and impacts, a person’s physical, emotional, cognitive and social functioning.

As research consistently shows that the experience of pain, in intensity, quality and its effects, bears little relationship to underlying conditions, objective measuring of pain will always be difficult. However this deficiency in examination does not necessarily limit the determining of management strategies, which importantly need to align with issues identified through comprehensive biopsychosocial assessments.

Pain states can be categorised loosely into three classes, that usually co-exist. **Nociceptive Pain (NP)** involves the body’s awareness of local chemical responses to underlying pathology located within symptomatic tissue. **Peripheral Neuropathic Pain (PNP)** involves changes in peripheral nerves and nerve roots. This can be related to Diabetic or Herpes virus sequelae, as well as entrapment by musculoskeletal tissue(s). The latter is recognised when there are symptoms of a burning pain in a limb relating to spinal dysfunction, possibly with accompanying paraesthesia and/or weakness. **Central Sensitisation Pain (CSP)** occurs where the Central Nervous System (CNS) has altered to have a heightened response. The pathology in this case relates to transformations within the dorsal horn of the spinal cord, the brainstem and higher centres having exaggerated outputs. This occurs as a result of ongoing pain processes with time making the CNS more efficient at focussing on afferent information, or due to physical, psychological or social stresses enhancing how any threats are processed. Such complex or chronic pain states have a close relationship with other Functional Sensitivity Syndromes of the CNS, including IBS, Fibromyalgia Syndrome, Pelvic Pain, Persistent Headaches, Chronic Fatigue Syndrome, etc.

**Assessment of Pain**
To determine to what degree a person’s presentation may be driven by the three different pain states (NP, PNP, CSP) requires biopsychosocial
assessment. Such an approach is relevant at all stages of a condition, as targeting management strategies to which one of these is most involved, will always be most clinically beneficial. Previously a biopsychosocial approach was considered relevant only after a certain period of time, however research has demonstrated that this can be worthwhile even at the initial onset of a pain experience.

For all clinicians there are multiple difficulties with assessing pain. The relationship between pain and underlying conditions is poor as it is a subjective experience dependant on an individual’s own understanding, with the complex interaction of various mechanisms as discussed above. Developing therapeutic rapport is critical in order to understand an individual’s situation. As pain experiences are always subjectively experienced, they therefore will relate to a person’s psychocultural heritage. As a result there a difference between health professionals and health service users of the understanding of causes and management ideas. These cross cultural differences relate to levels of education, other socioeconomic influences, age, ethnicities, language abilities and past experiences. These all intersect and are expressed in the beliefs a person may hold relating to their health / illness, their choosing of coping strategies and how health care is accessed. It is considered important to develop a shared language of health literacy that combines a person’s own explanatory model of health with the biopsychosocial care model for pain held within health service systems.

Research internationally continues to show that for ethnic minorities, health professionals will face difficulties in comprehending the prevalence of pain conditions and the impact on daily functioning. It is no surprise that there is a corresponding issue of inequitable delivery of health care for such groups in society. Similarly there is universal consensus that for older adults, valuing their levels of pain and ensuring reasonable management plans is insufficient. Working with Australian Aboriginal clients has demonstrated that health services currently have limited comprehension of the pain states for this section of the community. There is a corresponding lack of parity of care pathways across society. It is recommended that a communication style of ‘yarning’ will assist practitioners in not only bridging differences in health literacy, but also ensure that a fuller understanding of a person’s experience is gathered. Such approaches will ensure care is clinically most relevant and adheres to principles of cultural safety.
Pain assessment firstly determines the chance of a serious underlying condition. This includes questioning as to the history, any patterns of when pain is exacerbated or eased, and changes over the day. Red flags assessment includes determining for presence of other symptoms that may suggest serious pathology such as potential organ dysfunction, inflammatory chemicals from intervertebral discs influencing nerves, cauda equina compromise or infective processes. Asking about general health status, unexplained weight loss, fevers and changes to gait are routine in pain assessment. Questioning, for the lower body about bladder and bowel function or saddle paraesthesia, for the upper body about accompanying headaches or cranial nerve function, and for multiple joints about health of skin layers including mucous membranes and nail, is also recommended.

Subjective history taking also provides the opportunity to determine if there are stresses present which may be elevating the threat response of pain for an individual. This includes developing an understanding of the degree of interferences due to pain; physical functioning: emotional disturbances: cognitive abilities: vocational engagement, and: social life, including how others at home or in a workplace are responding to their pain state. Also helpful is investigating what beliefs someone holds as to, the cause of pain, expectations of recovery and coping strategies being accessed, to ascertain the level of active management being utilised. Such psychosocial assessing is helpful at all stages of a person’s presentation, as levels of such distress can provide clear indication of those who may develop the complex presentation of CSP. Common factors include fears of moving, the perception of having limited ability to change any functional concerns, confusing messages from different health professionals, emotional stresses, or pressures at work or at home.

Objective testing will target any systems that may be implicated, either visceral organs or musculoskeletal tissue. Again the examination faces difficulties where some dysfunctions can be negative to various testing procedures, and similarly some examination tests are poor at discriminating potential clinical concerns. For example someone having back pain that is radiating into the foot with associated weakness should be screened for the presence of radicular pain. Neurological testing may show reduced sensation, power and reflexes in the leg, however this can be present coincidentally due to individual variation and the limited validity of such testing. A Straight Leg Raise test on one side that produces contralateral leg pain has strong specificity to disc pathology,
however it often does not exist in the presence of such a condition. Further investigations may be warranted, however note should be taken that there is a high incidence of disc changes, joint changes and spondylolistheses in people who do not have back pain. For those presenting with back pain without indication of serious pathology, determining which musculoskeletal tissue is involved is flawed. Providing a label such as relating to a joint, muscle, disc or ligament does not change any management, and in fact can lead to iatrogenically derived CSP. Contemporary literature and guidelines classify such presentations with the diagnosis of Non-Specific Low Back Pain (NSLBP).

**Management of Pain**

**Principles of Care**

Pain management should take an individualised approach that combines appropriate use of medication with active self-management strategies that work to minimise any accompanying stresses. Working with physical functional improvements may need to be occurring in tandem with care that is mindful of emotional, cognitive and social aspects of a person’s pain experience. This will involve being aware of, and addressing, anxieties that are expressed in the clinical interaction. At all times pain management should be pitched at a person’s level of health literacy, and should be bringing together their personal health and illness beliefs with evidence based literature.

**Nociceptive Pain (NP)**

Managing NP requires treating the underlying condition and providing symptomatic pain management. Generally as the issue resolves and returns to normal, so the pain state will subside. Pharmacological management involves commencing with appropriate doses of Paracetamol, potentially with addition of an NSAID as required, and, if necessary, low dose opioids taking into consideration co-morbidities, side-effects and medication interactions. Symptomatic relief has the dual benefit of normalising a person’s function, which brings enhanced outcomes, with preventing the potential detrimental transition from NP into CSP.

Non-pharmacological management involves maintaining an active lifestyle, with the aid of analgesia as needed. Managing potential causes of distress is critical to the long term outcome for those in pain. The presence of pain may lead to the generation of unhelpful behaviour and thoughts. Identifying attitudes that overstate the significance of the pain,
fears related to perceptions of the causes of pain and future consequences, thoughts arising from past experiences, or beliefs of what care plans are required to regain function and what role the person sees themselves playing, enables management strategies.

Using the example of acute NSLBP, treatment will usually involve provision of pain relief, of reassurance that time is effective in the resolution of the greater majority of cases, and of encouraging an active attitude to restoring normal daily activity, including returning to work, with a modification of duties if needed. Like other acute musculoskeletal pain conditions, there are no specific activities or exercise which provide greater benefits and require recommendation above others.

**Peripheral Neuropathic Pain (PNP)**
Management of PNP can be similar to that for NP. In addition there are adjuvant anti-neuropathic medications which can bring benefits. This includes the trialling of tricyclic antidepressants such as Amitriptyline, and anti-convulsants such as Pregabalin.

**Preventing the transition from acute pain states to the complex pain of Central Sensitisation Pain (CSP)**
With appropriate health care, and time, the majority of pain conditions settle. There are cases where this does not occur, which may be due to an underlying pathology being incompletely resolved, including potentially ongoing neuropathic pain. There are other factors, some of which can be induced by health services.

The provision of excessive or inappropriate tests and scans, with a chance of falsely positive anomalies, or the early labelling of an incorrect diagnosis can lead to people holding beliefs about their condition which later become a barrier to regaining functioning. Similarly providing advice of prolonged immobilisation or rest can be detrimental. This is for various conditions, eg NSLBP, Complex Regional Pain Syndrome, or Whiplash Associated Disorders. Evidence shows that the attitude of health professionals is important in regaining function, where practitioners with more encouraging approaches, which do not allow fears about activity to prevent movement, produce enhanced outcomes. Delayed offering of appropriate medication may enhance the chances of ongoing pain processing producing changes within the CNS, and of developing detrimental thought patterns, motor activity and behaviours, limiting a person’s ability to regain function as early as possible.
For factors that predict the chance of the transition to ongoing pain states, psychosocial indicators are strongest. This is across various conditions, including low back pain, post-surgical pain, and following fractures. Addressing these requires early identification and management of a patient’s anxieties connected to their pain, the provision of education and the building of coping skills. Previously, psychosocial management styles were advocated when pain is ongoing, however current evidence suggests that this is an appropriate model of care as early as possible. It is recognised as difficult that preventing such transitions relates to minimising the psychosocial stresses in people’s lives, and this is a fraught issue when people live with past or current traumas, and in physical and social environments of disadvantage and complex strains.

**Central Sensitisation Pain (CSP)**

For complex and chronic pain states, management must adhere to a biopsychosocial approach. This commences with understanding the physical impact of pain on a person’s life, but also determining the influence of co-morbidities, relevant beliefs and expectations held, alterations in mood, and social strains present. It can be helpful to outline to people that routes of questioning are important to delve beyond the physical pain, as evidence is consistent that the complex interactions of psychosocial causes of distress should be a focus for improving levels of function.

Education is important to inform that the presence of pain in such conditions is not linked to any underlying tissue damage occurring. This should be partnered by imparting that the pain being experienced is real, and the relevant pathology is arising from CNS changes of heightened sensitivity. It is considered important to legitimise the pain and that in such conditions there are cascading effects on a person’s abilities physically, psychologically and socially.

Exacerbated responses occur within the CNS when it is required to process pain over a prolonged period, or when accompanied by psychosocial distress. Such evidence is found across various pain conditions, including where there is ongoing tissue pathology. In the case of Rheumatoid Arthritis, people’s physical functioning, CNS reactivity and pain being experienced is related more to scales of distress than to joint pathology.
To assist people through such chronic conditions, health care that involves relevant pharmacology partnered with individualised psychosocial support brings the greatest benefits. Personalising this approach includes engaging the person to identify what are significant issues for them, what are their relevant aspirations, and what are the strategies most likely to achieve these.

As CSP is a result of nervous system dysfunction, neuropathic medication as discussed above can be relevant. The Long term use of medication is recognised as a concern. Opioid (mis)use issues occur across all societies, and the benefits while being available to all, should be mindful of minimising potential harmful effects. It is recommended that progression onto opioids should occur with trials for four weeks where the expectations are agreed upon, and if not achieved, changing the regime is recommended.

Where appropriate, the engagement of Pain Management Services may be considered. This includes the opportunity of Pain Management Consultants and other disciplines providing support using telehealth facilities. This may be worthwhile for confirmation of management that focusses on modifying any beliefs of pain being linked to damaged tissues, particularly those which may invoke fear related to movement and activities.

Des O’Shaughnessy, physiotherapist
Pain Service Co-ordinator
Central Australia Health Service

Primary references
Acute Pain Management

Comment:
An extensive document on pain with a focus on acute presentations. Key messages at the front provide clear clinical guidance. Chapters on various medications, routes of administration, and various presentations
including with cancer, paediatrics, pregnancy and Aboriginal and Torres Strait Islander communities

Complex or Ongoing Pain States – Central Sensitisation Pain (CSP)

   **Comment:** A comprehensive guideline on chronic pain, with key recommendations at the front, and a focus on various management strategies, including appendices of different pathways for clinical presentations


Low back pain


   **Comment:** Brief documents on acute low back pain which compiles evidence into key points. The NZ guideline also has a section on Yellow Flags

Neuropathic pain


Comment: A clear breakdown of how to commence and progress management of neuropathic pain

Arthritis


Context specific reference


Comment re Indigenous/remote context

As pain is a contextual event, it varies in how it is experienced, expressed and managed depending on a person’s ethnic, socioeconomic and family background. Under-reporting of pain by Indigenous people is partly a result of negative experiences in the past within health service delivery and a perception of discriminatory behaviour:


The misperception of Aboriginal people being stoic to pain has led to this group being at risk of insufficient treatment (see Reference 2). Low Back Pain has been found to be prevalent and a cause of significant disability for Aboriginal people in remote and regional parts of the country:


Engaging successfully with this patient group regarding pain requires an informal conversational style of communication, and acknowledgement of emotional pains, some of which arise from the histories of colonisation (Strong et al 2015, Lin et al 2014).
**Vascular disease**

**Interpreting results (STM p234)**

*Primary references*


*Additional references*


**Anaemia in adults (STM p303)**

*Primary reference*

**Additional reference**


**Assessing and reducing cardiovascular risk (STM p230)**

*Primary reference*


**Abnormal blood fats (STM p242)**

*Primary reference*


**Coronary artery disease (STM p250)**

*Primary references*

   **Comment:** The Australian guidelines published by the Heart Foundation are user friendly and summarise the comprehensive AHA guidelines.

Context specific references


Comment: Paper discusses Indigenous Australian heritage as a predictor of coronary artery spasm in those with insignificant coronary artery disease and clinical features suggestive of coronary spasm such as nocturnal or rest chest pain and nitrate-responsive chest pain. Such patients would be expected to have a negative exercise stress test. Such patients could benefit from calcium channel blockers as opposed to beta blockers. Consider adding to guidelines.

Heart failure (STM p264)

Suggested research

Heart failure in Aboriginal patients and patients with multiple comorbidities have been under evaluated. RCT's that form the basis for guidelines have found it difficult to factor in some of these variables. Accordingly there are situations where these patients will require a varied approach.

Primary references


2. McMurray JJ, Adamopoulos S, Anker SD, Auricchio A, Bohm M, Dickstein K, et al. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure
Comment on above guidelines:
The American and European guidelines are excellent and comprehensive and should be used as an additional reference for the vast majority of heart failure management. The Australian guidelines have been adapted into user friendly books that are readily available through the Heart Foundation.

Additional references


Additional references – new evidence


Comment on above references: The use of aldosterone receptor blockers for class I and II heart failure is evolving. The current ACCF/AHA guidelines advocate use in class II patients with prior cardiovascular hospitalisation
or elevated plasma natriuretic peptide. For class I patients primary care physicians should consult specialist opinion.

**Context specific references**


**Comment on above references:** Due to the high prevalence of renal dysfunction, diabetes, airways disease or rheumatic heart disease there is the risk of sub therapeutic treatment doses or non-compliance from complicated regimes. There is also limited evidence as to the best approach. Where there is concern about using out of guideline treatments such as a once daily option, or not prescribing from concerns of worsening renal function, worsening diabetic control, or airways exacerbation specialist care should be sought.

**High BP (hypertension) (STM p268)**

*Primary reference*


**Severe pre-eclampsia (WBM p21)**

*Primary references*


Additional references


High BP (hypertension) in pregnancy (STM p127)

Primary reference

Violence and assault

Sexual assault in adults (WBM p327, CPM p73)

Primary references


Domestic and family violence (STM p54, WBM p324)

Primary references


4. Breckenridge J, Rees S, Valentine K, Murray S. Meta-evaluation of existing interagency partnerships, collaboration, coordination and/or integrated interventions and service responses to violence against women: State of


