

*Rural Hospital Medicine*

# Curriculum Area Statements



The Royal New Zealand  
College of General Practitioners  
Te Whare Tohu Rata o Aotearoa

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ISBN: 978-1-927240-47-2

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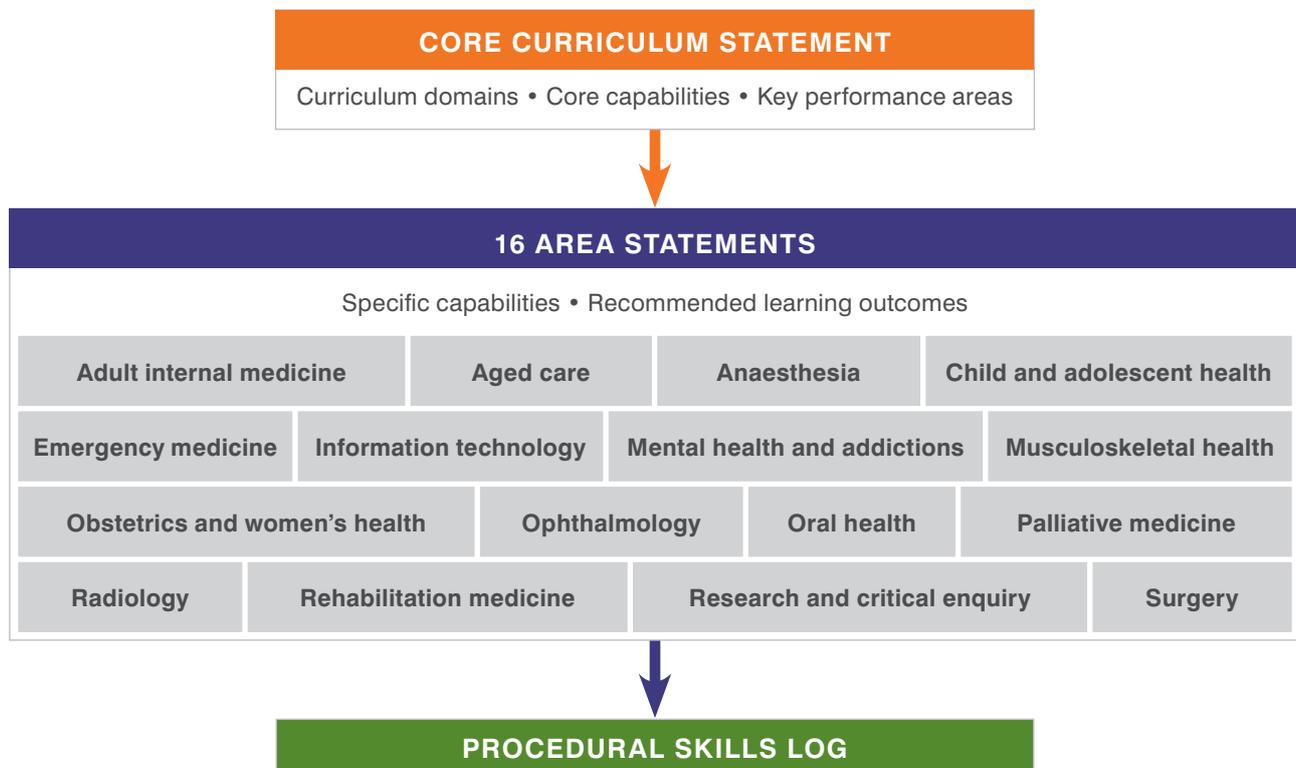
# Introduction

The high-level framework for the rural hospital medicine (RHM) curriculum is provided in the RHM Core Curriculum Statement. The Core Curriculum Statement describes the six domains of the RHM curriculum and the core capabilities associated with each. This document provides further detail regarding the 16 specific content areas of the curriculum.

Each area statement lists the specific capabilities that a Fellow of the Division of Rural Hospital Medicine (the Division) displays when providing care or undertaking activities in that area. These are grouped into the six curriculum domains described in the Core Curriculum Statement. Each area statement also includes a learning frame, which contains more specific information regarding common and important clinical conditions within the specialty and considerations for their diagnosis and management in the rural hospital environment.

The learning frames convey the wide scope of RHM as it can potentially be practised throughout New Zealand. They are intended to be used by the registrar to guide learning both within clinical rotations and in preparation for academic and StAMPS assessments. The information within the learning frames is not exhaustive and neither describes assessable competencies, nor prescribes the range or depth of knowledge a rural hospital doctor will need to safely practise in their own work environment.

Many of the specific procedural skills described in the learning frames are included in the registrar skills log that will be completed during training.



# Adult internal medicine

## Overview

The acute and inpatient management of medical conditions in adult patients accounts for much of the clinical workload of rural hospital doctors. After initial assessment and stabilisation, the decision to continue management at the rural hospital is dependent on several factors. These include the nature and severity of the patient's illness, the skills and knowledge of medical and nursing staff, diagnostic and staffing resources, and (increasingly) patient preferences.

As the training and experience of rural hospital medical staff grow and as pressures on bed-space capacity at referral hospitals continues to increase, it can be expected that medically complex patients will be increasingly managed locally, with support from referral-hospital specialists. In addition, telemedicine advances enable patients to be seen by rural hospital doctors in clinic situations, with off-site specialists able to observe and interact with both the patient and the rural hospital doctor to develop medical care plans. These developments can offer benefits for patients and the health care system, as well as rural hospital doctors themselves through enhanced experience, skill sets and collegial relationships.

As developments occur, it is important rural hospital doctors retain the role of patient advocate, ensuring that patients managed in rural hospitals and/or communities are not disadvantaged through any lack of direct specialist contact, and reconsidering referral/transfer options where co-management plans are not delivering anticipated patient outcomes.

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## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division providing care in the area of adult internal medicine include the following:

### **Rural hospital context** *(including health equity and Māori health)*

- Demonstrate expertise in consultation skills and effective therapeutic relationships with Māori and other cultures to reduce the inequities in outcomes in relation to internal medicine conditions such as ischaemic heart disease, diabetes, stroke and cancer.

### **Communication** *(including cultural competence)*

- Develop effective working relationships with other professionals such as referral-hospital specialists, general practitioners and nurse practitioners, and communication strategies that optimise patient care.
- Effectively use telehealth equipment and tools in acute, inpatient or clinic situations to enhance specialist and subspecialist assessment and aid management planning.

### **Clinical expertise**

- Demonstrate knowledge in the pathophysiology, diagnosis and management of common conditions in adult internal medicine.
- Demonstrate expertise in history taking, physical examination, diagnosis, therapeutics and rehabilitation in the context of medical illness.
- Appropriately request and interpret diagnostic investigations in internal medicine.
- Understand the pharmacology of medications used in the treatment of medical conditions.

*See learning frame and skills log for further details.*

### Professionalism

- > Work effectively and supportively as part of a multidisciplinary team and refer appropriately to other health professionals.
- > Develop a referral and advisory network for complex problems.
- > Record and document appropriately to support patient care and to meet medicolegal requirements.

### Scholarship

- > Undertake teaching and research as they apply to management of medical conditions in the rural hospital.

## Learning frame

Medical condition	Recommended learning outcomes
<b>Cardiovascular medicine</b>	
<ul style="list-style-type: none"> <li>&gt; Cardiac arrhythmias               <ul style="list-style-type: none"> <li>– Supraventricular arrhythmias</li> <li>– Ventricular arrhythmias</li> </ul> </li> <li>&gt; Ischaemic heart disease               <ul style="list-style-type: none"> <li>– Myocardial infarction</li> <li>– Angina</li> </ul> </li> <li>&gt; Valvular heart disease               <ul style="list-style-type: none"> <li>– Aortic and mitral valve disease</li> <li>– Ventricular and atrial septal defects</li> <li>– Bacterial endocarditis</li> </ul> </li> <li>&gt; Cardiac failure               <ul style="list-style-type: none"> <li>– Acute left ventricular failure</li> <li>– Chronic heart failure with or without preserved ejection fraction</li> <li>– Cor pulmonale</li> </ul> </li> <li>&gt; Cardiomyopathy               <ul style="list-style-type: none"> <li>– Dilated</li> <li>– Hypertrophic</li> <li>– Restrictive</li> <li>– Takotsubo</li> </ul> </li> <li>&gt; Pericarditis</li> <li>&gt; Hypertension</li> <li>&gt; Peripheral vascular disease               <ul style="list-style-type: none"> <li>– Arterial and venous ulcers</li> <li>– Ischaemic limb disease</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of cardiovascular anatomy and physiology and the aetiology, pathogenesis and clinical features of common and important cardiovascular diseases</li> <li>&gt; Perform examinations and interpret findings relevant to cardiovascular medicine, including:               <ul style="list-style-type: none"> <li>– Cardiovascular examination</li> <li>– Fundoscopy</li> <li>– Assessment of volume status</li> <li>– Bedside echocardiography and IVC assessment (recommended advanced skill)</li> </ul> </li> <li>&gt; Arrange/perform and interpret relevant investigations, including:               <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, troponin, BNP, lipids; glucose, HbA1c, coag profile, Mg, Ca/PO4, TSH, blood cultures, drug levels, arterial/venous blood gas</li> <li>– Urinalysis</li> <li>– ECG</li> <li>– CXR</li> <li>– Formal echocardiogram (TTE or TOE)</li> <li>– Exercise tolerance test</li> <li>– Ambulatory blood pressure monitoring</li> <li>– Holter/event monitoring</li> <li>– Doppler studies</li> </ul> </li> <li>&gt; Understand and appropriately use up-to-date and validated clinical scoring systems for cardiovascular conditions, including those to assess:               <ul style="list-style-type: none"> <li>– Stroke risk in atrial fibrillation</li> <li>– ACS risk in patients presenting with chest pain</li> <li>– Major bleeding risk in patients taking anticoagulants</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<i>Cardiovascular medicine cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Cardiovascular syncope</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Provide competent and timely management, including:               <ul style="list-style-type: none"> <li>– Cardiac arrest procedures</li> <li>– Elective and emergency cardioversion</li> <li>– Pericardiocentesis</li> <li>– Pharmacological management, such as thrombolytics, inotropes, chronotropes, antiplatelet agents, anticoagulants, antianginals, antiarrhythmics, antihypertensives, diuretics, statins, prophylactic antibiotics, NSAIDs, opioids, anxiolytics, palliative home oxygen, drug monitoring</li> <li>– Non-pharmacological management, such as valsalva manoeuvre, pacing, dietary sodium restriction, daily record of symptoms/weight, withdrawal of precipitating medications, education and support (physical activity, diet modification, moderation of alcohol consumption, smoking cessation, weight reduction), advanced care planning</li> <li>– Refer for further work-up/management, such as specialist advice/review, angiography, valve surgery, pacemaker/defibrillator implantation, cardiac rehabilitation, BP monitoring, palliative team referral</li> </ul> </li> <li>&gt; Understand and undertake appropriate screening strategies to reduce harm from cardiovascular disease in at-risk patients</li> </ul>
<b>Respiratory and sleep medicine</b>	
<ul style="list-style-type: none"> <li>&gt; Asthma</li> <li>&gt; Chronic obstructive pulmonary disease</li> <li>&gt; Respiratory infections               <ul style="list-style-type: none"> <li>– Acute and chronic bronchitis</li> <li>– Pneumonia</li> <li>– Tuberculosis</li> </ul> </li> <li>&gt; Interstitial lung disease               <ul style="list-style-type: none"> <li>– Sarcoidosis</li> <li>– Hypersensitivity pneumonitis</li> <li>– Idiopathic interstitial pneumonia</li> <li>– Connective tissue disease-associated</li> <li>– Drug-induced</li> <li>– Idiopathic pulmonary fibrosis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of airway and lung anatomy and respiratory and sleep physiology, and the aetiology, pathogenesis and clinical features of common and important respiratory diseases and sleep disorders</li> <li>&gt; Perform examinations and interpret findings, including:               <ul style="list-style-type: none"> <li>– Respiratory examination</li> <li>– Assessment of asthma severity</li> <li>– Bedside echocardiography and lung ultrasound for pneumothorax (recommended advanced skill)</li> </ul> </li> <li>&gt; Arrange/perform and interpret relevant investigations, including:               <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, glucose, CRP, LFTs, ABG, autoantibodies, blood cultures, coag profile, D-dimer</li> <li>– Sputum analysis, such as gram stain, MC&amp;S</li> <li>– Specific microbiology tests, such as pneumococcal (urinary antigen), legionella (sputum culture/PCR, urinary antigen, serology), TB (ZN stain, culture), <i>Pneumocystis jirovecii</i> (stain), viral (throat/NP swab for multiplex PCR)</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<i>Respiratory and sleep medicine cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Occupational/environmental lung disease               <ul style="list-style-type: none"> <li>– Occupational asthma</li> <li>– Asbestosis</li> </ul> </li> <li>&gt; Bronchiectasis</li> <li>&gt; Aspiration pneumonitis</li> <li>&gt; Acute respiratory distress syndrome</li> <li>&gt; Pulmonary embolus</li> <li>&gt; Pulmonary neoplasms</li> <li>&gt; Pleural disease</li> <li>&gt; Spontaneous pneumothorax</li> <li>&gt; Haemothorax</li> <li>&gt; Obstructive sleep apnoea</li> </ul>	<ul style="list-style-type: none"> <li>– Peak flow measurement</li> <li>– Spirometry</li> <li>– CXR</li> <li>– ECG</li> <li>– CT chest, CT-PA</li> <li>– Pleurocentesis/pleural fluid analysis, such as chemistry, MC&amp;S</li> <li>&gt; Understand and appropriately use up-to-date and validated clinical scoring systems or criteria for respiratory conditions, including those to assess:               <ul style="list-style-type: none"> <li>– Pneumonia severity</li> <li>– PE probability</li> <li>– Severity of airflow limitation in COPD</li> <li>– Dyspnoea in daily living</li> <li>– Pleural fluid composition (Light's criteria)</li> </ul> </li> <li>&gt; Calculate and interpret:               <ul style="list-style-type: none"> <li>– Acid-base balance from ABG</li> <li>– A-a gradient</li> </ul> </li> <li>&gt; Provide competent and timely management with an understanding of indications and contraindications, including:               <ul style="list-style-type: none"> <li>– Supplemental oxygen with appropriate delivery device</li> <li>– Emergency decompression of tension pneumothorax</li> <li>– Needle thoracocentesis</li> <li>– Intercostal drain insertion</li> <li>– Non-invasive positive pressure ventilation</li> <li>– Pharmacological management, such as bronchodilators, steroids, antibiotics, antihistamines, thrombolytics, anticoagulants, proton-pump inhibitors, vaccines, home oxygen</li> <li>– Non-pharmacological management, such as education and support (smoking cessation, weight reduction, physical activity, self-care, inhaler technique), address occupational and environmental factors, home CPAP, formulate asthma/COPD action plan, advanced care planning</li> <li>– Refer for further work-up/management, such as specialist advice/review, chest physiotherapy, bronchoscopy, pleural biopsy, sleep study, tunnelled chest drain, surgery, respiratory nurse, palliative referral</li> </ul> </li> <li>&gt; Demonstrate up-to-date knowledge of available inhaled preventer and reliever medications and their funding</li> <li>&gt; Demonstrate knowledge of indications for               <ul style="list-style-type: none"> <li>– Long-term or palliative domiciliary oxygen</li> <li>– Sleep study referral</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<b>Nephrology</b>	
<ul style="list-style-type: none"> <li>&gt; Acute renal failure</li> <li>&gt; Glomerulopathies <ul style="list-style-type: none"> <li>– Nephrotic syndrome</li> <li>– Acute glomerulonephritis</li> </ul> </li> <li>&gt; Tubulointerstitial nephritis</li> <li>&gt; Acute and recurrent urinary tract infections <ul style="list-style-type: none"> <li>– Pyelonephritis</li> <li>– Cystitis</li> <li>– Prostatitis</li> <li>– Urethritis</li> </ul> </li> <li>&gt; Renal vascular disease <ul style="list-style-type: none"> <li>– Polyarteritis nodosa</li> <li>– Haemolytic uraemic syndrome</li> <li>– Renal artery stenosis</li> </ul> </li> <li>&gt; Pulmonary-renal syndrome</li> <li>&gt; Chronic renal failure</li> <li>&gt; Renal and urinary tract calculi</li> <li>&gt; Urinary tract obstruction</li> <li>&gt; Peritoneal dialysis peritonitis</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of renal system anatomy and physiology and the aetiology, pathogenesis and clinical features of common and important renal diseases</li> <li>&gt; Perform examinations and interpret findings, including: <ul style="list-style-type: none"> <li>– Abdominal and/or prostate, pelvic exams</li> <li>– Assessment of volume status</li> <li>– Assess for stigmata of chronic renal disease</li> <li>– Bedside ultrasound assessment for bladder volume, hydronephrosis (recommended advanced skill)</li> </ul> </li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, Ca/PO4, VBG, HCO3, Cl, coag profile, glucose, CRP, autoantibodies, C3/4, cryoglobulins</li> <li>– Urinalysis, such as biochemistry (Na, K, Cr, osmolality), protein, MC&amp;S, cytology</li> <li>– Dialysate analysis, such as gram stain, MC&amp;S</li> <li>– ECG</li> <li>– Renal (KUB) ultrasound</li> <li>– CT-urogram, CT-nephrogram</li> <li>– Urodynamics, flow studies</li> </ul> </li> <li>&gt; Appropriately use the Cockcroft and Gault formula to: <ul style="list-style-type: none"> <li>– Provide an estimation of glomerular filtration rate</li> <li>– Calculate medication dose and frequency</li> <li>– Stage chronic renal disease</li> </ul> </li> <li>&gt; Provide competent and timely management, including: <ul style="list-style-type: none"> <li>– Pharmacologic management, such as glucose/insulin, bicarbonate, calcium, antibiotics, urinary alkalinisers, ACE inhibitors, steroids, alpha-antagonists, prophylactic antibiotics</li> <li>– Non-pharmacologic management, such as withdrawal of nephrotoxic medications, fluid management, voiding practices, catheterisation, in-hospital peritoneal dialysis, education and support (smoking cessation, dietary modification)</li> <li>– Refer for further work-up/management, such as specialist advice/review, nephrostomy, haemodialysis, renal biopsy, cystoscopy, lithotripsy, surgery, pharmacy review/education</li> </ul> </li> <li>&gt; Understand the effects of renal disease on metabolism of medications and the effect of medications on renal function</li> <li>&gt; Understand potential complications of chronic renal failure and dialysis, including electrolyte imbalance, dialysis disequilibrium, pericarditis, subdural haematoma</li> <li>&gt; Consider and manage increased cardiovascular risk in patients with chronic renal disease</li> </ul>

Medical condition	Recommended learning outcomes
<b>Neurology</b>	
<ul style="list-style-type: none"> <li>&gt; Stroke <ul style="list-style-type: none"> <li>– Ischaemic stroke</li> <li>– Intracranial haemorrhage</li> <li>– TIA</li> </ul> </li> <li>&gt; Epilepsy</li> <li>&gt; Headache syndromes <ul style="list-style-type: none"> <li>– Migraine</li> <li>– Tension headaches</li> <li>– Benign intracranial hypertension</li> </ul> </li> <li>&gt; Disequilibrium syndromes <ul style="list-style-type: none"> <li>– Vestibular neuronitis</li> <li>– BPPV</li> <li>– Eighth cranial nerve disease</li> </ul> </li> <li>&gt; Parkinson's disease</li> <li>&gt; Multiple sclerosis</li> <li>&gt; CNS/spinal cord infections <ul style="list-style-type: none"> <li>– Meningitis</li> <li>– Encephalitis</li> <li>– Brain and spinal abscesses</li> </ul> </li> <li>&gt; Primary CNS tumours</li> <li>&gt; Peripheral neuropathies <ul style="list-style-type: none"> <li>– Herpes zoster (shingles)</li> <li>– Trigeminal neuralgia</li> <li>– Metabolic, toxin and vitamin deficiency neuropathies</li> <li>– Guillain-Barré syndrome</li> </ul> </li> <li>&gt; Delirium</li> <li>&gt; Neurodegenerative diseases <ul style="list-style-type: none"> <li>– Alzheimer's dementia</li> <li>– Vascular dementia</li> <li>– Mixed dementia</li> <li>– Lewy body dementia</li> <li>– Motor neurone disease</li> </ul> </li> <li>&gt; Neurocardiogenic syncope</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the anatomy and physiology of the nervous system and the aetiology, pathogenesis and clinical features of common and important neurological diseases</li> <li>&gt; Demonstrate knowledge of 'red flags' for patients presenting with neurological symptoms</li> <li>&gt; Use an up-to-date and validated method to screen for confusion in appropriate patients</li> <li>&gt; Perform examinations and interpret findings <ul style="list-style-type: none"> <li>– Neurological examination, including GCS</li> <li>– Fundoscopy</li> <li>– Swallow assessment</li> </ul> </li> <li>&gt; Arrange/perform and interpret investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, Ca, glucose, LFTs, blood cultures, serology (EBV, CMV, HIV), Mg, CRP, B12, folate, HbA1c, thiamine, SPE, ANA</li> <li>– Lumbar puncture/CSF analysis, such as opening pressure, protein, glucose, WCC + differential, blood, MC&amp;S, gram stain, PCR (HSV, VZV), oligoclonal bands</li> <li>– Urinalysis, such as toxicology</li> <li>– Stool analysis, such as MC&amp;S, viral PCR</li> <li>– ECG</li> <li>– CXR</li> <li>– EEG, EMG, nerve conduction studies</li> <li>– CT head, CTA</li> <li>– MRI brain, MRA, MRV</li> <li>– Carotid USS</li> </ul> </li> <li>&gt; Be aware of, and where appropriate use: <ul style="list-style-type: none"> <li>– International diagnostic and/or classification criteria for neurological diseases (such as stroke syndromes, multiple sclerosis, Guillain-Barré syndrome, motor neurone disease)</li> </ul> </li> <li>&gt; Understand and appropriately use up-to-date and validated clinical scoring systems for neurological conditions, including those to assess: <ul style="list-style-type: none"> <li>– Stroke risk after TIA</li> <li>– Progression of Parkinson's disease</li> <li>– Cognitive impairment</li> <li>– Stroke severity</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<i>Neurology cont.</i>	
	<ul style="list-style-type: none"> <li>➤ Provide competent and timely management, including: <ul style="list-style-type: none"> <li>– Pharmacological treatment, such as analgesics, steroids, immunosuppressants, biologic agents, cholinesterase inhibitors, antibiotics, antivirals, antiplatelet agents, anticoagulants, statins, thiamine, hydroxocobalamin, antiepileptic drugs, topical capsaicin, thrombolytics, antihypertensives, levodopa, dopamine agonists, anxiolytics, antidepressants, triptans, beta-blockers</li> <li>– Non-pharmacological treatment, such as withdrawal of contributing medications, education and support (smoking cessation, alcohol reduction/cessation, physical activity, diet modification, weight reduction), therapeutic lumbar puncture, post lumbar puncture advice, supportive nursing care and environment, sensory aids, communication devices, driving recommendations, advance care planning</li> <li>– Refer for further work-up/management, such as specialist advice/referral, endovascular clot retrieval, surgery, physiotherapy, occupational therapy, speech and language therapy, inpatient rehabilitation, pain clinic referral, counselling (patients, families, carers), clinical nurse specialist, social worker, referral support groups (for example, Neurological Foundation, Stroke Foundation, Alzheimer’s Society, MS Society, Parkinson’s Society), respite care, screening/management of cardiovascular risk factors, palliative referral</li> </ul> </li> <li>➤ Understand the increasing levels of support required in advancing stages of chronic neurological disease and the roles and stressors of patient carers</li> </ul>
<b>Gastroenterology</b>	
<ul style="list-style-type: none"> <li>➤ Common gastrointestinal symptoms <ul style="list-style-type: none"> <li>– Weight loss</li> <li>– Abdominal pain</li> <li>– Dysphagia</li> <li>– Acute/chronic diarrhoea</li> <li>– Nausea and vomiting</li> <li>– Constipation</li> </ul> </li> <li>➤ Upper gastrointestinal disease <ul style="list-style-type: none"> <li>– Acute upper GI haemorrhage</li> <li>– GORD</li> <li>– Peptic ulcer disease</li> <li>– <i>Helicobacter pylori</i> infection</li> <li>– Gastric carcinoma</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of the anatomy and physiology of the gastrointestinal system and the aetiology, pathogenesis and clinical features of common and important gastrointestinal diseases</li> <li>➤ Demonstrate knowledge of ‘red flags’ for patients presenting with gastrointestinal symptoms</li> <li>➤ Perform relevant examinations and interpret findings, including: <ul style="list-style-type: none"> <li>– Head and neck exam (dysphagia)</li> <li>– Abdominal examination</li> <li>– PR exam</li> <li>– Proctoscopy and/or sigmoidoscopy (if within clinical skill set and equipment available)</li> <li>– Bedside ultrasound of gallbladder and liver (recommended advanced skill)</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<i>Gastroenterology cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Hepatobiliary disease <ul style="list-style-type: none"> <li>– Acute hepatitis</li> <li>– Alcoholic liver disease</li> <li>– Fatty liver</li> <li>– Chronic liver disease</li> <li>– Liver failure</li> <li>– Hepatic encephalopathy</li> <li>– Gall bladder disorders</li> </ul> </li> <li>&gt; Pancreatic disease <ul style="list-style-type: none"> <li>– Acute pancreatitis</li> <li>– Chronic pancreatitis</li> <li>– Pseudocyst formation</li> </ul> </li> <li>&gt; Small and large bowel diseases <ul style="list-style-type: none"> <li>– Coeliac disease</li> <li>– Irritable bowel syndrome</li> <li>– Appendicitis</li> <li>– Inflammatory bowel disease</li> <li>– Acute colitis</li> <li>– Diverticulitis</li> <li>– Colonic adenocarcinoma</li> </ul> </li> <li>&gt; Anorectal disease <ul style="list-style-type: none"> <li>– Haemorrhoids</li> <li>– Anal fissures</li> <li>– Anorectal abscess</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, CRP, LFTs (conj + unconj bilirubin), amylase, lipase, coag profile, glucose, crossmatch, VBG, ferritin, folate, vitamin B12, blood cultures, coeliac antibodies (anti-tTG, anti-eTG, anti-EMA), TSH, Ca/PO4, CMV and EBV serology, Ig levels, 25-hydroxycholecalciferol, autoantibodies, hepatitis serology, HCV viral load and genotype, caeruloplasmin, AFP, Ca 19-9, paracetamol level, alcohol level</li> <li>– Stool analysis, such as MC&amp;S, ova and parasites, Giardia antigen, <i>C. difficile</i> toxin, faecal calprotectin, lipase, occult blood</li> <li>– Urinalysis, including culture, microscopy, toxicology</li> <li>– Paracentesis/ascites aspirate analysis, such as WCC + differential, Alb, culture, amylase, cytology (and/or TB culture, ZN stain and PCR)</li> <li>– Hydrogen breath test</li> <li>– AXR</li> <li>– Abdominal ultrasound</li> <li>– CT-abdomen/pelvis, CT-colonoscopy</li> <li>– Videofluoroscopy</li> <li>– DEXA bone density scan</li> </ul> </li> <li>&gt; Understand and appropriately use up-to-date and validated clinical scoring systems or criteria for gastrointestinal conditions, including those that assess: <ul style="list-style-type: none"> <li>– Severity of acute pancreatitis</li> <li>– Risk of adverse outcome in upper GI bleeding</li> <li>– Alcohol withdrawal symptoms</li> </ul> </li> <li>&gt; Provide competent and timely management, including: <ul style="list-style-type: none"> <li>– Pharmacological treatment, such as proton-pump inhibitors, H<sub>2</sub> antagonists, triple therapy, iron, thiamine, hydroxocobalamin, prokinetics, antibiotics, antiemetics, laxatives, steroids, vitamin K, immunomodulators, aminosalicylates, biologics, ribovariv, anti-spasmodics, spironolactone, albumin</li> <li>– Non-pharmacological treatment, such as RBC transfusion, FFP, prothrombinex, education and support (nature of disease, smoking cessation, dietary modification, physical activity, weight reduction, alcohol reduction or avoidance, safe swallow strategies), oral hygiene, enteral feeding, medication withdrawal, gluten-free product prescription, complementary treatments</li> <li>– Refer for further work-up/management, such as specialist advice/review, MRI, fibroscan, liver biopsy, gastroscopy, small bowel biopsy, colonoscopy, surgery, dietitian, SLT, testing first-degree relatives</li> </ul> </li> <li>&gt; Be aware of local and/or national screening recommendations for: <ul style="list-style-type: none"> <li>– Colon cancer</li> <li>– Chronic hepatitis C infection</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<b>Infectious diseases</b>	
<ul style="list-style-type: none"> <li>&gt; Bacterial infections <ul style="list-style-type: none"> <li>– Group A streptococci</li> <li>– <i>Staphylococcus aureus</i></li> <li>– <i>Neisseria meningitidis</i></li> <li>– <i>Legionella</i></li> <li>– <i>Pneumocystis</i></li> <li>– Typhoid/paratyphoid</li> <li>– Tuberculosis</li> <li>– <i>Campylobacter</i></li> <li>– Salmonellosis</li> <li>– <i>Clostridium difficile</i></li> <li>– Tetanus</li> <li>– Other bacterial organisms causing meningitis</li> <li>– Other bacterial organisms causing pneumonia</li> </ul> </li> <li>&gt; Viral infections <ul style="list-style-type: none"> <li>– Hepatitis A, B, C, D, E</li> <li>– Influenza</li> <li>– Measles</li> <li>– Mumps</li> <li>– Varicella</li> <li>– HSV-1 and -2</li> <li>– Epstein–Barr virus</li> <li>– Rubella</li> <li>– Dengue</li> <li>– Zika</li> </ul> </li> <li>&gt; Protozoal infections <ul style="list-style-type: none"> <li>– Malaria</li> <li>– Giardiasis</li> </ul> </li> <li>&gt; Zoonoses <ul style="list-style-type: none"> <li>– Leptospirosis</li> <li>– Brucellosis</li> <li>– Toxoplasmosis</li> </ul> </li> <li>&gt; Fungal infections <ul style="list-style-type: none"> <li>– Candidiasis</li> <li>– Aspergillosis</li> </ul> </li> <li>&gt; Sexually transmitted diseases <ul style="list-style-type: none"> <li>– Gonorrhoea</li> <li>– Chlamydia</li> <li>– Herpes</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of normal microbiological flora and the immune response to infectious disease and the aetiology, pathogenesis and clinical features of common and important infectious diseases</li> <li>&gt; Perform relevant examinations and interpret findings, including: <ul style="list-style-type: none"> <li>– Screening examination for fever of unknown origin</li> <li>– Pelvic examination</li> </ul> </li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, CRP, LFTs, coag profile, glucose, blood cultures, CD4 lymphocyte count, DIC screen</li> <li>– Specific microbiology tests, such as pneumococcal (urinary antigen), <i>Legionella</i> (sputum culture/PCR, urinary antigen, serology), <i>Pneumocystis jirovecii</i> (stain), viral (throat/NP swab for multiplex PCR), malaria (thick/thin blood films, rapid antigen test), hepatitis (serology), HIV (antigen and antibody EIA, viral RNA), TB (ZN stain, culture, IGRA)</li> <li>– Sputum analysis, such as MC&amp;S</li> <li>– Urinalysis, such as MC&amp;S</li> <li>– Stool analysis, such as MC&amp;S</li> <li>– Skin lesion/wound swab tests, such as MC&amp;S, PCR</li> <li>– Lumbar puncture/CSF analysis, such as MC&amp;S, gram stain, PCR</li> <li>– CXR, sinus X-ray</li> <li>– CT head</li> <li>– Abdominal USS</li> </ul> </li> <li>&gt; Provide competent and timely management, including: <ul style="list-style-type: none"> <li>– Pharmacological treatment, such as antibiotics, antivirals, antiretrovirals, topical antiseptics, interferons, steroids, vaccines, prophylactic antibiotics</li> <li>– Non-pharmacological treatment, such as fluid resuscitation, oxygen, education and support (safe-sex and drug-injecting practices, alcohol reduction, hygiene, medication side effects, legal issues around diagnosis), address water/food safety issues, emotional support/counselling</li> <li>– Refer for further work-up/management, such as specialist advice/review, surgery, liver biopsy, pharmacy (antibiotic level monitoring), hyperbaric therapy, clinical nurse specialist, contact tracing and management of exposed/affected contacts, public health/MOH notification</li> </ul> </li> <li>&gt; Identify those patients in at-risk populations for specific diseases, including MDRO, and relevant prevention strategies (immunisation, prophylactic antibiotics)</li> <li>&gt; Understand and use up-to-date and validated scoring systems for sepsis severity</li> <li>&gt; Understand local and national antibiotic resistance profiles</li> </ul>

Medical condition	Recommended learning outcomes
<i>Infectious diseases cont.</i>	
<ul style="list-style-type: none"> <li>– Genital Warts</li> <li>– HIV</li> <li>– Syphilis</li> <li>&gt; Sepsis</li> <li>&gt; Sepsis in the immunocompromised patient</li> <li>&gt; Necrotising tissue infections</li> <li>&gt; Infection with multi-drug resistant organisms (MDRO)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Understand and implement infection control strategies, including safe handling of pathology specimens</li> <li>&gt; Understand protocols and sensitivities regarding testing for specific diseases</li> <li>&gt; Demonstrate knowledge of which infectious diseases are notifiable to the Medical Officer of Health and/or local authority, and which require patient identification</li> </ul>
<b>Rheumatology</b>	
<ul style="list-style-type: none"> <li>&gt; Osteoarthritis</li> <li>&gt; Rheumatoid arthritis</li> <li>&gt; Spondyloarthritis <ul style="list-style-type: none"> <li>– Ankylosing spondylitis</li> <li>– Reactive arthritis</li> <li>– Enteropathic arthritis</li> <li>– Psoriatic arthritis</li> </ul> </li> <li>&gt; Crystal arthritis <ul style="list-style-type: none"> <li>– Gout</li> <li>– Pseudogout</li> </ul> </li> <li>&gt; Septic arthritis</li> <li>&gt; Autoimmune rheumatic diseases <ul style="list-style-type: none"> <li>– Systemic lupus erythematosus</li> <li>– Antiphospholipid syndrome</li> <li>– Systemic sclerosis</li> </ul> </li> <li>&gt; Inflammatory myopathies <ul style="list-style-type: none"> <li>– Polymyositis</li> <li>– Dermatomyositis</li> <li>– Sjögren's syndrome</li> </ul> </li> <li>&gt; Inflammatory vasculitis <ul style="list-style-type: none"> <li>– Polymyalgia rheumatica</li> <li>– Giant cell arteritis</li> <li>– Polyarteritis nodosa</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the anatomy and physiology of the rheumatological system and the aetiology, pathogenesis and clinical features of common and important rheumatological diseases</li> <li>&gt; Perform examinations and interpret findings, including: <ul style="list-style-type: none"> <li>– General and focal musculoskeletal examination</li> <li>– Assess for stigmata of vasculitic, connective tissue and autoimmune disorders</li> </ul> </li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, ESR, CRP, blood cultures, urate, coag profile, ferritin, LFTs, creatinine kinase, Ca/PO4, TFTs, 25-hydroxycholecalciferol, antinuclear antibodies, ANCA, RF, anti-CCP antibodies, lupus anticoagulant, Ig levels, APL antibodies, HIV, C3/C4, cryoglobulins, HLA-B27</li> <li>– Joint aspiration (knee, elbow, wrist, ankle, digits) and aspirate analysis, such as FBC, MC&amp;S, lactate, gram stain, crystals</li> <li>– Swab (throat, cervix, anus, urethra) tests, such as MC&amp;S, PCR (chlamydia/gonorrhoea)</li> <li>– Urinalysis (including first catch), such as MC&amp;S, PCR</li> <li>– Stool analysis, such as MC&amp;S</li> <li>– Sputum analysis, such as TB culture/PCR</li> <li>– Biopsy, such as skin, muscle, temporal artery (undertake or refer) for histological analysis</li> <li>– X-rays, such as chest, joints, spine</li> <li>– CT abdomen/pelvis</li> <li>– MRI</li> </ul> </li> <li>&gt; Be aware of, and where appropriate use: <ul style="list-style-type: none"> <li>– International diagnostic and/or classification criteria for rheumatological diseases</li> <li>– Scoring systems that assess disease activity</li> <li>– NZ diagnostic criteria for rheumatic fever</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<i>Rheumatology cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Chronic pain syndromes <ul style="list-style-type: none"> <li>– Fibromyalgia</li> <li>– Chronic regional pain syndrome</li> </ul> </li> <li>&gt; Rheumatic fever</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Provide competent and timely management, including: <ul style="list-style-type: none"> <li>– Pharmacological treatment, such as steroids (oral or intra-articular), non-steroidal anti-inflammatories, disease modifying anti-rheumatic drugs, analgesics, antibiotics, vitamin D, aspirin, colchicine, urate-lowering medications</li> <li>– Non-pharmacological treatment, such as joint immobilisation, education and support (physical activity, weight reduction, dietary modification, medication side effects), sickness advice (steroids), psychological support, hydrotherapy, complementary therapies</li> <li>– Refer for further work-up/management, such as specialist advice/review, bone marrow aspiration/biopsy, surgery, physiotherapy, occupational therapy, podiatry, monitoring in primary care, relapse advice, pharmacy (drug monitoring), pain clinic referral</li> </ul> </li> <li>&gt; Follow NZ national guidelines for management of rheumatic fever, including secondary prevention strategies</li> <li>&gt; Consider other medical conditions associated with rheumatological diseases and screen and manage as appropriate</li> <li>&gt; Understand the socioeconomic and psychological impact of rheumatological disease</li> <li>&gt; Identify, evaluate and address activity limitations and participation restrictions in patients with rheumatic diseases</li> </ul>
<b>Endocrine and metabolic medicine</b>	
<ul style="list-style-type: none"> <li>&gt; Diabetes mellitus <ul style="list-style-type: none"> <li>– Type 1 diabetes</li> <li>– Type 2 diabetes</li> <li>– MODY</li> <li>– Gestational diabetes</li> </ul> </li> <li>&gt; Thyroid disease <ul style="list-style-type: none"> <li>– Hyperthyroidism</li> <li>– Hypothyroidism</li> </ul> </li> <li>&gt; Adrenal disorders</li> <li>&gt; Pituitary gland disease</li> <li>&gt; Parathyroid disease</li> <li>&gt; Disorders of sex and reproduction</li> <li>&gt; Disorders of calcium metabolism</li> <li>&gt; Hypercholesterolaemia</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the anatomy and physiology of the endocrine system and the aetiology, pathogenesis and clinical features of common and important endocrine and metabolic diseases</li> <li>&gt; Perform relevant examinations and interpret findings, including: <ul style="list-style-type: none"> <li>– Diabetes examination (including fundoscopic, cardiovascular and peripheral neurological examinations)</li> <li>– Thyroid examination (including ophthalmological examination and assessment for stigmata of thyroid disease)</li> <li>– Assess for stigmata of syndromes of steroid deficiency or excess</li> <li>– Assessment of volume status</li> </ul> </li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Use glucometer to obtain BGL and retrieve those previously measured</li> <li>– Blood tests, such as FBC, U&amp;Es, HbA1c, glucose, ketones, LFTs, TFTS – TSH, FT4, FT3, anti-thyroid autoantibodies, Ca/PO4, PTH, lactate, 25-hydroxycholecalciferol, osmolality, ACTH, renin, aldosterone, cortisol, FSH, LH, testosterone, PTH-RP, ADH, lipid profile, fasting triglycerides</li> <li>– Urinalysis, such as sodium; osmolality; glucose; potassium; 24h cortisol, metanephrines; Albumin-creatinine ratio</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<i>Endocrine and metabolic medicine cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Hypertriglyceridaemia</li> <li>&gt; Osteoporosis</li> <li>&gt; Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH)</li> </ul>	<ul style="list-style-type: none"> <li>- ECG</li> <li>- Short Synacthen test</li> <li>- Dexamethasone suppression test</li> <li>- Oral glucose tolerance test</li> <li>- Thyroid USS</li> <li>- Radionuclide scan</li> <li>- CT Head, CT abdomen/pelvis</li> <li>- MRI brain</li> <li>- DEXA bone scan</li>   <li>&gt; Be able to calculate and interpret: <ul style="list-style-type: none"> <li>- Anion gap</li> <li>- Sodium correction for hyperglycaemia</li> <li>- Osmolarity and osmolar gap</li> <li>- Average BGL from HbA1c</li> </ul> </li>   <li>&gt; Provide competent and timely management, including: <ul style="list-style-type: none"> <li>- Pharmacological treatment, such as glucose, insulin, oral hypoglycaemics, thyroxine, carbimazole, beta-blockers, steroids, bicarbonate, bisphosphonates, vitamin D, potassium, calcium, magnesium, sodium, desmopressin, HRT, testosterone, glucagon, antihypertensives, statins</li> <li>- Non-pharmacological treatment, such as withdrawal of medications, IV fluids, education and support (smoking cessation, dietary modification, blood glucose monitoring, insulin administration, salt/fluid intake, physical activity, weight reduction, hypoglycaemia symptoms and management, medication side effects), sickness advice (insulin, steroids)</li> <li>- Refer for further work-up/management, such as specialist advice/review, surgery, diabetes nurse, dietitian, additional risk factor screening, regular monitoring in primary care, pre-pregnancy counselling, Green prescription, surgery</li> </ul> </li>   <li>&gt; Be aware of and understand: <ul style="list-style-type: none"> <li>- Screening procedures for Type 2 diabetes and gestational diabetes</li> <li>- The psychological impact of newly diagnosed diabetes</li> <li>- The principles of management of diabetes in pregnancy</li> <li>- The principles of management of concurrent illness in diabetic patients</li> <li>- The increased risk of cardiovascular, renal, ophthalmological and neurological disease and complications in patients with diabetes, and how these are appropriately screened for and managed</li> <li>- The importance of screening for high-needs/high-risk patients with diabetes and reducing their barriers to care</li> <li>- The importance of a multidisciplinary approach to diabetic care and education, and patient participation in management decisions</li> </ul> </li>   <li>&gt; Be aware of, and where appropriate apply, validated scoring system/s for risk assessment of osteoporotic fracture and manage risk in accordance with result</li> </ul>

Medical condition	Recommended learning outcomes
<b>Haematology</b>	
<ul style="list-style-type: none"> <li>➤ Haemochromatosis</li> <li>➤ Polycythaemia vera</li> <li>➤ Deep vein thrombosis</li> <li>➤ Adult anaemia <ul style="list-style-type: none"> <li>– Iron deficiency anaemia</li> <li>– B12/folate deficiency</li> <li>– Chronic inflammation</li> <li>– Pernicious anaemia</li> </ul> </li> <li>➤ Haemorrhagic disorders</li> <li>➤ Monoclonal gammopathy</li> <li>➤ Myelodysplasia</li> <li>➤ Chronic lymphocytic leukaemia</li> <li>➤ Chronic myeloid leukaemia</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of the anatomy and physiology of the haematological system and the aetiology, pathogenesis and clinical features of common and important haematological diseases</li> <li>➤ Perform relevant examination and interpret findings, such as assessing for stigmata of haematological disease</li> <li>➤ Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as U&amp;Es, FBC, MCV, reticulocytes, blood film, coag profile, ESR, CRP, LDH, LFTs, ferritin, iron studies, fasting transferrin, B12/folate, D-dimer, VWD factor, TSH, SPE, IF-Ab, blood cultures, lactate, serum EPO, HFE gene analysis, JAK mutation screen, Ig levels, SFLC, direct Coombs</li> <li>– Urinalysis, such as MC&amp;S</li> <li>– Lower limb ultrasound</li> </ul> </li> <li>➤ Understand and appropriately use up-to-date and validated clinical scoring systems or criteria for haematological conditions, including probability scoring for DVT</li> <li>➤ Provide competent and timely management, including: <ul style="list-style-type: none"> <li>– Pharmacological treatment, such as antibiotics, steroids, desmopressin, vaccines, iron, folate, hydroxocobalamin, anticoagulants, antiplatelet drugs</li> <li>– Non-pharmacological treatment, such as withdrawal of contributing medications, prothrombinex, FFP, RBC transfusion, education and support (smoking cessation, reduce alcohol intake), therapeutic venesection, advanced care planning</li> <li>– Refer for further work-up/management, such as specialist advice/referral, screening for other malignancies, genetic counselling, surgery, palliative care</li> </ul> </li> </ul>
<b>Dermatology</b>	
<ul style="list-style-type: none"> <li>➤ Cutaneous manifestations of systemic disease</li> <li>➤ Skin infections <ul style="list-style-type: none"> <li>– Bacterial</li> <li>– Viral</li> <li>– Mycobacterial</li> <li>– Fungal</li> <li>– Infestations</li> </ul> </li> <li>➤ Inflammatory rashes <ul style="list-style-type: none"> <li>– Eczema/dermatitis</li> <li>– Urticaria</li> <li>– Psoriasis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of skin anatomy, physiology and function and the aetiology, pathogenesis and clinical features of common and important dermatological conditions</li> <li>➤ Understand and use appropriate terminology when describing skin rashes and lesions</li> <li>➤ Demonstrate knowledge of the cutaneous manifestations of systemic disease</li> <li>➤ Perform examination and interpret findings, including: <ul style="list-style-type: none"> <li>– General and focal rash/lesion examinations</li> <li>– Dermoscopy (if available and skilled in use)</li> </ul> </li> </ul>

Medical condition	Recommended learning outcomes
<i>Dermatology cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Bullous disease</li> <li>&gt; Skin tumours               <ul style="list-style-type: none"> <li>– Keratoses</li> <li>– Basal cell carcinoma</li> <li>– Squamous cell carcinoma</li> <li>– Melanoma</li> </ul> </li> <li>&gt; Pressure sores</li> <li>&gt; Leg ulcers</li> <li>&gt; Drug-induced rashes</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Arrange/perform and interpret relevant investigations, including:               <ul style="list-style-type: none"> <li>– Blood tests (if systemic disease considered), such as FBC, U&amp;Es, LFTs, glucose, iron, TSH, LDH, beta hCG, serology, autoantibodies</li> <li>– Lesion swab analysis, such as MC&amp;S, viral PCR</li> <li>– Skin or nail scraping analysis, such as microscopy, fungal culture</li> <li>– Skin biopsy (shave, punch or excision) analysis, such as histology, immunohistochemistry, immunofluorescence, MC&amp;S, histopathology</li> <li>– Urinalysis, such as glucose, cytology</li> </ul> </li> <li>&gt; Provide competent and timely management, including:               <ul style="list-style-type: none"> <li>– Pharmacological treatment, such as antibiotics, antivirals, steroids, scabicides, antifungals, antihistamines, antipruritics, topical antiseptics, keratolytics, synthetic vitamin D3 analogues, immunosuppressants, cytotoxics, immune response modifiers, prophylactic antibiotics</li> <li>– Non-pharmacological treatment, such as education and support (disease explanation, allergen/irritant avoidance, dietary modification, physical activity, weight reduction, sun exposure advice, smoking cessation, alcohol reduction), pressure area cares, emollients, soap substitutes, cryotherapy, compression bandaging, dressings, skin protectors</li> <li>– Refer for further work-up/management, such as specialist advice/review, surgery, allergen/patch testing, wound care nurse, PUVA therapy, superficial radiation</li> </ul> </li> <li>&gt; Use a validated and locally recognised tool to measure impact of skin disease on the quality of life of the affected patient and include this information when making a specialist referral</li> </ul>

# Aged care

## Overview

Older people are valued members of our rural communities, with many maintaining health and independence and engaging in occupational, caregiver, volunteer and mentorship roles. An important role of the rural hospital doctor is to promote and enable healthy ageing. This requires provision of care and assistance to maintain and enhance health, treat disease, enable coping with disability, and maintain independence and quality of life as long as possible. The ageing of New Zealand's population has implications for RHM. Local constraints, including the availability of specialist care, community supports, caregivers and aged residential care facilities, require the rural hospital doctor to solve problems and advocate at individual, community and higher levels.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in providing care for older people include the following:

### **Rural hospital context** *(including health equity and Māori health)*

- › Understand the impact of the ageing population on rural communities.
- › Develop knowledge of community resources and the demand for them, reconciling these with the needs of the older person.

### **Communication** *(including cultural competence)*

- › Consider and (where possible) address barriers to communication with the older patient, including visual, hearing, speech and cognitive impairment/s.
- › Ensure communications regarding the older patient's care and wellbeing involve the patient and appropriate carer and/or family/whānau members, taking into account patient confidentiality and wishes, the legal standing of alternative decision-makers, relevant advance directives and family relationship dynamics (including any concerns for potential elder abuse).
- › Understand the role of the doctor in assisting families/whānau to make decisions regarding the care of older patients whose health is deteriorating and supporting them to maintain family relationships in times of stress and anxiety.
- › Communicate with the multidisciplinary and primary care teams to develop, implement and review care plans for older patients with complex needs.
- › Collaborate with agencies responsible for older person care and support.
- › Reflect on and consider personal assumptions, cultural beliefs and emotional reactions in providing culturally safe care for older patients.

### **Clinical expertise**

- › Demonstrate knowledge of the ageing process and the effect social, environmental, economic and occupational factors can have on healthy ageing and health care access.
- › Demonstrate expertise in the recognition of the range of conditions that may affect the wellbeing and functional status of older patients, understanding that clinical presentations of disease can be varied and non-specific among these patients.
- › Order and/or perform relevant investigations and apply knowledge of age-related changes in interpretation of results.

- › Demonstrate knowledge of the special problems relating to drug therapy in older patients and a commitment to pursue safe prescribing and reduction of polypharmacy.
- › Develop, implement and maintain a comprehensive and priority-based management plan for older patients that considers the risks and benefits of clinical decisions, and incorporates multidisciplinary care, early discharge planning and anticipation of future requirements (respite care, additional supports, emergency care plans).
- › Engage patients in health education and promotion of activities that can reduce illness and improve general health, including exercise, diet, social participation and accident prevention.
- › Recognise and manage elder abuse in all its forms.

*See learning frame and skills log for further details.*

### **Professionalism**

- › Understand the importance of promoting older people's dignity and sense of identity in the face of illness and progressive frailty.
- › Empower patients and/or their carers with the knowledge, skills and resources to self-manage symptoms of chronic disease, provide informed consent of treatment and develop advance care directives.
- › Understand the ethical issues involved in the care of older patients and the legal responsibilities of the rural hospital doctor in caring for these patients, in particular around confidentiality, capacity, driving, advance care directives, alternative decision makers and euthanasia.
- › Demonstrate commitment to teamwork, collaboration, coordination and continuity of care in the older population.
- › Adopt appropriate medical record systems to manage the range of health issues that affect older patients.
- › Work to address barriers in access to health and support services for older people in rural communities.

### **Scholarship**

- › Practice up-to-date, evidence-based and patient-centred management of conditions in older people.
- › Identify own gaps in knowledge and skills in relation to older people's care and demonstrate a commitment to self-directed learning, continuing education and the conduct of quality assurance activities relevant to older person's health.

### **Leadership and management**

- › Use resources available in the health care team, the local community and family/whānau to improve outcomes of care for older patients.
- › Apply knowledge of the impact and implications of the ageing population on the health system in rural communities to planning health service needs, access and utilisation.

## Learning frame

Age-associated conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>&gt; Cardiovascular               <ul style="list-style-type: none"> <li>– Hypertension</li> <li>– Stroke</li> <li>– Ischaemic heart disease</li> <li>– Heart failure</li> <li>– Peripheral vascular disease</li> <li>– Postural hypotension</li> </ul> </li> <li>&gt; Respiratory               <ul style="list-style-type: none"> <li>– COPD</li> <li>– Pneumonia</li> </ul> </li> <li>&gt; Nephrology/genitourinary               <ul style="list-style-type: none"> <li>– Chronic kidney disease</li> <li>– Urinary tract infection</li> <li>– Prostate hypertrophy/cancer</li> </ul> </li> <li>&gt; Neurology               <ul style="list-style-type: none"> <li>– Parkinson's disease</li> <li>– Peripheral neuropathy</li> </ul> </li> <li>&gt; Gastroenterology               <ul style="list-style-type: none"> <li>– Constipation</li> </ul> </li> <li>&gt; Rheumatology               <ul style="list-style-type: none"> <li>– Rheumatoid arthritis</li> <li>– Polymyalgia rheumatica</li> </ul> </li> <li>&gt; Endocrine and metabolic               <ul style="list-style-type: none"> <li>– Osteoporosis</li> <li>– Diabetes mellitus</li> <li>– Hypo/hyperthyroidism</li> </ul> </li> <li>&gt; Musculoskeletal/orthopaedic               <ul style="list-style-type: none"> <li>– Osteoarthritis</li> <li>– Osteoporotic fractures</li> <li>– Spinal stenosis</li> </ul> </li> <li>&gt; Ophthalmology               <ul style="list-style-type: none"> <li>– Macular degeneration</li> <li>– Glaucoma</li> <li>– Cataract</li> </ul> </li> <li>&gt; ENT               <ul style="list-style-type: none"> <li>– Presbycusis</li> <li>– Tinnitus</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the aetiology, pathogenesis and clinical features of medical, surgical and psychiatric conditions with strong age-related risk</li> <li>&gt; Diagnose and competently manage age-associated conditions:               <ul style="list-style-type: none"> <li>– Use a patient-centred approach that takes into account their priorities and wishes regarding their health care</li> <li>– Understand the pharmacology, dosage, contraindications and interactions of potential pharmaceutical treatments</li> <li>– Communicate the potential risks and benefits of different treatments, as well as those of non-treatment</li> <li>– Where medical treatment is agreed, negotiate a plan to evaluate for medication side effects, concordance and treatment effect</li> <li>– Seek specialist advice or refer as appropriate</li> </ul> </li> <li>&gt; Demonstrate working knowledge of the functional conditions and impairments that can impact significantly on the quality of life of the older person</li> <li>&gt; Perform a problem-focused physical examination and comprehensive functional assessment of the older person that:               <ul style="list-style-type: none"> <li>– Demonstrates the medical, surgical and psychiatric conditions as well as personal and environmental circumstances that contribute to functional impairments</li> <li>– Recognises how these impairments affect the individual in terms of activity limitations and social participation restrictions</li> </ul> </li> <li>&gt; Administer validated functional and cognitive assessment scales as appropriate</li> <li>&gt; Apply diagnostic reasoning to arrive at one or more provisional diagnoses and formulate an active problem list</li> <li>&gt; Provide priority-based management for patients presenting with multiple interacting problems</li> <li>&gt; Demonstrate the ability to assess the patient for:               <ul style="list-style-type: none"> <li>– Required level of care/assistance</li> <li>– Suitability for home</li> <li>– Mental capacity</li> <li>– Ability to drive</li> <li>– Useful aids/appliances</li> <li>– Suitability for inpatient rehabilitation</li> </ul> </li> <li>&gt; Undertake a multidisciplinary approach to the provision, coordination and continuity of care in the older patient</li> <li>&gt; Facilitate appropriate use of residential care facilities</li> </ul> <p>See <b>Rehabilitation medicine</b> learning frame for further details</p>

Age-associated conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>&gt; Psychiatric               <ul style="list-style-type: none"> <li>– Dementia (Alzheimer’s, vascular, mixed, Lewy body)</li> <li>– Depression</li> <li>– Anxiety</li> </ul> </li> <li>&gt; Functional conditions/impairments               <ul style="list-style-type: none"> <li>– Malnutrition</li> <li>– Syncope</li> <li>– Falls and gait disorders</li> <li>– Delirium</li> <li>– Behaviour disorders</li> <li>– Sleep disorders</li> <li>– Pain</li> <li>– Pressure sores</li> <li>– Incontinence</li> <li>– Sensory impairment</li> <li>– Visual impairment</li> <li>– Hearing impairment</li> <li>– Frailty</li> <li>– Polypharmacy</li> </ul> </li> </ul>	

# Anaesthesia

## Overview

The rural hospital doctor uses their anaesthesia knowledge and skills in a variety of ways, including the stabilisation of the critically ill patient, procedural sedation and regional and local anaesthesia for locally performed procedures, and in the management of chronic pain.

Rural hospital doctors need to have a clear understanding of the extent and limits of their own anaesthetic capabilities, the staffing and skills of their team, and local and employer policies and guidelines around anaesthesia and procedural sedation, to ensure the appropriate and safe management of patients.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division relevant to anaesthesia include the following:

### **Rural hospital context** *(including health equity and Māori health)*

- › Provide emergent airway and anaesthetic support at a safe level, appropriate to the patient and clinical team, in the rural hospital environment.

### **Communication** *(including cultural competence)*

- › Use and develop telehealth opportunities for enhanced referral-hospital communication in critical emergencies.

### **Clinical expertise**

- › Demonstrate proficiency in emergency management and resuscitation skills to a minimum of the equivalent of the New Zealand Resuscitation Council's (NZRC's) Certificate of Resuscitation and Emergency Care (CORE) Advanced course, the Early Management of Severe Trauma (EMST) or the Advanced Trauma Life Support (ATLS) course, and the Advanced Paediatric Life Support (APLS) course.
- › Identify and manage acute airway problems in both the elective and emergency setting, using basic and advanced airway skills, rapid sequence intubation and maintenance of anaesthesia, and mechanical or non-invasive ventilation as required.
- › Coordinate and prepare for the safe transfer of patients, including ventilated patients.
- › Demonstrate knowledge of the pharmacology of agents used in critical care and anaesthesia.
- › Perform pre-procedural anaesthetic assessment and risk identification.
- › Perform safe and appropriate procedural sedation in accordance with own knowledge and experience, and local policies and guidelines.
- › Perform safe and appropriate topical and local anaesthesia and regional nerve blocks.
- › Provide safe and appropriate post-procedural/post-operative management of patients.
- › Identify and appropriately manage post-operative anaesthetic complications.

*See learning frame and skills log for further details.*

### Professionalism

- Maintain records of anaesthetic/procedural sedation procedures performed to provide information for both personal and institutional clinical audit and other quality assurance processes.

### Leadership and management

- Show clinical leadership and management in acute resuscitation, referral and retrieval situations.

## Learning frame

Clinical situation	Recommended learning outcomes
➤ Resuscitation and emergency care	<ul style="list-style-type: none"> <li>➤ Demonstrate working knowledge of the causes, symptoms and signs of impending or actual cardiac or respiratory arrest</li> <li>➤ Effectively manage patients of all ages in situation of cardiac or respiratory arrest or pre-arrest in accordance with NZRC Advanced level principles and guidelines</li> <li>➤ Demonstrate competence in airway management, ventilatory support, chest compressions, defibrillation, and the use of drugs used in advanced life support</li> </ul>
➤ Trauma management	<ul style="list-style-type: none"> <li>➤ Demonstrate working knowledge of the anaesthetic aspects of early management of severe trauma in rural communities</li> <li>➤ Effectively manage patient of all ages following trauma in accordance with EMST/ATLS and APLS principles</li> <li>➤ Understand local policies regarding transfers and evacuations</li> <li>➤ Demonstrate working knowledge of the principles underlying stabilisation and safe transfer or retrieval of critically ill patients</li> </ul>
➤ Ventilator use	<ul style="list-style-type: none"> <li>➤ Demonstrate working knowledge of:               <ul style="list-style-type: none"> <li>– Principles and indications for mechanical ventilator use</li> <li>– Patient-appropriate parameters</li> <li>– Patient monitoring requirements</li> <li>– Potential complications of ventilation and their management</li> <li>– Pharmacological management of ventilated patients</li> </ul> </li> </ul>
➤ Pre-procedural patient evaluation	<ul style="list-style-type: none"> <li>➤ Demonstrate knowledge of the ASA physical status classification for assessing suitability for sedation</li> <li>➤ Conduct appropriate evaluation pre-sedation, including relevant history such as:               <ul style="list-style-type: none"> <li>– Acute illness/injury</li> <li>– Physical/mental state which may influence sedation</li> <li>– Previous medical, surgical and anaesthetic events</li> <li>– Medications</li> <li>– Allergies</li> <li>– Fasting status</li> <li>– Weight</li> </ul> </li> </ul>

Clinical situation	Recommended learning outcomes
	<ul style="list-style-type: none"> <li>➤ Conduct appropriate physical examination, including: <ul style="list-style-type: none"> <li>– Assessment of airway abnormalities</li> <li>– Baseline recordings, such as RR, SaO<sub>2</sub>, HR, BP, level of consciousness and sedation score</li> </ul> </li> <li>➤ Consider and arrange/perform any pre-procedural investigations and interpret results</li> <li>➤ Prior to procedure: <ul style="list-style-type: none"> <li>– Obtain informed patient consent</li> <li>– Initiate documentation (sedation record)</li> <li>– Determine responsible physician</li> <li>– Establish monitoring and equipment requirements</li> <li>– Obtain IV access</li> <li>– Determine criteria for discharge to non-monitored area and from hospital</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>➤ Anaesthetic procedures</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate working knowledge of the pharmacology, dosing and potential side effects or complications of local and topical anaesthetics</li> <li>➤ Understand the relevant anatomy involved in regional nerve blocks</li> <li>➤ Competently and safely perform anaesthetic procedures, including local and topical anaesthesia and regional nerve blocks</li> <li>➤ Provide procedural sedation within local guidelines and own skills and experience, referring patients who do not fall within these to regional centres</li> <li>➤ Determine appropriate drug use based on patient age, procedure, treatment goals (such as motion control, analgesia, anxiolysis, sedation), clinical expertise</li> <li>➤ Understand sedation grading and terminology (minimal, moderate, dissociative or deep sedation, general anaesthetic)</li> <li>➤ Know the principles of, and be able to perform, rapid sequence induction in conscious patients requiring intubation in emergency situations</li> </ul>
<ul style="list-style-type: none"> <li>➤ Pain management</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate working knowledge of theories of pain and pain control</li> <li>➤ Diagnose and appropriately classify and manage pain</li> <li>➤ Assess and safely manage pain in children and adolescents using appropriate pain scales for age and developmental level, and pharmacological and non-pharmacological interventions</li> <li>➤ Understand the indications, contraindications, pharmacology, dosing and potential side effects or complications of different analgesic medications</li> <li>➤ Refer complex patients for specialist pain management</li> </ul>

# Child and adolescent health

## Overview

Paediatric presentations to rural hospitals occur commonly, and a sick or injured infant or child can be the cause of much anxiety for the child, their family/whānau and the rural medical team. Calm and effective communication between the team, patient and family/whānau, as well as a shared confidence in the rural hospital doctor's own knowledge and skills are important in alleviating this anxiety and providing appropriate clinical care.

Decisions regarding safe and appropriately located management of an acutely unwell child are often made in conjunction with the referral-hospital paediatric team. There is potential for increasing local-hospital care of paediatric patients with certain conditions as the rural hospital doctor's experience of these conditions and relationship with the referral-hospital paediatric team develop over time.

The rural hospital doctor's role and potential for positive interaction and influence varies immensely across the spectrum of ages, developmental stages and conditions within neonatal, child and adolescent health. Appropriate communication, confidentiality and advocacy are important considerations in all their interactions with children and their families/whānau. The rural hospital doctor understands their role as part of a wider system of local agencies and community and education providers aiming to improve child and family/whānau health and wellbeing within rural communities.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in providing care for children and adolescents include the following:

### **Rural hospital context** *(including health equity and Māori health)*

- Establish relationships and engage with hospital and allied health services, local providers and government agencies, and child protection services that are involved with children and adolescents and their families/whānau. These may include schools, Māori providers, student health clinics, sexual health services, mental health services, paediatric and other specialised health professionals, and police.
- Recognise the health inequities and health care access and provision issues that relate to Māori tamariki/rangatahi and instigate measures to reduce these.
- Demonstrate understanding of health care access and provision issues that may affect rural or disabled youth and those at boarding school or in residential facilities.

### **Communication** *(including cultural competence)*

- Communicate effectively with the child or adolescent in accordance with their stage of cognitive, language and social development.
- Engage the child and establish rapport, developing effective relationships with them and their family/whānau.
- Develop special skills for engaging and developing effective therapeutic relationships with adolescents, ensuring confidentiality and its limits, and their wishes regarding family/whānau involvement in care, are mutually understood.
- Use appropriate and non-judgemental language to discuss sensitive issues such as safe sex, unintended pregnancy, sexual orientation, risk-taking behaviour, violence, eating disorders, family and peer relationships, and emotional concerns.

- Use telemedicine resources effectively and appropriately in the communication with referral-hospital specialists for the purposes of paediatric patient referral and local co-management.
- Where possible, provide written information/instructions to support parental care, including clear statements about indications for urgent review.

### **Clinical expertise**

- Demonstrate knowledge of normal neonatal anatomy, physiology and care.
- Demonstrate knowledge of neonatal health conditions and potential complications.
- Demonstrate expertise in immediate neonatal assessment and care, resuscitation, and transfer or retrieval where appropriate.
- Elicit a comprehensive history from the child or adolescent, family/whānau and/or carers to ascertain the full extent of the presentation.
- Demonstrate competence in the recognition, assessment and initial stabilisation of serious illness or injury in infants, children and adolescents, with timely specialist referral, and subsequent appropriate local management, co-management or transfer/retrieval.
- Recognise and appropriately manage common non-critical conditions of infants, children and adolescents, particularly those physical, psychological or social conditions that could result in mortality or major morbidity if not well managed.
- Understand the social and environmental influences that can impact on child and adolescent health, including family/whānau, carers, school, peers and the physical environment.
- Understand the importance of physical and mental health education and promotion, and preventative strategies that can be applied both formally and opportunistically during the presentation and management of acute conditions.
- Arrange and/or perform age and clinically appropriate investigations and procedures.
- Formulate a management plan in concert with the child or adolescent and parent/carer that sets reasonable expectations, indications and mechanisms for ongoing plan and follow-up.
- Prescribe medications in a safe manner and in accordance with specialist advice and/or treatment guidelines, understanding precautions and contraindications relevant to pregnancy, lactation, infancy and adolescence.
- Refer, facilitate and coordinate access to specialised paediatric medical and other health and social services.
- Understand the potential psychological effects of hospitalisation on children and mitigate these where possible.
- Recognise childhood abuse in its various forms and manage in conjunction with specialist services and community providers, with an understanding of relevant medicolegal obligations.
- Recognise the influence of family/whānau on prevention, presentation and management of childhood illness and injury.

*See learning frame and skills log for further details.*

### **Professionalism**

- Act as an advocate for the developmental and health needs of children and adolescents within both their family/whānau and the rural community.
- Understand that rural hospitals in New Zealand have differing relationships with local maternity care providers and services, and clearly understand both the ethical duty and institutional and/or contractual obligations to provide neonatal care in emergency and non-emergency situations.
- Keep comprehensive notes detailing history, examination, management, and those present in the consultation, including chaperones where appropriate.

- › Understand the boundaries of confidentiality and demonstrate strategies to negotiate who will be present during child and adolescent consultations.
- › Understand the capacity for consent for mature minors and how this varies with the nature and complexity of potential treatments.
- › Seek appropriate guidance in any situation where professional or ethical duties conflict or are unclear.

### Scholarship

- › Develop and maintain skills in teaching, research and advocacy aimed at improving the wellbeing of children and adolescents.

### Leadership and management

- › Contribute to the development of child- and youth-friendly hospital and community facilities.
- › Contribute to health education for family/whānau and adolescents.

## Learning frame

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
	<ul style="list-style-type: none"> <li>› Be aware of national (Starship) and local guidelines and paediatric services when managing the variety of paediatric conditions within the rural hospital</li> </ul>
Neonatal	
<ul style="list-style-type: none"> <li>› Respiratory distress</li> <li>› Asphyxia</li> <li>› Hypoglycaemia</li> <li>› Hypothermia</li> <li>› Vomiting</li> <li>› Failure to pass meconium</li> <li>› Jaundice (physiological and non-physiological)</li> <li>› Intrapartum and neonatal infection</li> <li>› Seizures</li> </ul>	<ul style="list-style-type: none"> <li>› Demonstrate a working knowledge of neonatal anatomy and physiology, including those physiological changes occurring at time of delivery</li> <li>› Be familiar with normal care and conditions as well as potential complications in the neonatal period</li> <li>› Perform a thorough neonatal examination and interpret findings</li> <li>› Review antenatal foetal and maternal investigations as appropriate</li> <li>› Undertake emergency resuscitation of the neonate as required according to ANZCOR guidelines, including:               <ul style="list-style-type: none"> <li>– Airway management</li> <li>– Ventilatory support (bag-mask ventilation, neopuff)</li> <li>– Cardiac compressions</li> <li>– Vascular access (umbilical catheterisation)</li> <li>– Resuscitation fluids and medications</li> <li>– Warming</li> </ul> </li> <li>› Arrange/perform and interpret relevant investigations on specialist advice, including:               <ul style="list-style-type: none"> <li>– Blood tests, such as VBG + lactate, FBC, U&amp;Es, bilirubin (total and conj), glucose, blood cultures, blood group</li> <li>– CXR</li> <li>– Maternal swab analysis, such as MC&amp;S, HSV PCR</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<i>Neonatal cont.</i>	
	<ul style="list-style-type: none"> <li>➤ Assess clinical status and provide competent and timely management in accordance with specialty advice, including: <ul style="list-style-type: none"> <li>– Early specialist discussion regarding the sick neonate with view to transfer/retrieval</li> <li>– Pharmacological management, such as glucose, vitamin K, antibiotics, antivirals, antiepileptic drugs, adrenaline, naloxone</li> <li>– Non-pharmacological management, such as IV fluids, ventilatory support, early breast feeding, warming, NBM</li> <li>– Early referral/transfer for specialty review of abnormal findings on examination or investigations</li> </ul> </li> <li>➤ Maintain an awareness of the feelings and needs of the mother and family/whānau when assessing and managing an unwell neonate and communicate the clinical situation and anticipated management in a clear and sensitive manner</li> <li>➤ Demonstrate knowledge of neonatal metabolic screening procedures and guidelines</li> </ul>
<b>Cardiovascular</b>	
<ul style="list-style-type: none"> <li>➤ Heart murmurs (innocent and pathological)</li> <li>➤ Cyanotic congenital heart conditions (ductal dependent and independent)</li> <li>➤ Coarctation of the aorta</li> <li>➤ Hyper/hypotension</li> <li>➤ Rheumatic heart disease</li> <li>➤ Cardiovascular emergencies <ul style="list-style-type: none"> <li>– Cardiac arrest</li> <li>– Shock</li> <li>– Tachyarrhythmias (VT, SVT, prolonged QT)</li> <li>– Bradyarrhythmias</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of infant, child and adolescent cardiovascular anatomy and physiology, as well as common and important paediatric cardiovascular conditions</li> <li>➤ Perform general and focused cardiovascular examinations competently and interpret findings</li> <li>➤ Understand and interpret normal and abnormal parameters of the paediatric ECG</li> <li>➤ Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Blood tests, such as U&amp;Es, VBG, FBC</li> <li>– Urinalysis, such as sediment, MC&amp;S</li> <li>– CXR</li> <li>– ECG</li> </ul> </li> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Manage cardiovascular emergencies as per APLS guidelines, including treatment algorithms for paediatric arrhythmias (pulseless VT, pulsatile VT, SVT, asystole, PEA)</li> <li>– Pharmacological management, such as oxygen, adrenaline, atropine, adenosine, amiodarone, inotropes, calcium</li> <li>– Non-pharmacological treatment, such as airway management and ventilatory support, valsalva manoeuvre, synchronous cardioversion, defibrillation, IV fluids</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer/retrieval, outpatient specialist review/advice, renal USS, echocardiography</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<b>Respiratory/ENT</b>	
<ul style="list-style-type: none"> <li>› Viral infections (acute and recurrent)</li> <li>› Croup (acute and recurrent)</li> <li>› Laryngomalacia</li> <li>› Rhinitis</li> <li>› Sinusitis</li> <li>› Otitis media (acute and chronic)</li> <li>› Otitis externa</li> <li>› Pharyngitis (including group A <i>Streptococcus</i>)</li> <li>› Tonsillitis</li> <li>› Laryngeal foreign body</li> <li>› Infectious mononucleosis</li> <li>› Epiglottitis</li> <li>› Bronchitis (acute and recurrent)</li> <li>› Bronchiolitis</li> <li>› Asthma</li> <li>› Chronic wheeze and cough</li> <li>› Pneumonia</li> <li>› Pertussis</li> <li>› Pneumothorax</li> <li>› Cystic fibrosis</li> <li>› Bronchiectasis</li> <li>› Tuberculosis</li> <li>› Respiratory emergencies <ul style="list-style-type: none"> <li>– Severe croup</li> <li>– Severe bronchiolitis</li> <li>– Epiglottitis</li> <li>– Status asthmaticus</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>› Demonstrate a working knowledge of infant, child and adolescent airway and ear anatomy and physiology, as well as common and important paediatric respiratory and ENT conditions</li> <li>› Perform general and focused respiratory and ENT examinations competently and interpret findings</li> <li>› Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, CRP, blood cultures, immunoglobulins, mycoplasma serology, EBV serology</li> <li>– Microbiology tests, such as ear swab, throat swab MC&amp;S, sputum MC&amp;S, nasopharyngeal swab or aspirate (MC&amp;S, resp viral PCR)</li> <li>– Urinalysis, such as <i>Legionella</i> and pneumococcal antigens</li> <li>– CXR</li> </ul> </li> <li>› Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Manage respiratory emergencies as per APLS guidelines</li> <li>– Pharmacological management, such as oxygen, nebulised adrenaline, antibiotics, analgesia, steroids (IV, oral, intranasal), beta-agonists, muscarinic antagonists, leukotriene receptor antagonists, mast-cell stabilisers, aminophylline, magnesium sulphate</li> <li>– Non-pharmacological management, such as airway management and ventilatory support, saline drops, oral rehydration therapy, NG feeding, chest physiotherapy, foreign body removal</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer/retrieval, outpatient specialist advice/review, pulmonary function tests, Mantoux test, sweat test (CF), surgical referral if criteria met for consideration of elective grommet insertion or tonsillectomy, vaccinations, family/whānau support to stop smoking</li> <li>– Develop an acute asthma management plan</li> </ul> </li> <li>› Understand and apply NZ Heart Foundation guidelines regarding acute sore throat</li> <li>› Understand the predominant causative organisms of pneumonia in different age groups and their treatments</li> <li>› Understand potential complications of pneumonia in children and guidelines for follow-up and referral</li> <li>› Use clinical scoring systems for paediatric respiratory conditions, including those to determine croup, asthma and bronchiolitis severity, to assist communication with referral hospital doctors and guide management</li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<b>Gastroenterology</b>	
<ul style="list-style-type: none"> <li>&gt; Gastroenteritis</li> <li>&gt; Gastro-oesophageal reflux disease</li> <li>&gt; Pyloric stenosis</li> <li>&gt; Coeliac disease</li> <li>&gt; Appendicitis</li> <li>&gt; Hernia</li> <li>&gt; Intussusception</li> <li>&gt; Irritable bowel syndrome</li> <li>&gt; Abdominal migraine</li> <li>&gt; Chronic abdominal pain syndrome</li> <li>&gt; Inflammatory bowel disease</li> <li>&gt; Constipation</li> <li>&gt; Rectal bleeding</li> <li>&gt; Jaundice</li> <li>&gt; Hepatitis</li> <li>&gt; Failure to thrive</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of infant, child and adolescent gastrointestinal and hepatobiliary anatomy and physiology, as well as common and important conditions of these systems in childhood</li> <li>&gt; Perform general and gastrointestinal examinations competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– In the work-up of an unwell neonate/infant, consider review of Guthrie card result and maternal antenatal blood group + antibodies and serology</li> <li>– Blood tests, such as FBC, blood-film, U&amp;Es, LFTs, ESR, CRP, Ca/PO4, iron studies, bilirubin (total, conj), blood group, Coombs test, ferritin, coeliac antibodies, TFTs, B12, folate, serum osmolality, vitamin D, lipid profile, coag profile, glucose, cortisol</li> <li>– Urinalysis, such as MC&amp;S, reducing substances, protein:creatinine ratio, protein, glucose, CMV</li> <li>– Stool analysis, such as MC&amp;S (bacteria, ova, parasites), FOB, elastase, calprotectin</li> <li>– AXR</li> <li>– Liver USS</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion of an unwell child</li> <li>– Manage gastrointestinal emergencies as per APLS guidelines</li> <li>– Assess hydration status and calculate fluid deficit and maintenance requirements to determine route and rapidity of volume replacement</li> <li>– Pharmacological management, such as analgesics, laxatives, antacids, H<sub>2</sub> antagonists, proton-pump inhibitors, steroids, antibiotics, anti-inflammatories, aminosalicylates, immunomodulators</li> <li>– Non-pharmacological management, such as oral rehydration therapy, NG feeding, pain diary, education (nutrition/dietary, avoiding psychosocial triggers, regular toileting), dietary fibre, withdrawal of contributing medications</li> <li>– Refer for further work-up/management, such as inpatient paediatric or surgical transfer/retrieval, outpatient specialist advice/review, endoscopy and/or biopsy, dietitian, lactation consultant, social work, psychology referral, public health/MOH disease notification</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<b>Genitourinary/nephrology</b>	
<ul style="list-style-type: none"> <li>&gt; Urinary tract infection (cystitis, pyelonephritis, atypical, recurrent)</li> <li>&gt; Acute urinary obstruction</li> <li>&gt; Glomerulonephritis</li> <li>&gt; Nephrotic syndrome</li> <li>&gt; Vulvitis</li> <li>&gt; Phimosis, paraphimosis</li> <li>&gt; Testicular torsion</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of infant, child and adolescent genitourinary anatomy and physiology, as well as common and important paediatric genitourinary conditions</li> <li>&gt; Perform systemic and focused genitourinary examinations competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, VBG, LFTs, lipid profile, C3 and C4, ANA</li> <li>– Be aware of different approaches to urine collection in neonates, infants and children and the advantages and limitations of each technique</li> <li>– Bag urine: dipstick</li> <li>– Urinalysis (clean catch, MSU, in/out catheter, suprapubic aspirate), such as MC&amp;S, protein, sodium, casts, fat droplets</li> <li>– Renal USS</li> <li>– Micturating cystourethrogram</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Manage genitourinary emergencies as per APLS guidelines</li> <li>– Pharmacological management, such as antibiotics, antihypertensives, steroids, diuretics</li> <li>– Non-pharmacological management, such as salt restriction, fluid restriction</li> <li>– Refer for further work-up/management, such as in-patient specialty transfer/retrieval, outpatient specialist review/advice (paediatrics, urology, nephrology or paediatric surgery), renal biopsy, vaccinations</li> </ul> </li> <li>&gt; Understand the different causative organisms associated with urinary tract infection at different ages, appropriate antibiotic agents for these and indications for intravenous versus oral treatment</li> </ul>

Neurology

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| <ul style="list-style-type: none"> <li>&gt; Epilepsy</li> <li>&gt; Headache</li> <li>&gt; Neuromuscular disorders</li> <li>&gt; Neurological emergencies             <ul style="list-style-type: none"> <li>– Hypoxic-ischaemic brain injury</li> <li>– Raised intracranial pressure</li> <li>– Status epilepticus</li> <li>– Coma</li> <li>– Meningitis</li> <li>– Encephalitis</li> <li>– Traumatic brain injury (including shaken infant syndrome)</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of paediatric neuroanatomy and neurophysiology and common and important paediatric neurological conditions</li> <li>&gt; Perform age-appropriate neurological examinations competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice:             <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, LFTs, VBG, lactate, glucose, ammonia, blood culture, serology, TFTs, autoantibodies, lead, coag profile, meningococcal PCR</li> <li>– Microbiology tests, such as swabs (nasopharyngeal, throat, rectal, skin) MC&amp;S</li> <li>– Urinalysis, such as MC&amp;S, pneumococcal antigen</li> <li>– CXR</li> <li>– LP (if appropriately skilled, suitable patient, no contraindications and on specialist advice) and CSF analysis, such as protein, glucose, MC&amp;S, gram stain, PCR (viral, pneumococcal, meningococcal)</li> <li>– CT (in appropriately selected patient)</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate:             <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Management of neurological emergencies as per APLS guideline</li> <li>– Pharmacological management, such as glucose, analgesia, antiemetics, antibiotics, antivirals, anti-migraine medications, steroids, mannitol, antiepileptics, tricyclic antidepressants, benzodiazepines</li> <li>– Non-pharmacological management, such as headache diary, neuro observations, fluid balance, monitoring weight/head circumference</li> <li>– Refer for further work-up/management, such as inpatient specialist transfer/retrieval, outpatient specialist review/advice, EEG, MRI, notification to public health (meningococcal and Haemophilus infections)</li> <li>– Provide written advice to support parental care after child head injury</li> </ul> </li> <li>&gt; Consider and work through the wide differential for child and adolescent patients presenting with coma</li> <li>&gt; Use local guidelines and/or specialty advice for determining imaging requirements in paediatric patients after known or suspected head injury and in those presenting with neurological symptoms without trauma</li> <li>&gt; Understand the different causative organisms associated with meningitis at different ages and how this affects initial management</li> </ul> |
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Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<b>Dermatology</b>	
<ul style="list-style-type: none"> <li>&gt; Viral exanthems</li> <li>&gt; Dermatitis (seborrheic, irritant, contact)</li> <li>&gt; Thrush</li> <li>&gt; Tinea (capitis and corporis)</li> <li>&gt; Eczema</li> <li>&gt; Scabies</li> <li>&gt; Lice</li> <li>&gt; Molluscum contagiosum</li> <li>&gt; Impetigo</li> <li>&gt; Urticaria</li> <li>&gt; Reactive exanthems (drugs, food)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of common and important dermatological conditions affecting neonates, infants, children and adolescents</li> <li>&gt; Perform skin and hair examination competently, describe and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Skin swab analysis, such as: MC&amp;S, HSV PCR</li> <li>– Skin scraping analysis: microscopy</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialty discussion regarding an unwell child</li> <li>– Pharmacological management, such as antibiotics, antivirals, steroids, scabicides, antifungals</li> <li>– Non-pharmacological management, such as dressings and wound care, moisturisers, bath antiseptics, education (hygiene, infectivity, activity restrictions)</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer/retrieval, outpatient specialist advice/review, district/wound care/practise nurses</li> </ul> </li> </ul>
<b>Musculoskeletal</b>	
<ul style="list-style-type: none"> <li>&gt; Limp</li> <li>&gt; Perthes disease</li> <li>&gt; Congenital hip dysplasia</li> <li>&gt; Patellofemoral syndromes</li> <li>&gt; Epiphysitis</li> <li>&gt; Soft tissue trauma</li> <li>&gt; Minor fractures and dislocations</li> <li>&gt; Osteomyelitis (acute haematogenous, chronic, secondary to open fracture/trauma/surgery)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of infant, child and adolescent musculoskeletal anatomy as well as common and important musculoskeletal conditions</li> <li>&gt; Perform systematic musculoskeletal examination competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, CRP, ESR, blood culture</li> <li>– Synovial fluid aspirate analysis, such as MC&amp;S</li> <li>– X-ray</li> <li>– USS</li> <li>– CT/MRI</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<i>Musculoskeletal cont.</i>	
<ul style="list-style-type: none"> <li>➤ Septic arthritis</li> <li>➤ Progressive muscular weakness</li> </ul>	<ul style="list-style-type: none"> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate:               <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Pharmacological management, such as analgesia, antibiotics, anti-inflammatories</li> <li>– Non-pharmacological management, such as minor fracture reduction, immobilisation (splint, strapping, casting), physiotherapy, education (exercises, rest, ice-packs)</li> <li>– Refer for further work-up/management, such as inpatient paediatric or orthopaedic transfer, outpatient specialist review/advice, orthotics</li> </ul> </li> <li>➤ Be aware of different causative organisms of acute haematogenous osteomyelitis and septic arthritis at different ages and in special patient groups (for example, immunocompromised, unimmunised, asplenic)</li> </ul>
<b>Infectious diseases</b>	
<ul style="list-style-type: none"> <li>➤ Viral infections               <ul style="list-style-type: none"> <li>– Measles</li> <li>– Mumps</li> <li>– Rubella</li> <li>– Epstein–Barr virus</li> <li>– HSV</li> <li>– Varicella zoster</li> <li>– HIV</li> <li>– Viral hepatitis</li> <li>– Rotavirus</li> <li>– Influenza</li> </ul> </li> <li>➤ Bacterial infections               <ul style="list-style-type: none"> <li>– <i>Streptococcus</i></li> <li>– <i>Staphylococcus</i></li> <li>– <i>Neisseria meningitidis</i></li> <li>– <i>Haemophilus influenzae</i></li> <li>– Tetanus</li> </ul> </li> <li>➤ Mycobacterium infections</li> <li>➤ Fungal infections</li> <li>➤ Parasite infections</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of common and important infectious diseases that can affect neonates, infants, children and adolescents, including: clinical features, mode of transmission, incubation and infectious periods and appropriate infection control measures</li> <li>➤ Perform a systematic examination competently to determine the presence and nature of infectious disease</li> <li>➤ Arrange/perform and interpret relevant investigations, including on specialist advice:               <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, CRP, blood cultures, glucose, U&amp;Es, LFTs, VBG + lactate, coag profile, serology</li> <li>– Wound swab tests, such as MC&amp;S</li> <li>– Throat/nasopharyngeal swab tests, such as MC&amp;S, measles PCR, respiratory viral PCR</li> <li>– Urinalysis, such as pneumococcal antigen</li> <li>– LP (if appropriately skilled, suitable patient, no contraindications and on specialist advice) and CSF analysis, such as protein, glucose, MC&amp;S, gram stain, PCR (viral, pneumococcal, meningococcal)</li> <li>– X-ray</li> </ul> </li> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate:               <ul style="list-style-type: none"> <li>– Early discussion of unwell child with appropriate specialist (paediatric, orthopaedic, surgical, ENT)</li> <li>– Early and aggressive management of sepsis and septic shock as per APLS guidelines</li> <li>– Pharmacological management, such as antibiotics, antivirals, antifungals, scabicides, inotropes, steroids, oxygen</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<i>Infectious diseases cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Congenital infections               <ul style="list-style-type: none"> <li>– Rubella</li> <li>– CMV</li> <li>– Hepatitis</li> </ul> </li> <li>&gt; Infectious disease emergencies               <ul style="list-style-type: none"> <li>– Sepsis</li> <li>– Cellulitis</li> <li>– Meningitis</li> <li>– Encephalitis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>– Non-pharmacological management, such as airway management and ventilatory support, IV fluids, immunoglobulins, carer education (hygiene, laundry instructions, activity/social restrictions)</li> <li>– Refer for further work-up/management, such as inpatient paediatric or surgical transfer/retrieval, outpatient specialist review/advice, contact prophylaxis, public health/MOH disease notification, vaccinations</li> <li>&gt; Understand the different approaches in investigation and management of fever in children of different age groups, based on risk of causative organisms and serious infection</li> <li>&gt; Demonstrate knowledge of the National Immunisation Programme and how to access information from the National Register for purposes of patient care</li> <li>&gt; Demonstrate knowledge of which infectious diseases are notifiable to the Medical Officer of Health and/or local authority, and which require patient identification</li> </ul>
<b>Haematology</b>	
<ul style="list-style-type: none"> <li>&gt; Anaemia</li> <li>&gt; Lymphoma</li> <li>&gt; Leukaemia</li> <li>&gt; Haemophilia</li> <li>&gt; Thalassaemia</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the infant, child and adolescent haematological system and common and important haematological conditions</li> <li>&gt; Perform a systematic examination competently to detect stigmata of haematological disease and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice:               <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, blood film, coag profile, blood group, cross match, iron studies</li> <li>– Urinalysis, such as MC&amp;S</li> <li>– Stool analysis, such as FOB</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate:               <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Manage a clinically unstable child as per APLS guidelines</li> <li>– Pharmacological management, such as iron, tranexamic acid</li> <li>– Non-pharmacological management, such as RBC transfusion</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer/retrieval, outpatient specialist review/advice, bone marrow biopsy</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<b>Immunology and rheumatology</b>	
<ul style="list-style-type: none"> <li>&gt; Allergies</li> <li>&gt; Henoch-Schönlein purpura</li> <li>&gt; Angioedema</li> <li>&gt; Kawasaki syndrome</li> <li>&gt; Immunodeficiency</li> <li>&gt; Rheumatic fever</li> <li>&gt; Juvenile idiopathic arthritis</li> <li>&gt; Immunological emergencies <ul style="list-style-type: none"> <li>– Anaphylaxis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of infant, child and adolescent immunological and rheumatological anatomy and physiology, and common and important related conditions in childhood</li> <li>&gt; Perform systematic examination competently to detect stigmata of immunological and rheumatological disease, and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, CRP, ESR, LFTs, U&amp;Es, coag profile, lipase, immunoglobulin levels, antibody titres</li> <li>– Urinalysis, such as MC&amp;S</li> <li>– X-rays, such as joint/s, chest</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion for an unwell child</li> <li>– Emergency management of anaphylaxis as per APLS guidelines</li> <li>– Pharmacological management, such as adrenaline, oxygen, beta-agonists, muscarinic antagonists, oxygen, steroids, antihistamines, aspirin, anti-inflammatories</li> <li>– Non-pharmacological management, such as airway management ventilatory support, IV fluids, immunoglobulins, patient/family education</li> <li>– Refer for further work-up/management, such as inpatient transfer/retrieval, outpatient specialist review/advice, adrenaline autoinjector, medical alert tag, skin testing, echocardiography</li> <li>– Development of anaphylaxis management plan</li> </ul> </li> <li>&gt; Understand National Health Guidelines for diagnosis and management of acute rheumatic fever, and local referral pathways for ongoing follow-up</li> </ul>
<b>Endocrine and metabolic medicine</b>	
<ul style="list-style-type: none"> <li>&gt; Diabetes (Type 1, Type 2, MODY)</li> <li>&gt; Thyroid disorders</li> <li>&gt; Growth disorders</li> <li>&gt; Abnormal puberty</li> <li>&gt; Endocrine and metabolic emergencies <ul style="list-style-type: none"> <li>– Diabetic ketoacidosis</li> <li>– Hypoglycaemia</li> <li>– Hyper/hyponatraemia</li> <li>– Hypocalcaemia</li> <li>– Hypomagnesaemia</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of infant, child and adolescent endocrine anatomy and physiology, and common and important paediatric endocrine and metabolic conditions</li> <li>&gt; Perform systematic examination competently to detect stigmata of endocrine disease and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Review Guthrie card result in neonate/infant</li> <li>– Blood tests, such as U&amp;Es, glucose, LFTs, VBG, HbA1c, GAD &amp; IA2, TFTs, thyroid autoantibodies, coeliac antibodies, paired glucose/insulin levels, C-peptide, lipid profile, free fatty acids, beta-hydroxybutyrate, cortisol, growth hormone, pyruvate, amino acids</li> <li>– Urinalysis, such as ketones, glucose, MC&amp;S, organic acids, amino acids</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<i>Endocrine and metabolic medicine cont.</i>	
<ul style="list-style-type: none"> <li>– Liver failure</li> <li>– Renal failure</li> <li>– Inborn errors of metabolism</li> </ul>	<ul style="list-style-type: none"> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Management of endocrine and metabolic emergencies as per APLS guidelines</li> <li>– Access and follow personalised hospital emergency regimen care plans for patients with known endocrine and metabolic disease</li> <li>– Pharmacological management, such as glucose, insulin, potassium, glucagon, calcium, magnesium</li> <li>– Non-pharmacological management, such as airway management, ventilatory support, IV fluids, patient/family education</li> <li>– Refer for further work-up/management, such as inpatient transfer/retrieval, outpatient specialist review/advice, diabetes nurse</li> </ul> </li> </ul>
<b>Ophthalmology</b>	
<ul style="list-style-type: none"> <li>➤ Conjunctivitis (allergic and infectious)</li> <li>➤ Unilateral red eye</li> <li>➤ Congenital cataract and glaucoma</li> <li>➤ Retinoblastoma</li> <li>➤ Amblyopia</li> <li>➤ Periorbital cellulitis</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of infant, child and adolescent eye anatomy and physiology, and common and important paediatric ophthalmological conditions</li> <li>➤ Perform age-appropriate ophthalmological examination with awareness of exam limitations and interpret findings</li> <li>➤ Arrange/perform and interpret relevant investigations, including on specialist advice: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, CRP, blood cultures</li> <li>– Eye swab tests, such as MC&amp;S, PCR (HSV, gonorrhoea, chlamydia)</li> </ul> </li> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Pharmacological treatment, such as antihistamines, antibiotics (IV, topical, oral)</li> <li>– Non-pharmacological treatment, such as eye hygiene, patient/carer education</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer, outpatient specialist review/advice, optometry</li> </ul> </li> </ul>
<b>General</b>	
<ul style="list-style-type: none"> <li>➤ Behavioural issues</li> <li>➤ Developmental delay</li> <li>➤ Congenital syndromes</li> <li>➤ ADHD</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of common and important congenital, developmental, behavioural, psychiatric and disability conditions that can affect infants, children and adolescents</li> <li>➤ Develop history taking skills to effectively elucidate information from the patient and/or carer about: <ul style="list-style-type: none"> <li>– Perinatal history</li> <li>– Developmental progress/delay</li> </ul> </li> </ul>

Neonatal, paediatric and adolescent conditions	Recommended learning outcomes
<i>General cont.</i>	
<ul style="list-style-type: none"> <li>&gt; Autism spectrum disorder</li> <li>&gt; Disability (physical, learning, intellectual, language)</li> <li>&gt; Anxiety</li> <li>&gt; Depression</li> <li>&gt; Psychosis</li> <li>&gt; Self-harm</li> <li>&gt; Child abuse or neglect</li> </ul>	<ul style="list-style-type: none"> <li>– Behavioural issues</li> <li>– Psychiatric symptoms (mood, anxiety, psychosis)</li> <li>– Psychosocial situation (HEEADSSS assessment in adolescents to identify potential issues impacting on health)</li> <li>– Disability status (conditions, impairments, limitations, restrictions)</li> <li>– Safety concerns (abuse, neglect, self-harm, suicidal intent)</li> <li>– Wider family concerns</li> </ul> <ul style="list-style-type: none"> <li>&gt; Perform appropriate examinations and use validated assessment tools in accordance with the clinical situation</li> <li>&gt; Arrange/perform and interpret relevant investigations, including on specialist advice</li> <li>&gt; Assess the clinical situation and (where indicated) make a provisional diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialist discussion regarding an unwell child</li> <li>– Management of traumatic (self-harm or abuse) emergencies in accordance with APLS/EMST guidelines</li> <li>– Pharmacological treatment, such as antidepressants, antipsychotics, anxiolytics, mood stabilisers, CNS stimulants</li> <li>– Non-pharmacological management, such as patient and carer education and advice, safety net planning</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer, out-patient specialist review/advice (paediatrics, child and adolescent psychiatry), counselling (young person and/or family), psychology, audiology, speech and language therapy, physiotherapy, social worker, school, government agencies, community agencies, website-based support groups/CBT, primary care, police, respite care</li> </ul> </li> <li>&gt; Identify early indicators of at risk behaviours in adolescents and initiate harm minimisation strategies, using the risk and resiliency model of adolescent health care to identify and build on protective factors (personal strengths, performance, connectedness and relationships)</li> <li>&gt; Understand principles for best practice when assessing neglect of medical care and involve appropriate clinicians, allied health and government agencies when this is suspected</li> <li>&gt; Know professional and ethical requirements for sharing information regarding vulnerable children (using the escalation ladder available on the Office of the Privacy Commissioner website where required)</li> </ul>

# Emergency medicine

## Overview

The rural hospital can expect to receive the full range of emergency presentations, and patients attending rural hospitals for emergency care are as sick as those attending urban emergency departments and clinics.

New Zealand rural hospitals are structured and staffed in a variety of ways to manage emergency presentations but share common issues such as limited available resources and staff to assist in times of high patient acuity and/or volume, compared with urban emergency departments. However, such limitations provide enhanced opportunities for resourcefulness, innovation and teamwork.

Emergency teams can be rapidly constructed from those available: not just medical and nursing staff but paramedics and volunteer ambulance workers, students and others. Alternative equipment or medications can be thoughtfully used in place of those recommended but not available. Knowledge and skills from previous experiences can be transposed to situations not encountered before. Telehealth resources can be used for specialist consultation, and to enable offsite leadership in resuscitation situations where there are 'not enough hands'.

The need to practise and maintain skills not frequently used is understood by rural hospital doctors, and relevant training courses are routinely undertaken for this purpose. These, and other educational opportunities, enable doctors to meet with peers with similar resource constraints and adaptations and to develop advanced skills that can enhance the rural medical team's provision of emergency care.

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## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division when providing emergency medicine services include:

### **Rural hospital context** *(including health equity and Māori health)*

- › Develop and maintain good working relationships with local primary care services, referral-hospital acute services, ambulance services, mental health services, police, and other individuals or agencies involved in acute care.
- › Work with culturally and linguistically diverse and disadvantaged groups to address barriers in access to emergency health and support services.

### **Communication** *(including cultural competence)*

- › Adopt professional communication with local emergency care personnel.
- › Communicate effectively at a distance with consulting or receiving clinical personnel in emergency situations, using telehealth resources as available.
- › Appreciate the role that ethnicity, socioeconomic status and cultural issues have on disease prevalence and emergency presentation, access to health services, and clinical outcomes.

### **Clinical expertise**

- › Demonstrate basic knowledge of anatomy and physiology relevant to the emergency setting.
- › Demonstrate expertise in the diagnosis, treatment and management of emergencies likely to present in the isolated rural setting and develop the capacity to generalise from previous experience to emergencies newly encountered.

- Conduct an ordered approach to emergency, life-threatening situations, proceeding from primary survey and emergency resuscitation through secondary survey and definitive or temporising management of identified problems, and considering appropriate opportunities to initiate referral/retrieval processes.
- Demonstrate knowledge and skills in the use of analgesia and anaesthesia.
- Appropriately request and interpret medical imaging.
- Understand the management of acute forensic presentation, particularly with respect to victims of sexual assault and child abuse.
- Effectively plan for and manage emergency retrieval, multi-trauma and disaster situations.

See *learning frame and skills log* for further details.

### Leadership and management

- Provide interprofessional team leadership in emergency situations and effectively delegate to other team members, such as nursing colleagues, paramedics and mental health staff, where appropriate.
- Understand organisational aspects of rural hospitals necessary to maintain effective emergency capacity, using quality assurance and risk management assessments to improve outcomes.

## Learning frame

Emergency medicine conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Airway emergencies               <ul style="list-style-type: none"> <li>– Inhaled foreign bodies</li> <li>– Epiglottitis</li> <li>– Croup</li> <li>– Anaphylaxis</li> <li>– Airway burns</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage airway emergencies in accordance with EMST/ATLS and APLS principles and guidelines, including appropriate transfer/retrieval</li> <li>➤ Understand special considerations for management in the context of facial and airway trauma</li> </ul> <p>See <a href="#">Surgery</a> and <a href="#">Child and adolescent health</a> learning frames for further details</p>
<ul style="list-style-type: none"> <li>➤ Breathing emergencies               <ul style="list-style-type: none"> <li>– Apnoea</li> <li>– Severe asthma</li> <li>– Pulmonary oedema</li> <li>– Pulmonary embolus</li> <li>– Tension pneumothorax</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage breathing emergencies, including appropriate transfer/retrieval</li> </ul> <p>See <a href="#">Adult internal medicine</a>, <a href="#">Surgery</a> and <a href="#">Child and adolescent health</a> learning frames for further details</p>
<ul style="list-style-type: none"> <li>➤ Cardiac and circulation emergencies               <ul style="list-style-type: none"> <li>– Shock (hypovolaemic, cardiac, septic, neurogenic and anaphylactic)</li> <li>– Acute myocardial infarction</li> <li>– Cardiac tamponade</li> <li>– Cardiac arrhythmias</li> <li>– Acute limb ischaemia</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage cardiac and circulation emergencies, including appropriate transfer/retrieval</li> </ul> <p>See <a href="#">Adult internal medicine</a>, <a href="#">Surgery</a> and <a href="#">Child and adolescent health</a> learning frames for further details</p>

Emergency medicine conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Neurological emergencies               <ul style="list-style-type: none"> <li>– Coma</li> <li>– Stroke</li> <li>– Altered mental status</li> <li>– Seizures</li> <li>– Head trauma</li> <li>– Subarachnoid haemorrhage</li> <li>– Meningitis</li> <li>– Encephalitis</li> <li>– Status epilepticus</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage neurological emergencies, including appropriate transfer/retrieval</li> <li>➤ Manage severe head injuries, including airway and ventilatory support, in accordance with EMST/ATLS and APLS principles and guidelines</li> </ul> <p>See <a href="#">Adult internal medicine</a>, <a href="#">Surgery</a> and <a href="#">Child and adolescent health</a> learning frames for further details</p>
<ul style="list-style-type: none"> <li>➤ Metabolic/endocrine emergencies               <ul style="list-style-type: none"> <li>– Diabetic ketoacidosis</li> <li>– Hypoglycaemia</li> <li>– Hyperosmolar coma</li> <li>– Hyperkalaemia</li> <li>– Hypocalcaemia</li> <li>– Addisonian crisis</li> <li>– Hyperthermia</li> <li>– Hypothermia</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Assess, diagnose and manage metabolic and endocrine emergencies, including appropriate transfer/retrieval</li> </ul> <p>See <a href="#">Adult internal medicine</a> learning frame for further details</p>
<ul style="list-style-type: none"> <li>➤ Infectious disease emergencies               <ul style="list-style-type: none"> <li>– Meningitis</li> <li>– Sepsis (adult, child, immunocompromised)</li> <li>– Neonatal infection</li> <li>– Febrile convulsion</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage acute and potentially life-threatening infections, including appropriate transfer/retrieval</li> </ul> <p>See <a href="#">Adult internal medicine</a> and <a href="#">Child and adolescent health</a> learning frames for further details</p>
<ul style="list-style-type: none"> <li>➤ Toxicology emergencies               <ul style="list-style-type: none"> <li>– Drug overdose</li> <li>– Poison ingestion</li> <li>– Terrestrial and marine envenomation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Assess, diagnose and manage toxicological emergencies, including appropriate transfer/retrieval</li> <li>➤ Know how to access National Poisons Centre guidelines for management of poisoning</li> <li>➤ Appropriately refer treated patients to mental health services after deliberate drug overdose or toxin exposure</li> </ul> <p>See <a href="#">Surgery</a>, <a href="#">Child and adolescent health</a> and <a href="#">Mental health and addictions</a> learning frames for further details</p>
<ul style="list-style-type: none"> <li>➤ General surgery/urology               <ul style="list-style-type: none"> <li>– Acute abdomen</li> <li>– Abdominal and pelvic trauma</li> <li>– Urinary retention</li> <li>– Urological trauma</li> <li>– Testicular torsion</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Assess, diagnose, manage where indicated, and/or refer and transfer/retrieve</li> </ul> <p>See <a href="#">Surgery</a> learning frame for further details</p>

Emergency medicine conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Orthopaedic emergencies <ul style="list-style-type: none"> <li>– Fractures (simple and compound)</li> <li>– Joint dislocation</li> <li>– Potential neurovascular compromise</li> <li>– Spinal injuries</li> <li>– Hand injuries</li> <li>– Compartment syndrome</li> <li>– Cauda equina syndrome</li> <li>– Septic arthritis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage orthopaedic emergencies, including appropriate transfer/retrieval</li> </ul> <p>See <a href="#">Musculoskeletal health, Surgery</a> and <a href="#">Child and adolescent health</a> learning frames for further details</p>
<ul style="list-style-type: none"> <li>➤ Ophthalmological emergencies <ul style="list-style-type: none"> <li>– Red eye</li> <li>– Acute loss of vision</li> <li>– Painful eye</li> <li>– Corneal foreign body</li> <li>– Penetrating eye injury</li> <li>– Chemical eye injury</li> <li>– Acute glaucoma</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Assess, diagnose, manage where indicated, and/or refer and transfer/retrieve</li> </ul> <p>See <a href="#">Ophthalmology</a> learning frames for further details</p>
<ul style="list-style-type: none"> <li>➤ Ear, nose and throat emergencies <ul style="list-style-type: none"> <li>– Anterior and posterior epistaxis</li> <li>– Aural and nasal foreign bodies</li> <li>– Quinsy</li> <li>– Midface fracture</li> <li>– Fractured nose</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Assess, diagnose, manage where indicated, and/or referral and transfer/retrieval of ear, nose and throat emergencies</li> </ul> <p>See <a href="#">Surgery</a> learning frame for further details</p>
<ul style="list-style-type: none"> <li>➤ Wounds, lacerations and burns</li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage wounds, lacerations and burns, including appropriate transfer/retrieval</li> </ul> <p>See <a href="#">Surgery</a> learning frame for further details</p>
<ul style="list-style-type: none"> <li>➤ Paediatric emergencies <ul style="list-style-type: none"> <li>– Neonatal resuscitation</li> <li>– Severe trauma (including spinal injury without radiological abnormality)</li> <li>– Cardiac arrest</li> <li>– Cardiac arrhythmia</li> <li>– Respiratory emergencies</li> <li>– Hypovolaemic shock</li> <li>– Infections</li> <li>– Metabolic emergencies</li> <li>– Burns</li> <li>– Non-accidental injury</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Assess, diagnose and manage paediatric emergencies in accordance with EMST/ATLS and APLS principles and guidelines</li> </ul> <p>See <a href="#">Surgery</a> and <a href="#">Child and adolescent health</a> learning frames for further details</p>

Emergency medicine conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Mental health and addiction emergencies               <ul style="list-style-type: none"> <li>– Psychosis</li> <li>– Mania</li> <li>– Violence/aggression</li> <li>– Suicidality</li> <li>– Depression</li> <li>– Acute intoxication</li> <li>– Acute drug/alcohol withdrawal</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Diagnose and manage psychiatric emergencies, including referral and/or transfer if appropriate</li> </ul> <p>See <a href="#">Mental health and addictions</a> learning frame for further details</p>
<ul style="list-style-type: none"> <li>➤ Forensic emergencies               <ul style="list-style-type: none"> <li>– Sexual assault</li> <li>– Child abuse</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Manage acute forensic presentations with an understanding of associated medicolegal obligations</li> </ul> <p>See <a href="#">Child and adolescent health</a> learning frame for further details</p>
<ul style="list-style-type: none"> <li>➤ Analgesia/anaesthesia</li> </ul>	<ul style="list-style-type: none"> <li>➤ Use analgesia and anaesthesia when required within the emergency setting</li> </ul> <p>See <a href="#">Anaesthesia</a> learning frame for further details</p>
<ul style="list-style-type: none"> <li>➤ Medical imaging</li> </ul>	<ul style="list-style-type: none"> <li>➤ Interpret emergency X-rays competently</li> <li>➤ Develop skills in point-of-care ultrasound for both diagnostic and procedural purposes in emergency situations, with an understanding of the clinical question to be addressed and the limitations of both the user and device when used in clinical assessment</li> </ul> <p>See <a href="#">Radiology</a> learning frame for further details</p>
<ul style="list-style-type: none"> <li>➤ Retrieval in emergency situations</li> </ul>	<ul style="list-style-type: none"> <li>➤ Arrange appropriate and safe referral and transfer/retrieval to referral centres, with suitable preparation and stabilisation of the patient for this purpose</li> </ul>
<ul style="list-style-type: none"> <li>➤ Disaster and multi-trauma emergencies</li> </ul>	<ul style="list-style-type: none"> <li>➤ Be able to help plan for and participate in a response to disaster or multi-trauma</li> <li>➤ Be able to contribute to the formulation of a disaster management plan for a given rural geographical area</li> </ul>

# Information technology

## Overview

Advances in information technology (IT) have had profound effects on health care provision in New Zealand rural hospitals. The electronic processes and communications that support health care practice (e-health) and the use of telecommunications technology to allow remote access by other health care professionals to offer support and advice in patient management (telehealth) are considered to improve local care for rural patients and reduce rural health inequities. Telecommunications also enable the rural hospital doctor to be represented at centralised management or medical education/peer review meetings that may previously have been difficult or impossible to attend.

Rural hospital doctors need to understand the IT availability and capabilities of their workplace and use relevant electronic processes and communications effectively to enhance patient care. They also need to understand the ethical issues and professional responsibilities associated with the use of e-health and telehealth, and work with IT staff to develop further ways to enhance patient care through rurally relevant IT tools.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division relevant to the use of available information technology include:

### **Rural hospital context** *(including health equity and Māori health)*

- Recognise and appreciate the evolving and expanding roles of e-health and telehealth in rural practice.
- Use information technology to provide effective clinical care in rural hospitals, including through interaction with specialists and other primary and secondary health services.

### **Communication** *(including cultural competence)*

- Effectively and safely use video and telephone consultation and secure messaging to refer and facilitate access to specialised medical, pharmacy, diagnostic and other health and social support services.
- Use e-health and telehealth resources to access specialist advice and institute shared-care arrangements, ensuring that the division of follow-up responsibilities arising from a telehealth consultation are clear to both patient and distant clinicians.
- Inform patients about the risks and benefits of e-health and telehealth, including those regarding privacy, safety and quality of care and advise on alternative options to their use.
- Understand the potential changes in day-to-day communications with patients, acknowledging the increase in the use of social networking, text and email.

### **Clinical expertise**

- Select and support appropriate patients for telehealth consultations, taking into account patient, clinical and practical factors.
- Use e-health and telehealth to provide effective clinical care when away from ready access to face-to-face specialist, diagnostic or allied health services.
- Use a patient-centred approach to care when providing telehealth consultations, collecting and retrieving data and facilitating patients' access to relevant e-health records.

- › Perform physical examinations on behalf of distant specialists during telehealth consultations.
- › Use imaging devices, point-of-care devices and tests, and equipment that are fit-for-purpose when conducting telehealth consultations.
- › Develop the necessary skills to use the various applications of information technology to aid in information exchange, ordering of investigations, diagnostic reasoning, the development of management and advance care plans, electronic prescribing, and maintenance of the patient's electronic record.
- › Demonstrate knowledge of appropriate and reliable websites and e-health resources for patient information.

### **Professionalism**

- › Be familiar with regulatory standards and professional body guidelines regarding telehealth (available through the NZ Telehealth Forum and Resource Centre website).
- › Use information management skills efficiently and ethically and be familiar with computer security guidelines.
- › Ensure safety, privacy and confidentiality in patient care when using e-health systems and conducting telehealth consultations.
- › Ensure informed consent is obtained when introducing telehealth and e-health options.
- › Understand local policies regarding use of smartphones and other mobile devices, applications and interactive programs, disease management tools and photography.
- › Recognise and respect the different attitudes to electronic use among patients and health professionals.
- › Maintain clear clinical records and up-to-date prescribing information to enable safe use of the shared patient record.
- › Use information technology for purposes of representation at initiatives relevant to rural health.
- › Use information technology effectively in ongoing professional development processes.

### **Scholarship**

- › Use electronic information sources to acquire and enhance knowledge and skills and assist in patient and staff education.
- › Use electronic technology to engage in population health activities in the rural setting.
- › Engage in appropriate skill development to keep up with evolving medical technology.
- › Critically appraise and apply relevant research related to e-health.
- › Recognise the importance of regular audits of telehealth services as part of institutional quality and safety improvement.

### **Leadership and management**

- › Contribute medical expertise and leadership in the establishment and implementation of e-health and telehealth services in the rural hospital setting.
- › Demonstrate commitment to teamwork, collaboration, coordination and continuity of care in e-health and telehealth arrangements.
- › Develop and manage the physical environment to enable telehealth consultations.
- › Plan for and use e-health strategies to increase capacity and meet service demands.

# Mental health and addictions

## Overview

Rural communities are known for, and strengthened by, their relationships, resourcefulness and resilience. However, rurality conveys its own set of risks for both mental health and addiction conditions, and resource constraints and confidentiality issues can affect rural patients' access to appropriate care. The rural hospital doctor needs to be able to diagnose and safely manage acute psychiatric presentations, care for patients with chronic mental health conditions in conjunction with specialists and/or other health professionals, and pursue harm reduction strategies in those with addiction issues. The rural hospital doctor who understands their community – its people, families/whānau, workplaces and social groups – is better equipped to assist their patient with mental health and/or addiction conditions. They understand not only the nature but also the personal and wider impact of their patient's condition, recognising relevant risk and protective factors, facilitating access to appropriate local support services and addressing potential barriers to care.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in the provision of services in the area of mental health and addictions include:

### **Rural hospital context** *(including health equity and Māori health)*

- › Recognise the impact of rurality and local demographics on mental wellbeing, mental illness and patient presentations.
- › Recognise the differing availability of mental health resources and challenges to meeting mental health needs in rural communities and demonstrate the ability to adapt to resource constraints.
- › Understand local resources and pathways to obtain help and support for patients with mental health and addiction problems.
- › Build effective relationships and work as a team with community mental health and addiction services and other providers to support the patient and their family/whānau.
- › Work towards reducing barriers to Māori and Pacific people seeking and receiving mental health care in rural practice in New Zealand.
- › Use a holistic approach when caring for Māori patients, including using the principles of Te Whare Tapa Whā, to explore the impact of addiction on the patient, family/whānau, workplace and community.
- › Be aware of, and sensitive to, the socioeconomic impact of serious mental illness.
- › Consider strategies to address the social and environmental determinants of mental health problems and the barriers to access to mental health and support services among culturally diverse and disadvantaged groups.

### **Communication** *(including cultural competence)*

- › Develop rapport and trust with the patient to facilitate disclosure of symptoms of mental illness and addiction, ensuring patients are treated with respect.
- › Communicate findings of mental health investigations and clinical assessment effectively and sensitively to the patient.
- › Engage with the family/whānau when managing a patient's mental health problems, with due consideration to potentially conflicting issues of patient and family safety, and patient confidentiality.
- › Develop understanding of potential causes for 'difficult' patient interactions and strategies for managing these.

- Recognise early warning signs in the acutely disturbed patient, and demonstrate clinical knowledge of principles of de-escalation.
- Use basic counselling skills competently in the consultation.
- Ensure the patient understands the limits of confidentiality with respect to safety.
- Perform effective handover to team members and primary and community care providers.
- Appreciate the different perceptions and models of mental health and addiction in different ethnic groups, which may alter the approach to communication and management.

### Clinical expertise

- Mental health
  - Demonstrate the appropriate knowledge, skills and attitudes to assess, diagnose and manage patients with mental health problems or disorders in the rural setting.
  - Demonstrate appropriate interviewing, counselling and education techniques to manage patients with various mental health problems or disorders in the rural setting.
  - Demonstrate the capacity to manage psychiatric emergencies in the rural setting.
  - Understand the pharmacology of agents used in the treatment of mental health and addiction/withdrawal conditions, their indications, contraindications, adverse effects and monitoring requirements.
  - Differentiate between functional and organic causes of altered mental status.
  - Consider the needs of those with mental health disorders and comorbidities.
  - Encourage and support the participation of those affected by mental health problems or disorders, as well as their family/whānau and/or carers, in determining their treatment and care plans and strategies for relapse prevention.
  - Provide mental health care using a range of mental health care interventions in collaboration with clinical practice guidelines, other health care professionals and community/government organisations.
  - Use the legislative framework for involuntary psychiatric care, guardianship/power of attorney and child protection correctly, where relevant.
- Addiction
  - Demonstrate knowledge of addiction screening tools and be able to apply these appropriately.
  - Educate patients and family/whānau regarding the nature, potential consequences and available resources and treatments available for management of addictions.
  - Negotiate a plan for ongoing addiction management and refer appropriately.
  - Recognise and manage acute conditions, such as intoxication, psychosis or withdrawal.
  - Prescribe medications appropriately for various aspects of addiction, in consultation with a relevant specialist.
  - Consider relevant comorbidities and investigate and manage these appropriately.
  - Understand the potential for misuse of prescription medicines and how to recognise where this occurs.

*See learning frame and skills log for further details.*

### Professionalism

- Adhere to Medical Council of New Zealand guidelines when treating patients and colleagues with addictions.
- Understand the responsibilities and legal obligations inherent in legislation relating to mental health and addiction conditions and their management.
- Understand the legal obligations, rights and responsibilities for confidentiality, prescribing and certification for all patients, including those dependent on controlled drugs.
- Understand the local process for relaying information about drug-seekers to other practitioners.
- Understand the medicolegal issues in relation to alcohol and drug use; for example, when driving.
- Consider and engage in supervision, mentoring or peer group activity as part of self-care.
- Recognise unprofessional behaviour and signs of the practitioner in difficulty among colleagues, and respond according to ethical guidelines and statutory requirements.

### Scholarship

- Develop strength-based approaches to mental health with a focus on mental wellness.
- Evaluate prescribing of potentially misused prescription drugs.

### Leadership and management

- Consider current national mental health priorities and policies and their application to rural medical practice.
- Recognise the importance of building and leading a team approach to mental health in the rural hospital environment.

## Learning frame

Mental health and addiction issues and conditions	Clinical knowledge and capabilities
<p>Adult mental health issues/disorders:</p> <ul style="list-style-type: none"><li>➤ Depression<ul style="list-style-type: none"><li>– Major depression</li><li>– Minor depression</li><li>– Postpartum depression</li></ul></li><li>➤ Psychoses<ul style="list-style-type: none"><li>– Bipolar disorder</li><li>– Schizophrenia</li><li>– Toxic and organic disorders</li><li>– Puerperal psychosis</li></ul></li><li>➤ Anxiety disorder<ul style="list-style-type: none"><li>– Generalised anxiety disorder</li><li>– Acute stress disorder</li><li>– Adjustment disorder</li><li>– Post-traumatic stress disorder</li><li>– Panic attacks</li></ul></li></ul>	<ul style="list-style-type: none"><li>➤ Demonstrate a working knowledge of mental health conditions, including their natural history, incidence and prevalence across the lifespan, risk factors and diagnostic criteria</li><li>➤ Demonstrate a working knowledge of common and important addictions and clinical features of withdrawal</li><li>➤ Take a thorough mental health history, including:<ul style="list-style-type: none"><li>– Nature, onset and severity of symptoms</li><li>– Potential triggers</li><li>– Personal and family history of psychiatric disease</li><li>– Functional impairment level</li><li>– Degree of insight</li><li>– Risk of harm to self or others</li><li>– Medication compliance</li><li>– Use of alcohol, prescription drugs and drugs of abuse</li><li>– Amount and quality of personal support from family/whānau, employer/s and community</li></ul></li></ul>

Mental health and addiction issues and conditions	Clinical knowledge and capabilities
<ul style="list-style-type: none"> <li>– Obsessive-compulsive disorder</li> <li>– Social phobia</li> <li>– Specific phobias</li> </ul> <ul style="list-style-type: none"> <li>&gt; Attention-deficit/hyperactivity disorder</li> <li>&gt; Substance abuse</li> <li>&gt; Sleep disorders</li> <li>&gt; Personality disorders</li> <li>&gt; Family conflict</li> </ul> <p>Child mental health issues/disorders:</p> <ul style="list-style-type: none"> <li>&gt; Encopresis and enuresis</li> <li>&gt; ADHD</li> <li>&gt; Oppositional defiant disorder</li> <li>&gt; Aggression</li> <li>&gt; Loss and grief reaction</li> <li>&gt; Sexual/child abuse</li> </ul> <p>Adolescent mental health issues/disorders:</p> <ul style="list-style-type: none"> <li>&gt; Depression</li> <li>&gt; Eating disorders</li> <li>&gt; Self-harm</li> <li>&gt; Substance misuse</li> <li>&gt; Relationship issues</li> <li>&gt; Low self-esteem</li> <li>&gt; Oppositional behaviour</li> <li>&gt; Loss and grief reaction</li> <li>&gt; Sexual abuse</li> </ul> <p>Older adult mental health issues/disorders:</p> <ul style="list-style-type: none"> <li>&gt; Depression</li> <li>&gt; Dementia</li> <li>&gt; Delirium</li> </ul> <p>Addiction:</p> <ul style="list-style-type: none"> <li>&gt; Alcohol</li> <li>&gt; Benzodiazepines</li> <li>&gt; Opioids</li> <li>&gt; Cannabis</li> <li>&gt; Methamphetamines</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Perform a competent mental health assessment and interpret findings, including: <ul style="list-style-type: none"> <li>– General appearance</li> <li>– Psychomotor behaviour</li> <li>– Mood and affect</li> <li>– Speech</li> <li>– Cognition</li> <li>– Thought patterns</li> <li>– Level of consciousness</li> </ul> </li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as U&amp;Es, LFTs, TFTs, Ca/PO4/M, CK, drug levels</li> <li>– Urinalysis, such as toxicology</li> <li>– ECG</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate <ul style="list-style-type: none"> <li>– Pharmacological management, such as antidepressants, anti-psychotics, anxiolytics, mood stabilisers, vitamin B complex, thiamine, glucose, antiepileptic drugs, disulfiram, methylphenidate</li> <li>– Non-pharmacological management, such as lifestyle education and support (smoking cessation, daily routines, alcohol avoidance, sleep hygiene, exercise), therapeutic drug level monitoring, patient/family education, crisis intervention</li> <li>– Refer for further work-up/management, such as referral (adult mental health, child and adolescent health, alcohol and drugs services), brief interventional counselling, social work, dietitian, community worker, out-patient support groups, inpatient rehabilitation programmes, self-help resources, physiotherapy, respite care</li> </ul> </li> <li>&gt; Appropriately use up-to-date and validated clinical assessment tools to assist in diagnosis and management of mental health and addiction conditions, for example: <ul style="list-style-type: none"> <li>– GAD-7 (anxiety)</li> <li>– Patient Health Questionnaire PHQ-9 (depression)</li> <li>– Kessler-10 (K10) (anxiety, depression, psychological distress)</li> <li>– Geriatric Depression Scale (depression in older adults)</li> <li>– Edinburgh Postnatal Depression Scale (postpartum depression)</li> <li>– AUDIT (problem drinking)</li> <li>– MoCA (cognitive impairment)</li> <li>– Alcohol withdrawal scale</li> </ul> </li> <li>&gt; Know the side effect profiles of medications commonly used in psychiatric conditions</li> <li>&gt; Be aware of local institutional policies for management of: <ul style="list-style-type: none"> <li>– Alcohol detoxification</li> <li>– Benzodiazepine or opioid withdrawal</li> <li>– Initiation of new medication</li> <li>– Crisis situations</li> </ul> </li> </ul>

Mental health and addiction issues and conditions	Clinical knowledge and capabilities
<p>Drug withdrawal syndromes:</p> <ul style="list-style-type: none"> <li>&gt; Alcohol</li> <li>&gt; Benzodiazepines</li> <li>&gt; Opioids</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Consider appropriate screening for common comorbidities associated with mental health and addiction conditions, including: <ul style="list-style-type: none"> <li>– Medical conditions (such as neurological, thyroid and cardiovascular diseases, malignancy)</li> <li>– Chronic pain</li> <li>– Substance misuse</li> <li>– Developmental disability</li> <li>– Physical impairments</li> <li>– Personality disorder</li> <li>– Oral disease, malnutrition</li> <li>– Sexual health</li> </ul> </li> <li>&gt; Be aware of and comply with national legislation and guidelines relating to mental health, including: <ul style="list-style-type: none"> <li>– Mental Health (Compulsory Assessment and Treatment) Act 1992</li> <li>– Substance Addiction (Compulsory Assessment and Treatment) Act 2017</li> <li>– Land Transport Act 1998</li> <li>– NZ Practice Guidelines for Opioid Substitution Treatment (MOH 2014)</li> <li>– Further legislation regarding child protection, privacy, confidentiality, guardianship, freedom of information, anti-discrimination, informed consent</li> <li>– Reporting requirements and record keeping of child abuse, elder abuse, domestic violence, critical incidents</li> </ul> </li> <li>&gt; Be aware of guidelines and strategies for dealing with patient anger, self-harm, violence and aggression</li> </ul>

# Musculoskeletal health

## Overview

Musculoskeletal medicine covers the management of musculoskeletal disorders arising from disease, degeneration or injury. Musculoskeletal conditions are common in generalist practice, often mimic other conditions, and may be precipitated or affected by stress, lack of physical fitness, obesity, and other medical or mental health illnesses and/or substance misuse. Rural hospital doctors combine their knowledge of basic medical science, psychological and psychosocial determinants of pain, and the patient themselves, to determine appropriate investigations, diagnosis and management. The rural hospital doctor effectively communicates with and educates the patient regarding the nature of their condition, discusses the evidence base for potential management options, and assists the patient to achieve best outcomes for quality of life, health and function.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division when providing services in the area of musculoskeletal health include:

### **Rural hospital context** *(including health equity and Māori health)*

- › Develop an understanding of the importance of appropriate decision-making about local management, consultation and referral of musculoskeletal conditions.

### **Communication** *(including cultural competence)*

- › Enhance the autonomy and personal responsibility of patients with both acute and chronic musculoskeletal conditions.

### **Clinical expertise**

- › Demonstrate appropriate knowledge, practical skills and attitudes to provide diagnosis and management of musculoskeletal conditions in rural hospital practice.
- › Demonstrate a broad understanding of the variety of conditions affecting different age, sex and occupational groups.
- › Demonstrate an understanding of other medical, physical and psychosocial factors that affect the specific musculoskeletal problem.
- › Demonstrate the ability to undertake a standard musculoskeletal assessment relevant to the patient and their presentation.
- › Demonstrate awareness of the presentation of spinal and other musculoskeletal conditions as medical 'masquerades' and ancillary aspects of other medical conditions.
- › Institute therapeutic processes designed to assist early restoration of function of the affected part or parts.
- › Demonstrate a broad understanding of the current evidence-based mainstream and alternative physical therapy treatments in New Zealand.
- › Demonstrate a commitment to coordination of care, including referral to other health providers, ongoing monitoring, shared care, strategic interventions, involvement of ACC where appropriate.

*See learning frame and skills log for further details.*

### Professionalism

- Understand the challenges in maintaining employment or returning to the workplace after injury.
- Understand the importance and difficulty of maintaining confidentiality in rural communities.

### Scholarship

- Identify and acquire extended musculoskeletal medical knowledge and skills as may be required to meet the health care needs of the local population.
- Understand the social, environmental, economic and occupational determinants of health that affect the community burden of musculoskeletal disease and access to health-related services.

## Learning frame

Musculoskeletal conditions (excluding fractures)	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Cervical conditions               <ul style="list-style-type: none"> <li>– Vertebral stiffening (age, ankylosis)</li> <li>– Spondylitis</li> <li>– Facet joint dysfunction</li> <li>– Disc prolapse/disruption</li> <li>– Foraminal obstruction, radiculopathy, myopathy</li> <li>– Torticollis</li> <li>– Cervical syndromes/cervicogenic headache</li> <li>– Inflammatory conditions</li> </ul> </li> <li>➤ Temporomandibular conditions               <ul style="list-style-type: none"> <li>– TMJ syndrome</li> <li>– Locked jaw</li> <li>– TMJ arthritis</li> </ul> </li> <li>➤ Shoulder conditions               <ul style="list-style-type: none"> <li>– Capsulitis/frozen shoulder</li> <li>– Subdeltoid bursitis</li> <li>– Rotator cuff syndromes</li> <li>– Supraspinatus/bicipital tendonitis</li> <li>– Acromioclavicular sprain/dislocation</li> <li>– Sternoclavicular arthritis</li> <li>– Psychogenic shoulder/arm syndromes</li> <li>– Traumatic arthritis</li> <li>– Recurrent shoulder dislocations</li> <li>– Inflammatory conditions</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of basic anatomy, physiology and biomechanics relevant to musculoskeletal disorders, including normal function of the axial and appendicular skeleton and musculature, pathways of innervation of muscles, dermatome innervation, functional anatomy of joints and surface anatomy</li> <li>➤ Demonstrate a working knowledge of the pathogenesis of common and important conditions associated with musculoskeletal pain and dysfunction</li> <li>➤ Understand the mechanisms, characteristics and patterns of pain, including:               <ul style="list-style-type: none"> <li>– somatic pain</li> <li>– referred somatic pain</li> <li>– radicular pain</li> <li>– referred visceral pain</li> <li>– trigger point pain</li> </ul> </li> <li>➤ Know the scope of musculoskeletal conditions commonly occurring in rural areas, including those affecting school-age children, different sporting and occupational groups, women of child-bearing age and older adults</li> <li>➤ Obtain a clinical history that reflects contextual issues including presenting problems, detailed characteristics of pain and/or dysfunction and effects on patient life and work</li> <li>➤ Perform an appropriate musculoskeletal examination, expanded where indicated by examination of other systems:               <ul style="list-style-type: none"> <li>– Look: inspection, including surface appearance, symmetry, alignment, gait</li> <li>– Feel: palpation, temperature, bones, muscles, tendons, joint lines</li> </ul> </li> </ul>

Musculoskeletal conditions (excluding fractures)	Recommended learning outcomes
<ul style="list-style-type: none"> <li>&gt; Elbow and arm conditions <ul style="list-style-type: none"> <li>– Lateral/medial epicondylitis</li> <li>– Biceps lesions</li> <li>– Olecranon bursitis</li> <li>– Entrapment neuropathies</li> <li>– Thoracic outlet syndrome</li> </ul> </li>   <li>&gt; Wrist and hand conditions <ul style="list-style-type: none"> <li>– Carpal tunnel syndrome</li> <li>– De Quervain's tenosynovitis</li> <li>– Trigger finger and thumb</li> <li>– Inflammatory conditions</li> </ul> </li>   <li>&gt; Thoracic spine conditions <ul style="list-style-type: none"> <li>– Kyphoscoliosis</li> <li>– Thoracic spine dysfunction</li> <li>– Costovertebral and facet joint syndromes</li> <li>– Tietze's costochondritis</li> <li>– Scheuermann's disorder</li> <li>– Vertebral compression (and/or fracture)</li> </ul> </li>   <li>&gt; Lower back conditions <ul style="list-style-type: none"> <li>– Mechanical back pain including facet/zygapophyseal and disc joint dysfunction</li> <li>– Spondylosis (degenerative arthritis) and spondylolisthesis</li> <li>– Acute and chronic intervertebral disc prolapse and other discogenic pain</li> <li>– Nerve root compression (lumbar radiculopathy)</li> <li>– Spinal stenosis</li> <li>– Acute cauda equina syndrome</li> </ul> </li>   <li>&gt; Buttock, hip, pelvis and thigh conditions <ul style="list-style-type: none"> <li>– Sacroiliitis</li> <li>– Psoas/trochanteric bursitis</li> <li>– Hip arthritis</li> <li>– Capsulitis</li> <li>– Tendinitis (psoas, glutei, piriformis, adductors, quadriceps, hamstrings)</li> <li>– Coccydynia</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>– Move: active, passive, resisted, relative smoothness and endpoint qualities</li> <li>– Test function and sensation: appropriate provocation tests</li> <li>– Measure: length or circumference</li> <li>– Look elsewhere: side-to-side comparison, neurovascular assessment</li> </ul> <ul style="list-style-type: none"> <li>&gt; Perform special tests competently where appropriate, such as: <ul style="list-style-type: none"> <li>– Shoulder apprehension and impingement testing</li> <li>– Tinel's and Phalen's tests in wrist examination</li> <li>– Waddell's test in spinal examination</li> <li>– Trendelenburg's sign in hip examination</li> <li>– Barlow's and Ortolani's tests in childhood hip examination</li> <li>– Lachman's, McMurray's and Apley's tests in knee examination</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>&gt; Arrange/perform and interpret appropriate diagnostic imaging and procedures, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, Ca/PO4, LFTs, INR, CRP/ESR</li> <li>– Joint/bursa aspirate analysis, such as MC&amp;S, gram stain, chemistry</li> <li>– Skin/muscle biopsy histology</li> <li>– Imaging, such as X-ray, ultrasound, CT, MRI, nucleotide bone scan</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>&gt; Recognise red flag factors that require urgent attention, including: <ul style="list-style-type: none"> <li>– Infection</li> <li>– Underlying disease process</li> <li>– Immunosuppression</li> <li>– Penetrating wound</li> <li>– Fracture, such as history of trauma (or minor trauma with risk osteoporotic fracture)</li> <li>– Tumour, such as previous malignancy, age &gt;50y, failure to improve with treatment, unexplained weight loss, pain at multiple sites, pain at rest</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>&gt; Recognise yellow flags that may impede patient recovery: <ul style="list-style-type: none"> <li>– Personal, family and social issues, such as high levels of pain, attitudes and beliefs about pain and dysfunction (avoidance, re-injury fear, catastrophising), diagnosis and treatment, emotional state (anxiety, depression, grief), family/relationship difficulties</li> <li>– Workplace and injured worker interaction, such as workplace environment (physical, safety issues, past safety record), interpersonal life and relationships at work (support, reaction to injury, return to work), specific return to work issues (availability of duties, industrial pressures)</li> <li>– Worker compensation issues (financial and legal), such as dispute about injury cause, financial hardship, claim delays</li> <li>– Poor outcome predictors, such as belief that all pain is harmful or potentially severely disabling, fear-avoidance behaviour, reduced activity levels, tendency to low mood and withdrawal from social interaction, expectation that passive treatment is more effective than active participation in therapy</li> </ul> </li> </ul>

Musculoskeletal conditions (excluding fractures)	Recommended learning outcomes
<ul style="list-style-type: none"> <li>– Referred lumbar and sacral syndromes</li> <li>– Nerve entrapment (meralgia paraesthetica)</li> <li>– Injuries</li> <li>– Pregnancy-related pain</li> <li>➤ Knee conditions <ul style="list-style-type: none"> <li>– Minor trauma/sprain/strain</li> <li>– Synovitis</li> <li>– Bursitis</li> <li>– Tendinitis</li> <li>– Ligamentous injury (ACL, PCL, MCL, LCL)</li> <li>– Meniscal injury</li> <li>– Effusion/haemarthrosis</li> <li>– Fracture</li> <li>– Loose bodies</li> <li>– Baker's cyst</li> <li>– Osteochondritis dessicans</li> <li>– Patella subluxation and dislocation</li> <li>– Patella tendonitis</li> <li>– Osteoarthritis</li> <li>– Iliotibial band syndrome</li> <li>– Patellofemoral syndrome</li> <li>– Inflammatory conditions</li> </ul> </li> <li>➤ Lower leg, ankle and foot conditions <ul style="list-style-type: none"> <li>– Achilles tendinitis, bursitis</li> <li>– Achilles tendon rupture (partial, complete)</li> <li>– Periostitis</li> <li>– Common peroneal entrapment</li> <li>– Compartment syndrome</li> <li>– Ankle sprains</li> <li>– Plantar fasciitis</li> <li>– Metatarsalgia and stress fractures</li> <li>– Morton's neuroma</li> <li>– Claw/hammer toes</li> <li>– Disparate leg length</li> <li>– Inflammatory conditions</li> </ul> </li> <li>➤ Conditions in childhood <ul style="list-style-type: none"> <li>– Congenital hip dislocation</li> <li>– Perthes disease</li> <li>– Slipped upper femoral epiphysis</li> <li>– Hip synovitis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Make a provisional or definitive diagnosis and provide competent, comprehensive, timely and evidence-based management in concert with the patient, aiming to restore them to functionality as far as possible, including: <ul style="list-style-type: none"> <li>– Pharmacological management, such as analgesics, non-steroidal anti-inflammatories, steroids (oral, intra-articular, intrabursal, tendo-sheath), urate-lowering drugs, vitamin D, bisphosphonates</li> <li>– Non-pharmacological management, such as ice, rest, spinal injury stabilisation, fracture reduction, relocation of joint dislocation, unlock locked knee/jaw, therapeutic joint aspiration, casting/splintage, mobility aids, education (condition, treatment, mobilisation, self-directed activities including specific exercises/stretches to undertake or avoid, work advice), general health initiatives, promotion of physical fitness</li> <li>– Refer for further work-up/management, such as orthotics, physiotherapy, in- or outpatient specialist review/advice, social worker, ACC input, occupational therapy, podiatrist, alternative health providers, primary care team, psychologist</li> </ul> </li> <li>➤ Be familiar with how to access local guidelines and clinical management pathways and patient resources for managing musculoskeletal conditions</li> <li>➤ Be aware of reporting requirements and processes where physical abuse is suspected</li> </ul>

Musculoskeletal conditions (excluding fractures)	Recommended learning outcomes
<ul style="list-style-type: none"> <li>- Stress fractures</li> <li>- Iliac traction apophysitis</li> <li>- Osgood-Schlatter disease</li> <li>- Calcaneal apophysitis</li> <li>- Toddler's pulled elbow</li> <li>- Avascular necrosis of bones of the foot (Kohler's and Freiberg's disease)</li> <li>- Septic arthritis</li> <li>- Sprain, bone and chondral fractures</li> <li>- Gait problems</li> <li>- Calf tightness</li> </ul> <p>&gt; Medical conditions that can present with musculoskeletal symptoms</p> <ul style="list-style-type: none"> <li>- Oncology: myeloma; lung, breast and prostate metastases</li> <li>- Rheumatology: gout, pseudogout, osteoarthritis, rheumatoid arthritis, SLE, PMR, ankylosing spondylitis, Reiter's disease, inflammatory bowel disease, fibromyalgia syndrome, myositis</li> <li>- Infectious disease: TB, herpes zoster, discitis, osteomyelitis, septic arthritis, soft-tissue infections</li> <li>- Cardiovascular: cardiac ischaemia, aortic dissection, aortic aneurysm</li> <li>- Respiratory: pneumothorax</li> <li>- Endocrine: osteoporosis, Paget's disease</li> <li>- Gastrointestinal: oesophagitis, peptic ulcer disease, cholelithiasis</li> <li>- Psychiatric: depression-induced spinal pain, psychogenic pain</li> </ul> <p>&gt; Conditions causing referred pain</p> <ul style="list-style-type: none"> <li>- Neurological: migrainous phenomena, complex regional pain syndrome, anticoagulant intraspinal haemorrhage</li> <li>- Neurovascular: Raynaud's phenomenon, diabetic neuropathy</li> <li>- Vascular: vascular claudication</li> </ul>	

# Obstetrics and women's health

## Overview

Pregnant women living in rural communities are deserving of the same high-quality clinical care and safety for themselves and their unborn child as their urban counterparts. Antenatal and intra/postpartum care is ideally delivered as close to home as possible, as there are social, emotional and cultural consequences for women needing to leave their community for this.

Rural maternity services differ across the country and the rural hospital doctor may be involved in the provision of these services in a variety of ways. Rural hospital doctors who also work as GPs may routinely manage obstetric and women's health issues; in particular, if they have close working relationships with local lead maternity carers (LMCs). Doctors based within a rural hospital may have less frequent exposure to these conditions but may take on ethical and/or contractual responsibilities to assist in obstetric emergencies in their local primary birthing unit, as well as managing certain gynaecological conditions within their hospitals.

The provision of rural maternity care must be collaborative, woman and family/whānau-centred, culturally sensitive, respectful and responsive to the community's needs. Generalist skills in maternity are valued, and local development of interprofessional models that deliver high quality and integrated care to women can enhance the viability of rural primary birthing units. Collaborative opportunities for the education and training of LMCs and rural hospital doctors can improve working relationships, patient safety and care, and help reduce the professional isolation that can affect rural midwife recruitment and retention and medical obstetric experience.

As obstetric and women's health rotations are not compulsory in the RHM Training Programme, registrars will need to consider how to attain the necessary knowledge and skills through their emergency department, general practitioner, surgery and anaesthetic experiences, and may consider dedicating some of their elective time to develop these further. Emergency obstetric skills may be gained from courses such as PROMPT and ALSO.

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## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in providing care in the area of obstetrics and women's health include:

### **Rural hospital context** *(including health equity and Māori health)*

- Consider current national maternal and infant health priorities and policies and their application to rural medical practice and the local community.
- Demonstrate an understanding of the social, cultural and environmental influences on obstetric and women's health service needs in rural communities.
- Understand how maternity services are provided within the hospital and local community, and the rural hospital doctor's role and responsibilities in relation to these services.
- Be aware and part of strategies to reduce the inequities in health between Māori and non-Māori women.

### **Communication** *(including cultural competence)*

- › Explain and discuss health issues relating particularly to women to patients and their families/whānau.
- › Communicate with women of all ages, eliciting their ideas, concerns and expectations during consultation, and negotiating an effective management plan.
- › Discuss and obtain informed consent prior to obstetric and gynaecological assessments and procedures.
- › Facilitate good communication between all practitioners involved in the care of a woman and her baby.
- › Respect cultural differences in sensitive discussions and examinations.
- › Understand that tissues obtained or retrieved from women can be personally and/or culturally significant, and the plan for the handling and return of these needs to be discussed, considered and mutually understood.
- › Facilitate effective communication between the patient, their family/whānau, team members, and referral hospital specialists in obstetric emergencies.

### **Clinical expertise**

- › Demonstrate knowledge of the relevant anatomy and physiology of normal pregnancy.
- › Demonstrate knowledge of the relevant anatomy and pathophysiology of common and important obstetric, postnatal and women's health conditions.
- › Identify high-risk pregnancy and undertake appropriate investigations and referral.
- › Demonstrate ability to assist in normal delivery.
- › Demonstrate knowledge of the potential complications of pregnancy, labour, delivery and the postpartum period, and their management.
- › Perform examinations (including clinician-performed ultrasound) and gynaecological procedures that are safe to perform in the rural hospital setting.
- › Demonstrate knowledge of, and approach to, trauma in pregnancy.
- › Demonstrate safe prescribing in pregnancy.
- › Recognise obstetric and gynaecological emergencies, perform emergency resuscitation and treat or refer appropriately.
- › Provide information and care in unintended pregnancy, negotiating timely and appropriate follow-up and/or referral.
- › Recognise and be willing to discuss signs of abuse in a non-judgmental manner, understanding the importance of proactive enquiry and appropriate referral.
- › Recognise the spectrum of psychological responses to pregnancy and its complications, childbirth, infant care and infertility and provide effective counselling and support where issues arise.

*See learning frame and skills log for further details*

### **Professionalism**

- › Understand that using a chaperone is a safe practice for both patient and practitioner.
- › Demonstrate a non-judgmental attitude to human sexual activity and sexuality.
- › Acknowledge professional boundaries that are likely to impact on the doctor–patient relationship, particularly in relation to power, culture, gender and sexuality.
- › Provide advocacy for women patients, especially in relation to those suffering from family violence.

### Scholarship

- Develop a commitment to self-directed learning, continuing education and the conduct of quality assurance activities in the provision of obstetric and women's health services in rural hospital practice.
- Up-skill in areas relating to women's health to meet the needs of a rural population, such as advanced ultrasound and obstetric and gynaecological procedural skills.
- Contribute to inter-professional education and leadership in obstetric and women's health care that includes quality assurance and risk management assessment.

### Leadership and management

- Assist in the development of protocols and policies relevant to obstetric and women's health in the rural setting.
- Facilitate effective team performance and communication in obstetric emergencies, recognising the importance of maintaining situational awareness in these situations.

## Learning frame

Obstetric and women's health conditions	Recommended learning frame
<ul style="list-style-type: none"> <li>➤ Pregnancy complications               <ul style="list-style-type: none"> <li>– Bleeding in early pregnancy</li> <li>– Miscarriage</li> <li>– Ectopic pregnancy</li> <li>– Molar pregnancy</li> <li>– Unintended pregnancy</li> <li>– Hyperemesis gravidarum</li> <li>– Gestational diabetes</li> <li>– Hypertension in pregnancy</li> <li>– Placental complications</li> </ul> </li> <li>➤ Obstetric emergencies               <ul style="list-style-type: none"> <li>– Spontaneous preterm delivery</li> <li>– Pre-eclampsia/eclampsia</li> <li>– Antepartum/postpartum haemorrhage</li> <li>– Shoulder dystocia</li> <li>– Foetal malpresentation</li> <li>– Cord prolapse</li> <li>– Maternal sepsis</li> <li>– Maternal collapse</li> <li>– Uterine rupture/eversion</li> </ul> </li> <li>➤ Gynaecological conditions               <ul style="list-style-type: none"> <li>– Abnormal cervical smears</li> <li>– Cervical polyps, ectropion</li> <li>– Atrophic vaginitis</li> <li>– Polycystic ovarian syndrome</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of               <ul style="list-style-type: none"> <li>– The anatomy and physiology of the female reproductive system</li> <li>– Normal pregnancy and delivery</li> <li>– Common and important obstetric and gynaecological conditions and their associated risk factors and clinical features</li> </ul> </li> <li>➤ Be able to take an effective obstetric and gynaecological history, including menstrual and sexual health</li> <li>➤ Perform examinations competently and interpret findings, including:               <ul style="list-style-type: none"> <li>– Primary and secondary surveys in obstetric emergencies</li> <li>– Bimanual and speculum examinations</li> <li>– Breast examination</li> <li>– Bedside ultrasound assessment FHR/foetal movements (recommended advanced skill)</li> </ul> </li> <li>➤ Arrange/perform and interpret relevant investigations, including:               <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, LFTs, beta hCG, antibody levels, group and antibodies, antenatal screen, TSH, hormone levels, coag profile, HbA1c, lipids, cord bloods</li> <li>– Urinalysis, such as beta hCG, MC&amp;S, cytology, protein/creatinine ratio</li> <li>– Swab tests (high vaginal, vulvo-vaginal, endocervical), such as MC&amp;S and PCR</li> <li>– Cervical smear analysis, such as cytology and HPV testing</li> <li>– Pipelle biopsy (recommended skill)</li> <li>– Products of conception: histology</li> <li>– Oral glucose test</li> <li>– ECG</li> <li>– CXR</li> </ul> </li> </ul>

Obstetric and women's health conditions	Recommended learning frame
<ul style="list-style-type: none"> <li>- Sexually transmitted infections</li> <li>- Endometriosis</li> <li>- Trauma</li> <li>- Genitourinary prolapse</li> <li>- Ovarian cyst disease (including rupture, torsion)</li> <li>- Ovarian hyperstimulation syndrome</li> <li>- Cervical intraepithelial neoplasia (CIN)</li> <li>- Gynaecological cancers</li> <li>&gt; Breast conditions <ul style="list-style-type: none"> <li>- Mastitis</li> <li>- Candida infection</li> <li>- Breast abscess</li> <li>- Lactation problems</li> <li>- Breast cancer</li> </ul> </li> <li>&gt; Other women's health conditions <ul style="list-style-type: none"> <li>- Urinary incontinence</li> <li>- Recurrent urinary tract infections</li> <li>- Chronic pelvic pain</li> <li>- Sexual dysfunction</li> <li>- Menopause</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Ultrasound, such as: abdomen, pelvis, transvaginal; pregnancy, breast</li> <li>- CTG</li> <li>- Mammogram</li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>- Maternal cardiopulmonary resuscitation, including uterine displacement</li> <li>- Pharmacological management, such as: analgesia, antiemetics, magnesium sulphate, tocolytics, uterotonics, steroids, folic acid, iodine, vaccinations, vaginal oestrogen, hormonal contraceptives, tranexamic acid, metformin, antibiotics, antifungals, anti-D immunoglobulin, LMWH, aspirin, antidepressants, spironolactone, oxybutynin, solifenacin</li> <li>- Non-pharmacological management, such as removal products of conception; beta hCG monitoring, pelvic floor exercises, lifestyle education and support (smoking cessation, weight reduction, alcohol minimisation, exercise, nutrition, safe sexual practices), RBC transfusion, IV fluids, fluid balance, urinary catheterisation, shoulder dystocia manoeuvres, pain diary, menstrual diary, bladder diary, self-management strategies, bladder retraining, HPV vaccination</li> <li>- Refer for further work-up management, such as inpatient specialty referral, outpatient specialist review/advice, LMC referral, colposcopy, hysteroscopy, contraceptive implant, lactation consultant, continence nurse, social work, primary care provider, physiotherapy</li> </ul> </li> <li>&gt; Understand and undertake appropriate screening strategies in obstetric and women's health, including: <ul style="list-style-type: none"> <li>- Antenatal screening</li> <li>- Postpartum depression</li> <li>- Cervical screening</li> <li>- Breast cancer screening</li> <li>- Family violence screening</li> </ul> </li> <li>&gt; Know the 'red flags' for gynaecological and breast cancers</li> <li>&gt; Know the indications and contraindications for commonly used contraceptives (including emergency contraception) and be able to educate women about their use</li> <li>&gt; Understand pre-referral investigations and local referral pathways for: <ul style="list-style-type: none"> <li>- Termination of pregnancy</li> <li>- Infertility</li> <li>- Urinary incontinence</li> <li>- Abnormal uterine bleeding</li> </ul> </li> <li>&gt; Understand the importance of breast feeding and how this can best be supported in rural hospitals and communities</li> </ul>

# Ophthalmology

## Overview

Patients present to rural hospitals with acute eye injuries and conditions, and those presenting with non-ocular complaints may have chronic eye conditions or manifestations of systemic disease. There may be no local support in the form of optometry services or visiting ophthalmologists. The rural hospital doctor needs to have a sound knowledge of eye pathologies and their importance and maintain competence in visual assessment and eye examination, using specialised equipment as available. They can establish a working diagnosis and local management plan, or usefully describe findings to a referral-hospital ophthalmologist or registrar in order that appropriate and timely patient treatment and follow-up can be arranged.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in providing care in the area of ophthalmology include:

### **Rural hospital context** *(including health equity and Māori health)*

- › Work with culturally diverse and disadvantaged groups to address barriers in access to health services and the determinants of ocular health.

### **Communication** *(including cultural competence)*

- › Communicate effectively with the patient to perform an eye examination, taking into account developmental age.
- › Communicate with referral hospital specialty staff regarding emergency transfer or retrieval of patients with ocular emergencies, or outpatient referrals for non-emergency conditions where appropriate.

### **Clinical expertise**

- › Demonstrate a working knowledge of the normal anatomy, physiology and ocular function of the eye.
- › Demonstrate skills in examining vision and the eye, and in undertaking relevant and appropriate diagnostic procedures.
- › Demonstrate knowledge in the diagnosis and management of ophthalmological emergencies with consultation and referral as appropriate.
- › Demonstrate knowledge and provide appropriate treatment for common ocular conditions.

*See learning frame and skills log for further details.*

### **Professionalism**

- › Understand the psychosocial effects of loss of vision and the role of support systems in the patient's ongoing care.
- › Understand the role of other health professionals, including ophthalmologists, optometrists and opticians, in diagnosing and treating conditions of the eye.

## Learning frame

Ophthalmological conditions	Recommended learning outcomes
<p>The red eye:</p> <ul style="list-style-type: none"> <li>➤ Conjunctivitis               <ul style="list-style-type: none"> <li>– Viral</li> <li>– Herpetic</li> <li>– Bacterial</li> <li>– Allergic</li> <li>– Trachoma</li> <li>– Trichiasis</li> </ul> </li> <li>➤ Conjunctival tumours/naevi</li> <li>➤ Corneal disease               <ul style="list-style-type: none"> <li>– Keratitis</li> <li>– Corneal ulcers</li> </ul> </li> <li>➤ Corneal foreign body/abrasion</li> <li>➤ Uveitis</li> <li>➤ Drug allergy</li> <li>➤ Acute glaucoma</li> <li>➤ Episcleritis/scleritis</li> <li>➤ Dry eyes</li> <li>➤ Red lids               <ul style="list-style-type: none"> <li>– Blepharitis</li> <li>– Entropion</li> <li>– Ectropion</li> <li>– Styte</li> <li>– Chalazion</li> </ul> </li> </ul> <p>Sudden loss of vision:</p> <ul style="list-style-type: none"> <li>➤ Vascular occlusion</li> <li>➤ Giant cell arteritis</li> <li>➤ Retinal detachment</li> <li>➤ Acute glaucoma</li> <li>➤ Vitreous haemorrhage</li> <li>➤ Optic neuritis</li> <li>➤ Papilloedema</li> <li>➤ Proptosis</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of the anatomy and physiology of the ophthalmological system and the aetiology, pathogenesis and clinical features of common and important ophthalmological conditions that relate to it</li> <li>➤ Examine for signs of ophthalmological conditions competently, using specialised clinical equipment as available, and interpret findings, including:               <ul style="list-style-type: none"> <li>– External eye/eyelid examination</li> <li>– Visual acuity and field assessment</li> <li>– Colour vision testing</li> <li>– Intraocular pressure measurement</li> <li>– Eye movement testing</li> <li>– Pupillary function testing</li> <li>– Fundoscopy</li> <li>– Slit lamp examination</li> <li>– Blue light examination of fluorescein-stained cornea and sclera</li> </ul> </li> <li>➤ Use appropriate medications in fundoscopic and slit lamp examinations, including topical anaesthesia, fluorescein, mydriatics, cycloplegics</li> <li>➤ Arrange/perform and interpret relevant investigations, including:               <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, CRP, TSH</li> <li>– Lacrimal fluid pH testing</li> <li>– CT orbits, if available and appropriate</li> </ul> </li> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate               <ul style="list-style-type: none"> <li>– Early specialty discussion regarding a patient where vision is acutely compromised</li> <li>– Understand surgical and non-surgical treatment options and urgency of surgical intervention</li> <li>– Pharmacological management, such as: analgesia, antibiotics (topical, oral, IV), antivirals, steroids (topical, oral), topical beta-blockers, topical prostaglandin analogs, mydriatics and cycloplegics</li> <li>– Non-pharmacological management, such as saline flushing/eye bath, removal corneal foreign body, wound suturing, eye patch, visual aids</li> <li>– Refer for further work-up/management, such as inpatient specialist transfer/retrieval (understanding specific clinical issues that may impact on means of transfer), outpatient review/advice, optician referral, optometry referral, retinal imaging, primary care follow-up, Blind Foundation, driving advice</li> </ul> </li> <li>➤ Understand and use local clinical guidelines and referral pathways to optimise management of patients with ocular (and related) conditions</li> <li>➤ Identify ocular conditions that raise the suspicion of child abuse</li> </ul>

Ophthalmological conditions	Recommended learning outcomes
<p>Optic nerve and fundus abnormalities:</p> <ul style="list-style-type: none"> <li>&gt; Optic disc swelling</li> <li>&gt; Optic atrophy</li> <li>&gt; Optic disc cupping</li> <li>&gt; Diabetic retinopathy</li> <li>&gt; Hypertensive retinopathy</li> <li>&gt; Age-related maculopathy</li> </ul> <p>Hyphaema</p> <p>Cataract</p> <p>Orbital cellulitis</p> <p>Non-penetrating ocular trauma:</p> <ul style="list-style-type: none"> <li>&gt; Chemical eye injuries</li> <li>&gt; UV trauma</li> <li>&gt; Welder's flash burns</li> <li>&gt; Snow blindness</li> </ul> <p>Penetrating eye wounds</p> <p>Strabismus and abnormal eye movements</p>	

# Oral health

## Overview

Traumatic dental injuries and acute dental conditions may present to rural hospitals in the absence of local dentists or after-hours dental cover, or where there are access difficulties to this service. The rural hospital doctor may be able to provide effective emergency treatments in order to prevent the loss of a tooth or other complications, as well as manage oral complications of systemic disease.

The rural hospital doctor is also well placed to act as a medical advocate in determination of interventions and services that can better address oral health at a population level.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in providing care in the area of oral health include:

### Communication *(including cultural competence)*

- › Understand and use correct terminology to describe dental and jaw conditions in communicating patient findings to other health professionals.
- › Communicate with appropriate health providers and arrange transport when needed for patients with serious dental or orofacial trauma or other emergencies.

### Clinical expertise

- › Be able to distinguish between normal and abnormal conditions of mouth and jaw.
- › Demonstrate the knowledge and skills to manage dental pain in the absence of a dentist and provide early management in relation to orofacial trauma that optimises dental outcomes for the patient.
- › Identify potential oral complications associated with systemic conditions, medication and substance use, hospitalisation and palliative care.
- › Perform emergency dental procedures and management in keeping with clinical need, own capabilities and local context and resources.

*See learning frame and skills log for further details.*

### Professionalism

- › Reflect on the care and management of patients with dental emergencies and use this to improve professional practice and interprofessional relationships.

### Leadership and management

- › Collaborate with other relevant professionals to develop local systems for emergency and routine oral health care.
- › Use appropriate opportunities to advocate for oral health improvement and access strategies for vulnerable populations.

## Learning frame

Oral health conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Children               <ul style="list-style-type: none"> <li>– Oral thrush</li> <li>– Dental caries</li> <li>– Periodontal disease</li> <li>– Ulceration</li> <li>– Tooth abscess</li> <li>– Fluorosis</li> <li>– Cleft lip/palate</li> </ul> </li> <li>➤ Adults               <ul style="list-style-type: none"> <li>– Oral infections</li> <li>– Gingivitis/periodontal disease</li> <li>– Ulceration</li> <li>– Salivary and parotid gland blockage</li> <li>– Dental caries</li> <li>– Dry socket</li> <li>– Tooth/root abscess</li> <li>– Dry mouth</li> <li>– TMJ pain</li> <li>– Bruxism</li> <li>– Oral cancers</li> </ul> </li> <li>➤ Traumatic dental injuries               <ul style="list-style-type: none"> <li>– Periodontal luxation/avulsion</li> <li>– Bone trauma</li> <li>– Tooth fracture</li> <li>– Jaw fracture/dislocation</li> <li>– Pulpal exposure</li> </ul> </li> <li>➤ Associations               <ul style="list-style-type: none"> <li>– Diabetes mellitus</li> <li>– HIV</li> <li>– Bulimia</li> <li>– Malignancy</li> <li>– Prolonged hospitalisation</li> <li>– Palliative care</li> <li>– Medications (steroids, antidepressants, antiepileptic drugs)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of normal orofacial and dental anatomy and development, as well as common and important oral and dental conditions</li> <li>➤ Perform examinations competently and interpret findings, including:               <ul style="list-style-type: none"> <li>– Neurological examination (in instances of head trauma)</li> <li>– Orofacial examination</li> <li>– Dentition examination (using ISO system for documentation of findings)</li> </ul> </li> <li>➤ Arrange/perform and interpret relevant investigations, including:               <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, CRP</li> <li>– Wound swab tests, such as MC&amp;S</li> <li>– X-ray OPG/panoramic dental views</li> <li>– CT face/jaw (if available and appropriate)</li> </ul> </li> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate               <ul style="list-style-type: none"> <li>– Pharmacological management, such as analgesia, local anaesthesia (dental blocks), antibiotics, tetanus booster, topical antifungals</li> <li>– Non-pharmacological management, such as incision and drainage dental abscess (temporising), dental packing/reimplantation adult tooth (temporising), management of comorbidities</li> <li>– Refer for further work-up/management, such as inpatient specialty referral, outpatient specialist review, dental referral, education and support (dental hygiene, smoking cessation)</li> </ul> </li> <li>➤ Understand and utilise local clinical guidelines and referral pathways to facilitate access and optimise management for patients with oral health conditions</li> </ul>

# Palliative medicine

## Overview

The rural hospital doctor commits to providing patient- and family/whānau-centred care and developing working relationships across community, primary, secondary and specialist care. They are therefore well placed to provide effective palliative care to patients in the final stages of their illness. By understanding the wishes and needs of the patient and their family/whānau, the rural hospital doctor can work with them to determine the appropriate location of ongoing care, liaising with community and primary care providers where the patient will be cared for at home, developing back-up management plans where potential problems exist, and/or providing inpatient care in conjunction with members of the multidisciplinary team.

Pharmacological and non-pharmacological approaches are used to achieve the highest possible quality of life for the patient, and specialist advice can be sought where complex problems exist. Palliative care is an increasingly common area for the rural hospital doctor to choose to develop specialised knowledge and skills, recognising that high quality end-of-life care at home, or as close to it as possible, is important for rural patients, their families/whānau and the wider community, as well as being meaningful and rewarding for the health care workers involved.

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## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in providing palliative care to patients include:

### **Rural hospital context** *(including health equity and Māori health)*

- › Understand the philosophy of palliative care and the role of the rural hospital doctor.
- › Provide end-of-life care in the rural hospital in collaboration with primary care and specialist services, supporting community palliative care workers as appropriate.

### **Communication** *(including cultural competence)*

- › Display cultural sensitivity when discussing end-of-life issues, including breaking bad news, grief and loss.
- › Set realistic management goals in consultation with the patient and their family.
- › Ensure the family/whānau are informed when the patient has progressed to the stage of dying, and that cultural and religious wishes are understood and followed.

### **Clinical expertise**

- › Understand the principles of the palliative approach and experience in the physical, psychosocial, cultural, practical, ethical and professional aspects of palliative care.
- › Provide care that is centred around the needs of the patient and their family/whānau, their level of understanding and their priorities, with the aim of maintaining comfort and dignity, relieving suffering and providing support.
- › Demonstrate clinical knowledge and skills to determine symptom causes in palliative care.
- › Demonstrate knowledge of the disease process as it pertains to planning, prognosis and expectation of symptom management.

- › Demonstrate the ability to perform a comprehensive pain assessment and understand the various modes of pain and their treatment.
- › Understand the pharmacology of agents used in palliative medicine.
- › Recognise and manage palliative care emergencies.

See the learning frame and skills log for further details.

### Professionalism

- › Manage admission of palliative patients to hospital in accordance with institutional policies and patients' advance care directives
- › Understand the ethical and legal duties and responsibilities of the rural doctor around the time of death.
- › Demonstrate care strategies for self, team and colleagues working with dying patients and their families/whānau.
- › Understand the issues surrounding requests for euthanasia.
- › Maintain appropriate professional boundaries between self and patient and their family/whānau during the palliative care process.

### Leadership and management

- › Show leadership in improving palliative care processes in the rural setting.
- › Develop strategies for managing the wider impacts of caring for dying patients and their families/whānau on team members and colleagues.

## Learning frame

Palliative symptoms/conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>› Pain</li> <li>› Gastrointestinal               <ul style="list-style-type: none"> <li>– Nausea and vomiting</li> <li>– Constipation</li> <li>– Diarrhoea</li> <li>– Faecal incontinence</li> <li>– Intestinal obstruction</li> <li>– Swallowing difficulties</li> <li>– Oral health issues (candidiasis, dry mouth, stomatitis)</li> <li>– Malignant ascites</li> <li>– Hepatic encephalopathy</li> </ul> </li> <li>› Neurological               <ul style="list-style-type: none"> <li>– Raised intracranial pressure</li> <li>– Seizures</li> <li>– Spinal cord compression</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>› Demonstrate a working knowledge of the pathogenesis and clinical features of common and important conditions and symptoms in palliative care</li> <li>› Take a clinical history that includes assessment of pain (using validated tool/s as appropriate) and other important symptoms and that reflects contextual issues, including presenting problems, epidemiology, culture, geographic location, family support systems and access to community palliative and social services</li> <li>› Perform a problem-focused examination relevant to clinical history and risks and interpret findings</li> <li>› Arrange/perform and interpret relevant diagnostic tests where required to confirm a diagnosis, monitor medical care and/or exclude treatable or serious conditions, always considering the pros and cons of invasive investigations in the palliative care setting</li> <li>› Understand the general principles of symptom control in the context of palliative care, including:               <ul style="list-style-type: none"> <li>– Assess the patient thoroughly and accurately</li> <li>– Address both physical and non-physical issues</li> <li>– Aim for the highest possible quality of life</li> <li>– Consider multiple approaches in difficult-to-control symptoms</li> </ul> </li> </ul>

Palliative symptoms/conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>&gt; Respiratory               <ul style="list-style-type: none"> <li>– Dyspnoea</li> <li>– Cough</li> <li>– Hiccup</li> <li>– Excessive/retained secretions</li> <li>– Haemoptysis</li> <li>– SVC obstruction</li> </ul> </li> <li>&gt; Genitourinary               <ul style="list-style-type: none"> <li>– Dysuria</li> <li>– Haematuria</li> <li>– Incontinence</li> <li>– Urinary tract infection</li> <li>– Bladder spasms</li> <li>– Fistulae</li> <li>– Vaginal bleeding/discharge</li> </ul> </li> <li>&gt; Skin               <ul style="list-style-type: none"> <li>– Pruritus</li> <li>– Sweating</li> <li>– Pressure areas</li> <li>– Lymphoedema</li> <li>– Fungating tumours</li> <li>– Wounds</li> </ul> </li> <li>&gt; Psychiatric/psychological               <ul style="list-style-type: none"> <li>– Depression</li> <li>– Delirium</li> <li>– Sleep disorders</li> <li>– Anxiety and fear</li> <li>– Anger</li> </ul> </li> <li>&gt; Other               <ul style="list-style-type: none"> <li>– Weakness/fatigue</li> <li>– Anaemia</li> <li>– Hypercalcaemia of malignancy</li> <li>– Haemorrhage</li> <li>– Paraneoplastic syndromes</li> <li>– Diabetes (hyperglycaemia, hypoglycaemia)</li> </ul> </li> <li>&gt; Organ failure</li> <li>&gt; Pathological fractures</li> <li>&gt; Venous thromboembolism</li> <li>&gt; Terminal restlessness</li> </ul>	<ul style="list-style-type: none"> <li>– Use risk versus benefit assessments when side effects of therapy occur</li> <li>– Educate the patient and their family/whānau about relevant issues and engage them in the decision-making process about treatments as far as possible</li> <li>– Use a multidisciplinary approach to care</li> <li>– Reassess care and requirements frequently</li> </ul> <ul style="list-style-type: none"> <li>&gt; Provide competent and timely management of symptoms, including specialty advice where appropriate:               <ul style="list-style-type: none"> <li>– Pharmacological management, such as opioids, non-opioid analgesics, antiemetics, antidepressants, local anaesthetics, steroids, antispasmodics, antiepileptic drugs, anxiolytics, hormonal agents, palliative chemotherapy, targeted therapies, ketamine, muscle relaxants, alpha-agonists, antipsychotics, laxatives, insulin, pancreatin, cholestyramine, octreotide, oxygen, antifungals (oral, topical), antivirals, neuroleptics, bronchodilators, anticholinergics, antibiotics, antihistamines, bisphosphonates, tranexamic acid, glucose, LMWH</li> <li>– Non-pharmacological management, such as blood transfusions, nerve locks, radiotherapy, nutritional supplements, wound care and dressings, continence products, mouth cares, barrier creams, reassurance, cognitive strategies, raising bed head, relaxation techniques, drainage effusions/ascites, nebulised saline, pressure area cares, emollients, catheterisation, compression bandaging, IV/SC fluids</li> <li>– Referral for further management, such as inpatient specialty referral, outpatient specialty review/advice, community palliative team, hospice, physiotherapy, psychologist, social work, occupational therapist, radiotherapy, epidural/spinal injections, transcutaneous electrical nerve stimulators, complementary medicine/therapy, massage, surgery, stenting</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>&gt; Understand the characteristics, causes and approaches to different types of pain (such as nociceptive – localised or referred, neuropathic, inflammatory)</li> <li>&gt; Understand the pharmacology of commonly used palliative medications, including appropriate opioid dose substitution and medication combinations suitable for syringe driver administration</li> <li>&gt; Understand and utilise local clinical guidelines and referral pathways to facilitate access and optimise management for patients with palliative care needs</li> </ul>

# Radiology

## Overview

Advances in radiology continue to have significant and positive effects on rural hospital practice. These include the increasing availability of CT scanners and bedside ultrasound machines and the remote reporting of radiology results (teleradiology). Such advances have come with new responsibilities for the rural hospital doctor. In rural hospitals where CT has been introduced, patients previously requiring transfer/retrieval for imaging may be investigated locally. However, if the radiologist is no longer 'gatekeeper' to the CT scanner, then the rural hospital doctor must understand (or seek advice on) the appropriate scan for the clinical situation, its clinical urgency given local staffing resource, the radiation dose involved, and alternative imaging techniques that may be available. Where timely remote reporting of X-rays exists, the rural hospital doctor needs to continue to maintain their X-ray interpretation skills. Rural hospital doctors who perform point-of-care ultrasonography, take their own patient X-rays, or use image intensifiers must be appropriately trained, understand the limitations of both the devices and their own skills and (where appropriate) be credentialled.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division when providing radiology services include:

### Communication *(including cultural competence)*

- Arrange emergency patient transfer or retrieval when needed for patients requiring emergent medical imaging not available at the rural hospital.

### Clinical expertise

- Use a systematic approach for interpreting and reporting X-rays.
- Demonstrate knowledge of developmental radiology and normal variants.
- Demonstrate knowledge of which diagnostic imaging modalities are most effective and appropriate in clinical practice.
- Demonstrate basic skills in ultrasonography (recommended advanced skill).
- Use local and evidence-based imaging guidelines.
- Demonstrate knowledge of advanced imaging modalities in clinical practice including: computed tomography, magnetic resonance imaging, radioisotope studies, mammography and image intensifier technology.
- Recognise and manage contrast reaction.

*See the learning frame and skills log for further details.*

### Professionalism

- Develop a system for timely reading and follow-up of radiology results and undertake system audits.

## Learning frame

Radiology findings	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Chest X-ray               <ul style="list-style-type: none"> <li>– Closed and penetrating chest injuries</li> <li>– Inhaled foreign body</li> <li>– Pleural effusions</li> <li>– Pneumothorax, hydropneumothorax</li> <li>– Pulmonary collapse/atelectasis</li> <li>– Widened mediastinum (aortic aneurysm, mediastinal pathology, tumours)</li> <li>– Emphysema</li> <li>– Pulmonary contusion</li> <li>– Lung consolidation</li> <li>– Lung abscess</li> <li>– Lung cavitation</li> <li>– Lymphadenopathy</li> <li>– Lung densities/lesions</li> <li>– Cardiomegaly</li> <li>– Cardiac failure</li> <li>– Pericardial effusion</li> <li>– Acute pulmonary oedema</li> <li>– Surgical emphysema</li> <li>– Diaphragmatic hernia (neonates)</li> </ul> </li> <li>➤ Abdominal X-ray               <ul style="list-style-type: none"> <li>– Intestinal obstruction (small or large bowel)</li> <li>– Pseudo-obstruction</li> <li>– Ileus</li> <li>– Faecal loading</li> <li>– Intestinal perforation</li> <li>– Foreign bodies</li> <li>– Abdominal calcifications</li> <li>– Renal/ureteric/bladder calculi</li> <li>– Uterine fibroids/dermoid cysts</li> <li>– Vascular calcification</li> </ul> </li> <li>➤ Skeletal X-ray               <ul style="list-style-type: none"> <li>– Fractures (traumatic, stress, pathological, joint/growth plate involvement)</li> <li>– Joint dislocation/subluxation</li> <li>– Joint arthritis/spondylosis/destruction</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of basic anatomy</li> <li>➤ Demonstrate a working knowledge of basic physics principles, comparative radiation doses, use of contrast and appropriate shielding techniques for diagnostic imaging modalities, including:               <ul style="list-style-type: none"> <li>– X-ray</li> <li>– Ultrasound</li> <li>– CT</li> <li>– MRI</li> <li>– Radioisotope studies</li> </ul> </li> <li>➤ Arrange/perform and interpret relevant imaging, understanding the indications, contraindications and limitations for each modality</li> <li>➤ Interpret normal radiographic features of bone, chest, abdomen, kidneys/ureters, skull and spine in adults and children</li> <li>➤ Use a systematic approach to competently detect the findings opposite on medical imaging modalities, and techniques for confirming normal variants (such as X-ray other side, reference text, interval X-ray)</li> <li>➤ Know and detect radiological artefacts and understand how portable films and different projections may affect film quality and appearance to mimic or obscure disease</li> <li>➤ Read and interpret films according to experience, training and institutional policy</li> <li>➤ Refer to recommended guidelines when performing or referring for diagnostic imaging</li> <li>➤ Manage a severe contrast reaction according to NZRC/APLS guidelines</li> <li>➤ Consider working to develop point-of-care ultrasound skills to aid the physical examination and diagnostic process, and guide procedures, achieving and maintaining credentialing standards where appropriate, including:               <ul style="list-style-type: none"> <li>– FAST Scan</li> <li>– Gallbladder</li> <li>– Renal/bladder</li> <li>– AAA</li> <li>– DVT</li> <li>– Bedside echo</li> <li>– Soft tissue foreign body/collection</li> <li>– Pneumothorax</li> <li>– Vascular access</li> <li>– Nerve blocks</li> <li>– Drainage effusions/ascites</li> </ul> </li> </ul>

Radiology findings	Recommended learning outcomes
<ul style="list-style-type: none"> <li>- Epiphyseal injuries</li> <li>- Infection (osteomyelitis)</li> <li>- Inflammation/soft tissue oedema</li> <li>- Degenerative disease (osteoporosis)</li> <li>- Bony metabolic disease (Paget's disease, osteomalacia)</li> <li>- Inherited abnormalities (osteogenesis imperfecta)</li> <li>- Bony lesions (benign, neoplastic, metastatic)</li> <li>- Bone cysts</li> <li>- Surgical emphysema</li> <li>- Gas gangrene</li> <li>- Prosthetic appearances</li> <li>- Evaluation of multiple injuries (suspected child abuse)</li>   <li>&gt; Skull/facial bone X-ray <ul style="list-style-type: none"> <li>- Depressed skull fracture</li> <li>- Penetrating head injury</li> <li>- Facial/orbital trauma</li> </ul> </li>   <li>&gt; Spinal X-ray <ul style="list-style-type: none"> <li>- Kyphoscoliosis</li> <li>- Fracture</li> <li>- Osteoporosis</li> <li>- Metastases</li> </ul> </li>   <li>&gt; CT head <ul style="list-style-type: none"> <li>- Intracranial haemorrhage</li> <li>- Ischaemic CVA</li> <li>- Skull fracture</li> <li>- Signs of intracranial hypertension</li> <li>- Space-occupying lesion</li> </ul> </li> </ul>	

# Rehabilitation medicine

## Overview

Rehabilitation medicine is the medical care of patients to prevent and reduce activity limitations and social participation restrictions arising from trauma, disease, pain, and congenital and degenerative conditions. Management of patients encompasses physical, psychosocial and vocational aspects of care and typically involves a multidisciplinary team. The rural hospital doctor plays a key role in this team: treating and educating the patient, goal setting and coordinating management with the multidisciplinary team – with the aim of achieving maximal independence and quality of life for the patient following discharge.

The rural hospital doctor may also be involved in determining the configuration of rehabilitation services provided within the hospital and community and will need to understand both the limitations and opportunities of the rural setting in this regard.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in providing rehabilitation care include:

### Rural hospital context *(including health equity and Māori health)*

- › Understand that rehabilitation spans primary, secondary and tertiary health care, and that multiple skills and roles of staff in the health care team may be required in rural areas.
- › Recognise where health inequities may exist for patients required to navigate through various agencies and organisations and assist and advocate for them to minimise such inequities.

### Communication *(including cultural competence)*

- › Demonstrate skills in the education of patients and families/whānau about the disease and the short and longer term goals.
- › Access and collaborate with agencies involved in disabled health care, including ACC, WINZ, employer groups and local government.
- › Understand the cultural sensitivities inherent in providing effective rehabilitation care.

### Clinical expertise

- › Demonstrate appropriate knowledge and skills to diagnose, evaluate and treat disease, pain and functional limitations, optimising physical, psychosocial and vocational function of the patient and preventing secondary complications of disability.
- › Demonstrate appropriate knowledge, skills and attitudes to provide comprehensive medical care in the rural setting to patients with long-term disabilities due to trauma, disease, congenital and degenerative conditions, and pain, in ongoing collaboration with relevant units and health providers.
- › Demonstrate a commitment to coordination of care, including referral to other health providers, such as specialised rehabilitation services, and the undertaking of shared care as required.
- › Demonstrate a broad understanding of current evidence-based mainstream and alternative rehabilitative treatments commonly used in New Zealand.

*See the learning frame and skills log for further details.*

### Professionalism

- Interpret and apply legislative, regulatory and medicolegal aspects of rehabilitative medicine including enduring power of attorney, advance directives, Land Transport Safety Authority regulations, insurance providers and ACC.

### Leadership and management

- Work with specialists, nursing and allied health staff to develop rural rehabilitation services.

## Learning frame

Rehabilitation conditions	Recommended learning outcomes
<ul style="list-style-type: none"> <li>➤ Stroke</li> <li>➤ Traumatic brain injury</li> <li>➤ Spinal injuries</li> <li>➤ Amputations</li> <li>➤ Orthopaedic injury</li> <li>➤ Chronic degenerative conditions</li> <li>➤ Cardiac disease</li> <li>➤ Respiratory disease</li> <li>➤ Chronic pain</li> <li>➤ Neurogenic bowel and bladder disorders</li> <li>➤ Cancer</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of the anatomy, physiology, causation and epidemiology of common conditions requiring rehabilitation</li> <li>➤ Take a comprehensive history that includes:               <ul style="list-style-type: none"> <li>– Presenting illness/complaint</li> <li>– Medical/surgical history</li> <li>– Functional status</li> <li>– Psychological, social and cultural status</li> <li>– Use of equipment/aids</li> <li>– Carer and agency involvement</li> <li>– Education, work and finance history</li> </ul> </li> <li>➤ Perform examinations and assessments competently and interpret findings, including:               <ul style="list-style-type: none"> <li>– Cardiovascular examination</li> <li>– Musculoskeletal examination</li> <li>– Neurologic examination</li> <li>– Gait analysis</li> <li>– Pain assessment (see below)</li> <li>– Functional assessment (ADLs)</li> <li>– Cognitive and psychological assessments</li> </ul> </li> <li>➤ Clinical evaluation of pain, including:               <ul style="list-style-type: none"> <li>– Site</li> <li>– Quality</li> <li>– Exacerbating and relieving features</li> <li>– Temporal onset</li> <li>– Associated symptoms and signs</li> <li>– Interference with activities of daily living</li> <li>– Impact on psychological state</li> <li>– Response to current/previous analgesic therapies</li> </ul> </li> <li>➤ Arrange/perform and interpret relevant investigations</li> </ul>

Rehabilitation conditions	Recommended learning outcomes
	<ul style="list-style-type: none"> <li>➤ Make a provisional or definitive diagnosis and a problem list, and institute a timely and comprehensive treatment plan, appropriately selecting patients suitable for inpatient rehabilitation (rural or referral-hospital) and including identifying key members of the multidisciplinary team to be involved and specialty advice or referral where appropriate: <ul style="list-style-type: none"> <li>– Pharmacological management, such as analgesics, antidepressants, antispasmodics</li> <li>– Non-pharmacological management, such as education and support (general and specific exercise, posture, nutrition, relaxation techniques, weight loss, stress reduction, sleep hygiene, reduction/abstinence alcohol and/or other substances, breathing techniques, falls reduction, sexual function), mobility aids, prostheses, splints, continence management and aids, self-directed activities</li> <li>– Refer for further work-up/management, such as physiotherapy, occupational therapy, social work, dietitian, psychologist, orthotics, continence nurse, stoma nurse/therapist, cardiac nurse (cardiac rehab), respiratory nurse (pulmonary rehab), inpatient specialty referral, outpatient specialty review/advice, needs assessment coordinator, surgery, case managers, carer services</li> </ul> </li>   <li>➤ Demonstrate a general knowledge of commonly used and evidence-based mainstream and alternative rehabilitation treatments, such as: <ul style="list-style-type: none"> <li>– Exercise (aerobic, anaerobic, cardiovascular and respiratory fitness, specific exercises/stretching, breathing techniques)</li> <li>– Thermal therapy</li> <li>– Hydrotherapy</li> <li>– Massage</li> <li>– Biofeedback</li> <li>– Joint mobilisation/manipulation</li> </ul> </li>   <li>➤ Integrate evidence-based prevention, early detection and health maintenance activities into practice for conditions that lead to disability, such as: <ul style="list-style-type: none"> <li>– Nutrition</li> <li>– Social interaction</li> <li>– Falls prevention</li> <li>– Polypharmacy reduction</li> <li>– Fatigue management</li> <li>– Addressing alcohol and substance use</li> <li>– Mood assessment</li> </ul> </li>   <li>➤ Demonstrate a working knowledge of the relative efficacy, uses, side effects, polypharmacology and potential abuses of pharmaceutical agents commonly used in rehabilitation</li> </ul>

Rehabilitation conditions	Recommended learning outcomes
	<ul style="list-style-type: none"> <li>➤ Demonstrate working knowledge of:               <ul style="list-style-type: none"> <li>– Classification of strokes and their relevance to treatment and prognosis</li> <li>– Current national stroke guidelines for treatment, secondary prevention and rehabilitation</li> <li>– Types of spinal cord injury, associated risks and medical conditions, and management of medical emergencies (eg autonomic dysreflexia, acute cauda equina compression)</li> <li>– Potential social, cognitive and/or behavioural consequences of traumatic brain or spinal cord injury.</li> <li>– Post-surgical rehabilitation following amputation, including stump care and prosthesis planning</li> <li>– The principles of rehabilitation in cardiac disease, especially post-myocardial infarction, including exercise, diet, lifestyle, medications</li> <li>– Pain concepts, methods to distinguish pain types and chronicity and signs of abnormal illness behaviour</li> <li>– Wound care and prevention and management of secondary skin complications (eg pressure areas)</li> <li>– Issues relating to sexuality, including relevant personal, cultural, religious, medical and medication factors and how to access suitable counselling and community services</li> </ul> </li> </ul>

# Research and critical enquiry

## Overview

Rural health research, in particular that pertaining to New Zealand, is still in its infancy in comparison with other areas of health and medical research. It is important that rural hospital doctors commit to undertake and assist with research relating to rural medicine and health services so that comparisons in clinical outcomes between rural and urban practices and services can be made and significant findings addressed at local, regional and/or national levels. The rural hospital doctor must also commit to ongoing critical enquiry. Clinically generated questions for which evidence-based answers are sought are an achievable way to improve knowledge in a generalist specialty where maintaining up-to-date knowledge across the full spectrum of disorders and specialities is unrealistic.

## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division in conducting research and critical enquiry include:

### **Rural hospital context** *(including health equity and Māori health)*

- › Recognise the key role research plays in advancing and improving rural hospital practice and rural health.
- › Appreciate the nature, scope and achievability of research in rural medical practice.
- › Understand how the structure and function of rural health services have been shown to impact clinical outcomes in comparative studies of rural and urban health.
- › Consider factors that may contribute to health care disparities across the rural/urban divide.
- › Conduct research with the principles of health equity, tikanga Māori and awareness of cultural diversity.

### **Communication** *(including cultural competence)*

- › Understand the importance of engaging with rural communities to develop meaningful research partnerships and opportunities.
- › Communicate effectively with funding and research partners.
- › Communicate effectively the results of relevant research to peers and colleagues.

### **Clinical expertise**

- › Demonstrate knowledge and skills in accessing appropriate and current sources of information in response to clinically generated research questions.
- › Demonstrate knowledge and skills in the critical appraisal of relevant literature and other research evidence.
- › Understand the processes involved and expected outcomes of a critical incident review.

*See the learning frame and skills log for further details.*

### **Professionalism**

- › Adhere to information privacy principles, research ethics guidelines and institutional policy in use of patient information.
- › Participate in peer review and collaborative learning opportunities.

### Scholarship

- › Develop skills and knowledge in research methodology, critical appraisal and evidence-based practice.
- › Perform regular and clinically relevant audits with the aim of improving clinical practice.
- › Use opportunities to attend and present at national and international rural health conferences.

### Leadership and management

- › Where possible take on academic roles to teach, encourage and promote rural health research.
- › Contribute scientific knowledge to institutional quality and safety improvement activities

## Learning frame

Research Concepts	Recommended learning outcomes
<ul style="list-style-type: none"><li>› Epidemiology<ul style="list-style-type: none"><li>– Incidence</li><li>– Prevalence</li><li>– Rate ratio</li><li>– Relative risk</li><li>– Absolute risk</li><li>– Attributable risk</li><li>– Mortality rates</li><li>– Age standardisation</li></ul></li><li>› Statistics<ul style="list-style-type: none"><li>– Sensitivity and specificity</li><li>– Positive and negative predictive value</li><li>– Bayes' theorem</li><li>– Odds ratio</li><li>– Chi-squared tests</li><li>– Student <i>t</i>-tests</li><li>– <i>p</i>-values</li><li>– Study power</li><li>– Normal distribution</li><li>– Number needed to treat or harm</li><li>– Statistical versus clinical significance</li></ul></li><li>› Research design<ul style="list-style-type: none"><li>– Randomised controlled studies</li><li>– Case-control studies</li><li>– Cohort studies</li></ul></li></ul>	<ul style="list-style-type: none"><li>› Demonstrate a working knowledge of key concepts in academic research, including those relating to:<ul style="list-style-type: none"><li>– Epidemiology</li><li>– Statistics</li><li>– Research design</li><li>– Review methodology</li><li>– Information sources</li><li>– Ethical and legal principles regarding patient data</li></ul></li></ul>

Research Concepts	Recommended learning outcomes
<ul style="list-style-type: none"> <li>&gt; Review methodology               <ul style="list-style-type: none"> <li>– Literature review</li> <li>– Systematic review and other forms of meta-analysis</li> <li>– Clinical guidelines</li> </ul> </li>   <li>&gt; Information sources               <ul style="list-style-type: none"> <li>– Electronic databases (eg Medline)</li> <li>– Cochrane reviews</li> <li>– Research journals</li> <li>– Reference books</li> <li>– International meetings</li> </ul> </li>   <li>&gt; Ethical and legal principles regarding patient data               <ul style="list-style-type: none"> <li>– Collection</li> <li>– Storage</li> <li>– Access</li> <li>– Use</li> </ul> </li> </ul>	

# Surgery

## Overview

Acute surgical conditions are common reasons for patients to present to rural hospitals. The approach to their management can be affected by patient characteristics and preferences, the nature and acuity of their condition, treatment and transfer/retrieval options, the clinical skills of local medical and nursing staff, available equipment, diagnostic resources and treatment facilities, and anaesthetic requirements.

Patients arriving with critical surgical conditions require urgent resuscitation, work-up and consideration of management/transfer options, usually in conjunction with referral-hospital specialists. Others will require transfer for surgery, with varying degrees of urgency, and pre-surgical work-up and interventions that may be performed at the rural hospital. Patients with some surgical conditions may be managed in the rural hospital, with medical treatment and/or surgical procedures able to be performed locally, while others may be suitable for outpatient investigations and/or specialist review.

Wherever possible, it is important for the rural hospital doctor to effectively communicate the patient's condition, working diagnosis, management options and anticipated and potential outcomes, to support the patient and their family/whānau to make informed decisions about their treatment. It is not uncommon for patients presenting with an acute surgical condition (in particular, those who are elderly, with a known condition, multiple comorbidities and/or an advance care plan) to decline surgical intervention and to choose either active medical management at their rural hospital as their ceiling-of-care, or withdrawal of active treatment with a subsequent palliative approach to ongoing care.

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## Specific capabilities

In addition to the core capabilities of RHM, specific capabilities displayed by Fellows of the Division when providing surgical care include:

### **Rural hospital context** *(including health equity and Māori health)*

- › Work with culturally diverse and disadvantaged groups to address barriers in access to surgical services.

### **Communication** *(including cultural competence)*

- › Demonstrate skills in the education of patients and their family/whānau about the surgical condition and its management options and goals.
- › Discuss and obtain informed consent before engaging in any surgical procedures in the rural hospital setting.
- › Develop effective working relationships with referral-hospital specialists and communication strategies that optimise patient care.
- › Concisely and competently present clinical information to the referral-hospital surgical team.
- › Effectively use telehealth equipment and tools in acute, inpatient or clinic situations to enhance specialist and subspecialist assessment and aid management planning.
- › Arrange patient transfer and retrieval as required.

### Clinical expertise

- › Demonstrate the knowledge and clinical skills to competently undertake appropriate investigations and formulate diagnosis of surgical conditions in rural hospital practice.
- › Demonstrate a working knowledge of emergency management of surgical trauma principles.
- › Develop management plans for surgical conditions, in consultation with the referral-hospital surgical team as required.
- › Facilitate emergency patient transfer when required, in coordination with receiving services.

See the learning frame and skills log for further details.

### Professionalism

- › Develop an understanding of the medicolegal implications of performing surgical procedures.
- › Develop a commitment to self-directed learning, continuing education and the conduct of quality assurance activities in the provision of surgical services in rural hospital practice.
- › Be an effective advocate for patients where their surgical needs cannot be met at the rural hospital.

### Leadership and management

- › Demonstrate leadership in acute surgical situations.
- › Demonstrate leadership in the organisation and implementation of pathways for the management of surgical conditions.

## Learning frame

Surgical conditions	Recommended learning outcomes
<b>Minor surgery</b>	
<ul style="list-style-type: none"><li>› Skin lesions<ul style="list-style-type: none"><li>– Basal cell carcinoma</li><li>– Squamous cell carcinoma</li><li>– Melanoma</li><li>– Keratoses</li><li>– Sebaceous cysts</li></ul></li><li>› Ingrown toenails</li><li>› Subungual haematoma</li><li>› Joint inflammation/infection</li><li>› Skin abscess</li><li>› Subcutaneous foreign bodies</li></ul>	<ul style="list-style-type: none"><li>› Demonstrate a working knowledge of skin anatomy and the pathogenesis and clinical features of common and important skin lesions</li><li>› Provisionally diagnose skin lesions and follow local guidelines regarding surgical biopsy, excision, referral or medical management</li><li>› Understand the indications and contraindications for all minor surgery undertaken</li><li>› Perform minor procedures competently where recommended, within limits of own expertise, using sterile technique as appropriate, including:<ul style="list-style-type: none"><li>– Skin lesion excision or biopsy</li><li>– Nailbed resection and subungual haematoma aspiration</li><li>– Joint aspiration and intra-articular injection</li><li>– Skin incision and drainage for local abscess</li></ul></li></ul>

Surgical conditions	Recommended learning outcomes
<i>Minor surgery cont.</i>	
	<ul style="list-style-type: none"> <li>➤ Demonstrate safe and effective use of: <ul style="list-style-type: none"> <li>– local and regional anaesthesia</li> <li>– tourniquet techniques</li> <li>– formal or bedside ultrasound to assist with diagnosis and removal of subcutaneous foreign body (recommended advanced skill)</li> </ul> </li> <li>➤ Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Skin biopsy/lesion histology</li> <li>– Joint fluid analysis, such as MC&amp;S, biochemistry, gram stain</li> <li>– Swab/aspirate MC&amp;S</li> </ul> </li> <li>➤ Arrange appropriate post-operative management (such as dressings, suture removal, antibiotics, follow-up)</li> </ul>
<b>General surgery</b>	
<ul style="list-style-type: none"> <li>➤ Appendicitis</li> <li>➤ Biliary colic</li> <li>➤ Cholecystitis</li> <li>➤ Cholangitis</li> <li>➤ Pancreatitis</li> <li>➤ Oesophagitis</li> <li>➤ Peptic ulcer disease</li> <li>➤ Inflammatory bowel disease</li> <li>➤ Diverticulitis</li> <li>➤ Ischaemic colitis</li> <li>➤ Perforated viscus</li> <li>➤ Strangulated hernia</li> <li>➤ Peritonitis</li> <li>➤ Perianal abscess</li> <li>➤ Perianal haematoma</li> <li>➤ Colorectal cancer</li> </ul>	<ul style="list-style-type: none"> <li>➤ Demonstrate a working knowledge of the anatomy of the gastrointestinal tract and hepatobiliary system and the aetiology, pathogenesis and clinical features of common and important surgical conditions that relate to it</li> <li>➤ Examine for signs of general surgical conditions competently and interpret findings</li> <li>➤ Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, CRP, VBG + lactate, LFTs, amylase, lipase, blood cultures, G&amp;H/cross-match, coag profile</li> <li>– Urinalysis, such as MC&amp;S</li> <li>– Stool analysis, such as MC&amp;S, FOB, elastase, calprotectin</li> <li>– Peritoneal fluid analysis, such as biochemistry, MC&amp;S, albumin</li> <li>– ECG</li> <li>– CXR/AXR</li> <li>– Bedside ultrasound, such as gallbladder, free peritoneal fluid, volume status (recommended advanced skill)</li> <li>– Abdo USS, barium swallow/enema, CT abdomen/pelvis (as available and clinically indicated)</li> <li>– Proctoscopy and/or sigmoidoscopy (if within clinical skill set and equipment available)</li> </ul> </li> <li>➤ Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Ascertain patient and/or family wishes regarding ceiling of care</li> <li>– Early specialty discussion regarding an unwell/unstable patient</li> <li>– Management of general surgical emergencies in accordance with EMST/ATLS principles</li> <li>– Understand surgical and non-surgical treatment options for relevant conditions and the urgency of surgical intervention</li> </ul> </li> </ul>

Surgical conditions	Recommended learning outcomes
<i>General surgery cont.</i>	
	<ul style="list-style-type: none"> <li>– Pharmacological management, such as antibiotics, proton pump inhibitors, analgesics, antiemetics, antispasmodics, steroids, immunomodulators, tranexamic acid, transfusion, sedatives</li> <li>– Non-pharmacological management, such as IV fluids, electrolyte replacement, NG tube (drainage, feeding), hernia reduction attempt, therapeutic paracentesis, urinary catheterisation (transurethral or suprapubic), drainage perianal abscess or haematoma</li> <li>– Refer for further work-up/management, such as inpatient specialist transfer/retrieval, outpatient specialist review/advice, dietitian, endoscopy</li> </ul>
<b>Cardiothoracic</b>	
<ul style="list-style-type: none"> <li>&gt; Pneumothorax</li> <li>&gt; Lower airway obstruction</li> <li>&gt; Pleural effusion</li> <li>&gt; Haemothorax</li> <li>&gt; Pericardial effusion</li> <li>&gt; Cardiac tamponade</li> <li>&gt; Perforated oesophagus (Boerhaave's syndrome)</li> <li>&gt; Rib fractures</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the aetiology, pathogenesis and clinical features of common and important cardiothoracic surgical conditions</li> <li>&gt; Examine for signs of cardiothoracic surgical conditions competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Bloods tests, such as FBC, U&amp;Es, CRP, VBG + lactate, LFTs, amylase, lipase, blood cultures, G&amp;H/cross-match, coag profile</li> <li>– Pleural fluid analysis, such as biochemistry, MC&amp;S, albumin</li> <li>– ECG</li> <li>– CXR/AXR</li> <li>– Bedside ultrasound, such as pneumothorax, pleural effusion, pericardial effusion, cardiac tamponade, volume status and/or aortic dissection (recommended advanced skill)</li> <li>– Abdo USS, CT abdomen/pelvis as available and indicated</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Ascertain patient and/or family wishes regarding ceiling of care</li> <li>– Early specialty discussion regarding an unstable patient</li> <li>– Management of cardiothoracic surgical emergencies in accordance with EMST/ATLS principles</li> <li>– Understand surgical and non-surgical treatment options and the urgency of surgical intervention</li> <li>– Pharmacological management, such as oxygen, analgesia, antibiotics</li> <li>– Non-pharmacological management, such as airway management and ventilatory support IV fluids, pleurocentesis, chest drain insertion, pericardiocentesis</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer/retrieval, palliative care</li> </ul> </li> </ul>

Surgical conditions	Recommended learning outcomes
<b>Orthopaedic/maxillofacial</b>	
<ul style="list-style-type: none"> <li>&gt; Acute fractures <ul style="list-style-type: none"> <li>– Skull</li> <li>– Cervical spine</li> <li>– Orbit</li> <li>– Zygoma</li> <li>– Jaw</li> <li>– Thoracic and lumbar spine</li> <li>– Clavicle</li> <li>– Ribs</li> <li>– Pelvis</li> <li>– Humerus (neck, supracondylar)</li> <li>– Radius and ulna (head, midshaft, distal)</li> <li>– Wrist</li> <li>– Metacarpals, digits</li> <li>– Femur (neck, trochanteric, midshaft)</li> <li>– Tibia and ulna (tibial plateau, proximal, midshaft, ankle)</li> <li>– Foot/toes</li> </ul> </li> <li>&gt; Joint dislocations <ul style="list-style-type: none"> <li>– Temporomandibular joint</li> <li>– Shoulder</li> <li>– Elbow</li> <li>– Wrist and hand joint</li> <li>– Femur</li> <li>– Knee and patella</li> </ul> </li> <li>&gt; Rotator cuff injury</li> <li>&gt; Knee ligamentous injury</li> <li>&gt; Achilles tendon rupture</li> <li>&gt; Crush injuries</li> <li>&gt; Compartment syndrome</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate knowledge of the anatomy of the musculoskeletal system and the mechanisms and clinical features associated with orthopaedic and maxillo-facial injuries</li> <li>&gt; Examine for signs of orthopaedic or maxillofacial injury competently (including assessment of neurovascular status) and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood (if anticipating surgery or medical cause for injury)</li> <li>– X-rays</li> <li>– USS soft tissue/tendon injuries</li> <li>– CT (as available and appropriate)</li> </ul> </li> <li>&gt; Competently diagnose and manage acute orthopaedic injuries, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Ascertain patient and/or family wishes regarding ceiling of care</li> <li>– Early specialty discussion regarding an unstable patient</li> <li>– Management of significant orthopaedic and maxillofacial trauma in accordance with EMST/ATLS principles</li> <li>– Understand surgical and non-surgical treatment options and the urgency of surgical intervention</li> <li>– Utilise local guidelines for fracture management and follow-up</li> <li>– Pharmacological management, such as analgesics, nitrous oxide, sedatives, local/regional anaesthetics, tranexamic acid, vitamin D, bisphosphonates, prophylactic antibiotics</li> <li>– Non-pharmacological management, such as cervical collar, fracture reduction and immobilisation as appropriate within limits of experience and competence, joint relocation, support devices (sling, splint, brace, strapping, moonboot, backslab, plaster cast)</li> <li>– Post-procedure recovery and mobilisation</li> <li>– Refer for further work-up/management, such as inpatient specialist transfer/retrieval, outpatient review/advice (fracture clinic), arthroscopy, further imaging (CT, MRI), occupational therapy, physiotherapy, rehabilitation</li> </ul> </li> <li>&gt; Use appropriate terminology, and where applicable recognised scoring systems, for describing fractures</li> <li>&gt; Demonstrate knowledge of clinical features and specific management of different wrist fractures (for example, Colle's, Smith's, Barton's, Chauffeur's, scaphoid, greenstick, ulna styloid)</li> <li>&gt; Understand potential local and systemic complications of crush injuries</li> </ul> <p>See <a href="#">Musculoskeletal health</a> learning frame for further details</p>

Surgical conditions	Recommended learning outcomes
<b>Urology</b>	
<ul style="list-style-type: none"> <li>&gt; Acute urinary retention</li> <li>&gt; Haematuria</li> <li>&gt; Renal tract calculi</li> <li>&gt; Renal trauma</li> <li>&gt; Renal tumour</li> <li>&gt; Testicular torsion</li> <li>&gt; Benign prostatic hyperplasia</li> <li>&gt; Prostate cancer</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the anatomy of the urological system and the aetiology, pathogenesis and clinical features of common and important surgical conditions that relate to it</li> <li>&gt; Examine for signs of urological conditions competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, CRP, Ca/PO4, coag profile, cross-match, PSA</li> <li>– Urinalysis, such as MC&amp;S, cytology</li> <li>– CXR/AXR</li> <li>– Bedside ultrasound, such as bladder volume, hydronephrosis, perinephric fluid, and/or testicular dopplers (recommended advanced skill)</li> <li>– KUB USS, CT urogram, CT nephrogram (as available and indicated)</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Ascertain patient and/or family wishes regarding ceiling of care</li> <li>– Early specialty discussion regarding an unstable patient</li> <li>– Understand surgical and non-surgical treatment options and urgency of surgical intervention</li> <li>– Pharmacological management, such as analgesia, antispasmodics, alpha-blockers, tranexamic acid</li> <li>– Non-pharmacological management, such as IV fluids, urinary catheterisation (transurethral, suprapubic, three-way), testicular torsion reduction attempt, bladder irrigation</li> <li>– Refer for further work-up/management, such as inpatient specialist transfer/retrieval, outpatient review/advice, outpatient imaging, cystoscopy, urology nurse, lithotripsy</li> </ul> </li> </ul>
<b>Neurosurgery</b>	
<ul style="list-style-type: none"> <li>&gt; Closed head injury</li> <li>&gt; Subdural haematoma (acute, chronic)</li> <li>&gt; Intracranial haemorrhage</li> <li>&gt; CNS tumours</li> <li>&gt; Vascular malformations (berry aneurysms, arteriovenous malformations)</li> <li>&gt; Spinal cord injury</li> <li>&gt; Peripheral nerve injury</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the aetiology, pathogenesis and clinical features of common and important neurosurgical conditions</li> <li>&gt; Examine for signs of neurosurgical conditions competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, coag profile</li> <li>– CT head (as available and indicated)</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Ascertain patient and/or family wishes regarding ceiling of care</li> <li>– Early specialty discussion regarding an unstable patient</li> </ul> </li> </ul>

Surgical conditions	Recommended learning outcomes
<i>Neurosurgery cont.</i>	
	<ul style="list-style-type: none"> <li>– Management of neurosurgical emergencies in accordance with EMST/ATLS principles, including airway management in those patients with reduced GCS</li> <li>– Understand surgical and non-surgical treatment options and urgency of surgical intervention</li> <li>– Pharmacological management, such as analgesia, antihypertensives, tranexamic acid, mannitol, vitamin K, steroids</li> <li>– Non-pharmacological management, such as airway management and ventilatory support, IV fluids, FFP, withdrawal of contributing medications</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer/retrieval, outpatient review/advice, inpatient rehabilitation, outpatient imaging (MRI, follow-up CT), EMG, palliative care, concussion clinic</li> </ul>
<b>Vascular</b>	
<ul style="list-style-type: none"> <li>&gt; Acute peripheral vascular occlusive disease/ischaemic limb</li> <li>&gt; Deep vein thrombosis</li> <li>&gt; Abdominal aortic aneurysm</li> <li>&gt; Aortic dissection</li> <li>&gt; Varicose veins</li> <li>&gt; Arterial and venous ulceration</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the aetiology, pathogenesis and clinical features of common and important vascular surgical conditions</li> <li>&gt; Examine for signs of vascular conditions competently and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, coag profile, D-dimer, VBG + lactate, cross-match</li> <li>– ECG</li> <li>– Bedside ultrasound, such as abdominal aorta, DVT, peripheral artery doppler (recommended advanced skill)</li> <li>– USS aorta, USS DVT, CT angiography as available and indicated</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate <ul style="list-style-type: none"> <li>– Ascertain patient and/or family wishes regarding ceiling of care</li> <li>– Early specialty discussion regarding an unwell/unstable patient</li> <li>– Management of vascular surgical emergencies in accordance with EMST/ATLS principles</li> <li>– Understand surgical and non-surgical treatment options and urgency of surgical intervention</li> <li>– Pharmacological management, such as analgesia, tranexamic acid, anticoagulants, antiplatelet agents, thrombolytics</li> <li>– Non-pharmacological management, such as IV fluids (and/or permissive hypotension), RBC transfusion</li> <li>– Refer for further work-up/management, such as inpatient specialist transfer/retrieval, outpatient review/advice, palliative care</li> </ul> </li> </ul>

Surgical conditions	Recommended learning outcomes
<b>ENT</b>	
<ul style="list-style-type: none"> <li>&gt; Upper airway obstruction</li> <li>&gt; Glottic and pharyngeal foreign bodies</li> <li>&gt; Epiglottitis</li> <li>&gt; Quinsy</li> <li>&gt; Tonsillitis</li> <li>&gt; Tympanic perforation</li> <li>&gt; Aural foreign bodies</li> <li>&gt; Otitis externa</li> <li>&gt; Tumours of the ear</li> <li>&gt; Nasal foreign bodies</li> <li>&gt; Nasal polyps and tumours</li> <li>&gt; Epistaxis</li> <li>&gt; Sinusitis (acute, chronic)</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the anatomy and physiology of the ear, nose and throat and the aetiology, pathogenesis and clinical features of common and important surgical conditions that relate to them</li> <li>&gt; Examine for signs of ENT conditions competently (including otoscopy, nasal examination with speculum, pharyngoscopy, laryngoscopy) and interpret findings</li> <li>&gt; Arrange/perform and interpret relevant investigations, including: <ul style="list-style-type: none"> <li>– Blood tests, such as FBC, U&amp;Es, CRP, coag profile, G&amp;H/cross-match</li> <li>– CT sinuses (as available and appropriate)</li> </ul> </li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialty discussion regarding an unwell/unstable patient</li> <li>– Management of ENT emergencies in accordance with EMST/ATLS principles</li> <li>– Understand surgical and non-surgical treatment options and urgency of surgical intervention</li> <li>– Differentiate between anterior and posterior epistaxis</li> <li>– Pharmacological management, such as antibiotics, analgesia, steroids</li> <li>– Non-pharmacological management, such as removal foreign body, nasal packing, chemical cautery, incision and drainage of quinsy</li> <li>– Refer for further work-up/management, such as inpatient specialty transfer/retrieval, outpatient specialist review/advice</li> </ul> </li> </ul>
<b>Burns</b>	
<ul style="list-style-type: none"> <li>&gt; Thermal</li> <li>&gt; Electrical</li> <li>&gt; Chemical</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Demonstrate a working knowledge of the pathogenesis and clinical features of burns, their classification and the importance of age, location and extent in determining appropriate referral and management</li> <li>&gt; Make a provisional or definitive diagnosis and provide competent and timely management, including specialty advice where appropriate: <ul style="list-style-type: none"> <li>– Early specialty discussion regarding an unwell/unstable patient</li> <li>– Management of burns emergencies in accordance with EMST/ATLS principles, including basic first aid and airway management</li> <li>– Document burn depth/classification, location and extent using established tools (for example, Lund-Browder burn chart, rule of nines)</li> <li>– Understand surgical and non-surgical treatment options and urgency of surgical intervention</li> <li>– Use local burns management guidelines and local and national burns referral centre criteria when referring patients</li> <li>– Use established formulae (for example, Parkland formula) to determine amount and rate of fluid resuscitation required</li> </ul> </li> </ul>

Surgical conditions	Recommended learning outcomes
<i>Burns cont.</i>	
	<ul style="list-style-type: none"> <li>- Know how to access information for appropriate management of chemical burns, including safe contamination procedures</li> <li>- Pharmacological management, such as analgesia, topical silver sulfadiazine, antibiotics</li> <li>- Non-pharmacological management, such as IV fluids, cooling cares, removal foreign material, loose/moist burn cover, removal non-viable skin, catheterisation, tetanus booster</li> <li>- Refer for further work-up/management, such as inpatient specialty transfer/retrieval, outpatient specialist review/advice, wound care/district nurses</li> </ul>

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