Advanced Specialised Training Curriculum

Emergency Medicine

2009

Australian College of
Rural and Remote Medicine

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1. BACKGROUND

Completion of a minimum 12 months Advanced Specialised Training is an essential component of training towards ACRRM Fellowship. Registrars can select from ten advanced training areas which reflect rural and remote clinical practice needs. *Emergency medicine* is a key priority area due to the relative isolation in which rural or remote doctors practice, and the need to therefore manage a wide range of emergency situations with a high degree of autonomy.

This Advanced Specialised Training Curriculum in emergency medicine builds on the emergency medicine component of the ACRRM Primary Curriculum. The basic knowledge and skills described in the emergency medicine and other sections of the Primary Curriculum are therefore assumed as prior learning and are not re-stated. This advanced curriculum focuses on the additional knowledge and skills required for advanced practice in emergency medicine.

This curriculum recognises that the practice of rural and remote emergency medicine covers a broad spectrum of contexts from an isolated solo practice without a designated emergency department, to a moderate sized regional hospital ED with 24 hour on site medical staff and availability of some specialty services. Emergency medical practitioners may be involved in patient care activities ranging from the pre-hospital environment to emergency dept assessment and stabilisation, as well as ongoing management that may include safe transfer to the next level of medical care.

By its nature, the practice of emergency medicine also has considerable overlap with a number of other specialist disciplines, particularly anaesthetics, surgery, orthopaedics, internal medicine, and paediatrics. Acute aspects of most disciplines have relevance to the practice of emergency medicine.

2. PURPOSE AND REQUIREMENTS

2.1 Purpose

The aim of this curriculum is to improve emergency care in rural and remote communities through access to appropriately trained, safe and competent rural emergency medicine doctors. It defines the competencies required for the practice of emergency medicine in rural and remote settings.

2.2 Target group

This curriculum targets ACRRM Registrars who are undertaking an Advanced Specialised Training year in emergency medicine. It recognises that emergency medicine skills are fundamental to all types of rural and remote general practice. Therefore, Advanced Specialised Training in emergency medicine is relevant to doctors wishing to work in any rural or remote setting. However, it would be of special relevance to doctors wishing to work in a rural or remote hospital emergency department.

2.3 Duration

The minimum period of time required for Advanced Specialised Training in emergency medicine is 12 months full time or equivalent part time. The training program will take into account other professional, personal and family needs and will offer the flexibility for individuals to undertake part time training. It will also allow flexibility for participants to undertake their Advanced Specialised Training in emergency medicine in two or more blocks, upon approval by the ACRRM Censor.

2.4 Potential posts

Training for the Advanced Specialised Training year in emergency medicine must be undertaken in institutions accredited by ACRRM. Such institutions must have the caseload and teaching capacity to provide training in a sufficient range of emergency conditions to meet the requirements of this curriculum.

The majority of training must be completed in a hospital with the following features:

- a 24 hour medically staffed emergency department
- a Director of Emergency Medicine with appropriate postgraduate qualifications
- specialist inpatient services covering the core disciplines of General Surgery, Orthopaedics, Internal Medicine, Paediatrics and Psychiatry

- access for trainees to support and supervision by experienced clinicians at all times, and
- the commitment and ability to provide the required level of teaching and experience.

Institutions with established educational links to other institutions and involvement with undergraduate teaching and other vocational training would be highly desirable. There would also be a suitable mentor to support the trainee during the Advanced Specialised Training year. The mentor may be sourced by the registrar or the training provider, and need not be attached to the staff of the registrar's hospital.

2.5 Prerequisites

Prior to undertaking this post, registrars must have:

- completed one year of FACRRM training or equivalent, including at least three months experience in emergency medicine
- completed rotations in anaesthetics/ICU and paediatrics, and
- satisfactorily completed (or enrolled in) the Early Management of Severe Trauma (EMST), Emergency Life Support (ELS) and Advanced Paediatric Life Support (APLS) courses.

This Advanced Specialised Training Curriculum assumes pre-requisite knowledge as outlined in the primary curriculum. In particular, the following basic knowledge and skills from the Primary Curriculum have been assumed:

- confident Basic Life Support
- confident Primary Survey
- confident Secondary survey
- recognition of the compromised/at risk airway
- confident basic airway manœuvres
- confident basic intubation
- basic ventilation techniques – EAR, bag/mask ventilation
- principles of oxygenation, and
- perform and interpret Adult Glasgow Coma Scale

3. RATIONALE

While many aspects of the practice of emergency medicine are common to both urban and rural practice, the nature of rural practice means that acute care is often undertaken without the extensive resources available in urban teaching hospitals.

Even in larger rural or regional hospitals, rural emergency medicine doctors require a broader range of skills than many colleagues in urban teaching hospitals, due to the limited physical resources, reduced availability of specialist staff, and longer lead times for retrieval to more specialised centres. Unlike doctors in major urban hospital emergency departments, the rural emergency department doctor is usually required to provide autonomous initial management of most patients.

In the more remote rural context, all care may be undertaken in a small hospital staffed by multi-skilled general practitioners and nursing staff. These staff will be responsible not only for emergency management, but also for all other fields of medicine including community general practice and administration.

In extremely remote areas, some community rural doctors do not have access to an inpatient facility, and may be required to provide emergency pre-hospital, stabilisation and retrieval services with minimally trained support staff.

This curriculum has been developed with these varied rural and remote settings in mind. It recognises that the rural emergency medicine practitioner requires a generalist approach with competence in a broad range of skills that is applicable across all emergency medicine settings. It outlines the standard competencies required of all emergency medicine doctors across all rural and remote settings. This Advanced Curriculum allows the rural emergency medicine practitioner to build on the knowledge and skills of the Primary Curriculum and provide a higher level of care applicable to different locations and institutions.

4. LEARNING OUTCOMES

The *Domains of rural and remote general practice*, as defined by ACRRM, provide a framework for organising the learning outcomes for this curriculum. The domains are:

1. Core clinical knowledge and skills
2. Extended clinical practice
3. Emergency care
4. Population health
5. Aboriginal and Torres Strait Islander health
6. Professional, legal and ethical practice
7. Rural and remote context.

These domains are integrated with the *Fields of competency* essential to the rural or remote emergency medicine doctor:

- Initial management
- Definitive emergency care
- Common emergency procedures
- Ongoing management
- Recognition and management of unusual but serious conditions
- Transfer and transportation
- Utilisation of available resources
- Communication, and
- Leadership and teamwork.

The competency framework in **Table 1** outlines the practice requirements for the rural emergency medicine doctor on completion of an Advanced Specialised Training year in emergency medicine. It defines the level of autonomy required in the management of various types of clinical emergencies and non-clinical responsibilities – from completely ***autonomous*** management **(A)** to management with ***distant guidance*** **(D)**, or with ***on-site support*** **(O)**. These competency standards build on and extend the basic competency requirements outlined in the Primary Curriculum. **Table 1** also defines the integration between the *Domains of rural and remote general practice* and the *Fields of competency*.

Table 1: COMPETENCY FRAMEWORK
Key: **A** = manage autonomously, **D** = manage with distant guidance, **O** = manage with on-site support, **n/a** = not applicable

	FIELDS OF COMPETENCY								
	Initial management	Time-critical & definitive emergency care	Common emergency procedures	Ongoing management	Uncommon but serious conditions	Transfer / transportation	Utilisation of available resources	Communication	Leadership and teamwork
Integrated domains	**3,7**	**3,7**	**3**	**1,4**	**2**	**3**	**6**	**1,5 ,6**	**2,6**
CLINICAL CONTENT AREAS									
Airway emergencies	**A**	**D**	**A**	**D**	**O**	**D**	**A**	**A**	**A**
Respiratory emergencies	**A**	**D**	**A**	**D**	**O**	**D**	**A**	**A**	**A**
Anaesthesia and analgesia	**A**	**D**	**A**	**O**	**O**	**D**	**A**	**A**	**D**
Circulatory emergencies	**A**	**A**	**A**	**D**	**O**	**D**	**A**	**A**	**D**
Other causes of shock	**A**	**D**	**D**	**O**	**O**	**D**	**A**	**A**	**D**
Neurological emergencies	**A**	**A**	**A**	**D**	**O**	**D**	**A**	**A**	**D**
Psychiatric emergencies	**A**	**D**	**A**	**O**	**D**	**O**	**D**	**D**	**D**
Musculo-skeletal emergencies	**A**	**D**	**A**	**D**	**O**	**A**	**D**	**A**	**A**
Soft tissue emergencies and burns	**A**	**A**	**A**	**D**	**O**	**D**	**D**	**D**	**D**
ENT, Dental and maxillofacial emergencies	**A**	**A**	**A**	**D**	**D**	**D**	**D**	**A**	**A**
Abdominal and genito-urinary emergencies	**A**	**D**	**A**	**O**	**O**	**D**	**D**	**A**	**D**
Ophthalmological emergencies	**D**	**D**	**A**	**D**	**O**	**D**	**A**	**A**	**A**
Metabolic and endocrine emergencies	**A**	**A**	**A**	**D**	**D**	**D**	**A**	**A**	**A**
Dermatological emergencies	**A**	**A**	**A**	**D**	**D**	**A**	**A**	**A**	**n/a**
Toxicology and toxinology	**A**	**D**	**A**	**O**	**O**	**D**	**D**	**D**	**A**
Environmental emergencies	**A**	**A**	**A**	**D**	**O**	**D**	**D**	**D**	**D**
Infectious diseases	**D**	**D**	**A**	**D**	**D**	**D**	**D**	**D**	**D**
Sepsis	**A**	**A**	**A**	**D**	**O**	**D**	**A**	**A**	**A**
Paediatric and neonatal emergencies	**D**	**D**	**D**	**D**	**O**	**D**	**A**	**A**	**D**
Obstetric and gynaecological emergencies	**D**	**D**	**D**	**O**	**O**	**D**	**D**	**D**	**D**
NON-CLINICAL CONTENT AREAS									
Forensic medicine and legal issues	**D**	**D**	**A**	**O**	**O**	**D**	**A**	**A**	**O**
Retrieval and special transport	**D**	**D**	**A**	**D**	**D**	**n/a**	**A**	**A**	**A**
Imaging and laboratory investigations	**A**	**A**	**A**	**D**	**D**	**n/a**	**A**	**A**	**n/a**
General topics	**D**	**D**	**A**	**D**	**O**	**D**	**D**	**D**	**D**
Emergency department management	**D**	**n/a**	**A**	**O**	**D**	**D**	**A**	**A**	**A**

4.1 Domain 1. Core clinical knowledge and skills

The registrar will:

- ***Diagnostic investigations*** – Demonstrate advanced understanding of the selection criteria, protocols, principles and limitations, and demonstrate an ability to competently perform the following tests and interpret their results:
  - point of care pathology
  - arterial blood gas
  - lumbar puncture
  - plain x-rays – competent interpretation for emergency purposes pending definitive reporting, including adult and paediatric chest, spine, abdomen and extremities
  - CT scans – emergency interpretation, to help guide emergency treatment pending a definitive report
  - emergency use of contrast
  - electrocardiography (ECG)
  - focussed Assessment with Sonography for Trauma (FAST) ultrasound
  - swallowing assessment
  - Paediatric Glasgow Coma Scale
  - oximetry
  - capnography
  - cardiotocography (CTG)
  - slit lamp examinations of the eye, and
  - schiotz and applanation tonometry for measurement of intraocular pressure.
- ***Telemedicine*** – Demonstrate the ability to use tele-medicine technology effectively and efficiently to upload x-rays, clinical images and other data to consult with distant specialists. This includes clinical photography skills.
- ***Ongoing management*** – Demonstrate the ability to provide appropriate post-stabilisation care to emergency patients, including:
  - management to maintain the patient in a stable condition, and
  - preparation for transfer.
- ***Complicating anatomical conditions*** – Discuss the features of congenital and acquired conditions that may predispose patients to emergency presentations and/or complicate emergency management:
  - congenital heart disease
  - congenital maxillofacial and other anatomical abnormalities, and
  - acquired anatomical abnormalities.

- ***Doctor-patient communication*** – Demonstrate the ability to communicate appropriately and sensitively with emergency patients and/or their family members and friends:
    - taking a comprehensive case history – Elicit essential case information in an emergency situation, including talking to the patient, family members, friends and event witnesses
    - demonstrate understanding and respect for the communication styles and social dynamics of different cultural groups in highly stressful situations
    - use of interpreter services, and
    - dealing with distressed relatives.

4.2 Domain 2. Extended clinical practice

The registrar will:

- ***Differential diagnosis*** – Demonstrate the ability to make accurate and timely differential diagnoses in emergency situations.
- ***Uncommon but serious conditions*** – Outline the diagnostic features and initial management of the following uncommon conditions which may have potentially serious consequences:
    - post-natal depression/psychosis
    - dermatological manifestation of systemic disease
    - serious skin infections
    - ectopic pregnancy
    - placental abruption
    - obstructive nephropathy
    - ischaemic bowel
    - abdominal aortic aneurysm
    - undifferentiated ocular pain
    - acute loss of vision
    - thyrotoxicosis and thyroid crisis
    - acid-base balance disorders
    - exotic infectious diseases, and
    - nosocomial infections.
- ***Secondary injuries*** – Outline the risk factors for secondary injuries in emergency patients, discuss strategies for reducing these risks, and outline appropriate management of secondary injuries if/when they occur:
    - renal failure
    - cardiac failure

- adult respiratory distress syndrome (ARDS)
- disorders of coagulation
- cerebral hypoxia
- multi-system failure
- sepsis, and
- neurovascular compromise.

- ***Anaesthesia and analgesia*** – Demonstrate competence in anaesthetic and analgesic decision-making and delivery:
  - discuss the factors involved in making difficult anaesthetic decisions – neonates, young children, elderly, shock, co-morbidities, and burns
  - demonstrate confident and independent performance of the following basic anaesthetic techniques:
    - regional nerve blocks
    - rapid sequence induction
    - neuroleptanaesthesia
    - pain monitoring during anaesthesia, and
    - procedural sedation and monitoring
  - demonstrate the ability to perform the following post-basic anaesthetic techniques with on-site supervision:
    - pre-intubation airway assessment
    - inhaled anaesthesia
    - anaesthetic induction and maintenance
    - rapid Sequence induction
    - regional anaesthetic techniques
    - management of malignant hyperpyrexia and suxamethonium apnoea, and
    - dental anaesthetic techniques for dental emergencies, and
  - demonstrate confident, safe, effective independent administration of emergency, post-operative and labour analgesia – including intravenous, but excluding epidural.
- ***Referral and transfer*** – Demonstrate the ability to identify those patients requiring referral and transfer to a higher level of care, arrange appropriate transportation, and provide appropriate clinical care until transport arrives, including:
  - knowing their own limitations
  - knowing when, how and where to refer appropriately
  - maintaining patient in a stable condition until appropriate transportation arrives, and
  - completing required legal documentation for involuntary transportation of patients with acute psychosis.

- ***Forensic medicine*** – Demonstrate an understanding of the clinical and medico-legal requirements for management of physical and/or sexual assault cases, including:
  - sexual assault examination and specimen collection
  - recognition of non-accidental injury patterns in children and domestic partners
  - understanding the Coronial investigation process
  - writing medico-legal reports
  - giving evidence in court, and
  - treatment of minors and persons in custody.
- ***Teamwork and leadership*** – Co-ordinate, work with and/or provide leadership (clinical and operational) as appropriate to multidisciplinary and/or inter-professional teams encompassing emergency services (police, fire brigade, ambulance), retrieval services, emergency department staff members, inpatient services, and community members.

4.3 Domain 3. Emergency care

The registrar will:

- ***Triage*** – Outline the principles of triage and discuss their application to emergency situations.
- ***Initial assessment and stabilisation*** – Demonstrate (in either real or simulated contexts), the ability to conduct initial assessment and stabilisation of emergency patients, including:
  - confident advanced life support
  - recognition of the seriously unwell conscious patient
  - appropriate prioritization and sequencing of assessments, investigations and management tasks in emergency cases, including:
    - seriously unwell conscious patients
    - patients with undifferentiated severe acute pain
    - undifferentiated unconscious patients
    - undifferentiated sick children
    - major/serious/complicated trauma – multiple trauma, head trauma, pelvic fracture, E.N.T., maxillofacial, abdominal (blunt and penetrating),and genital trauma
    - acutely psychotic patients, including suicide risk assessment, and
    - undifferentiated acute infections.
- ***Advanced emergency procedures*** – Discuss selection principles and competently demonstrate a comprehensive range of advanced emergency procedures, including:
  - difficult intubations – including C-spine trauma, burns, maxillofacial or laryngeal trauma, laryngeal swelling, epiglottitis, and foreign body:

        - non-standard positioning
        - non-standard laryngoscopes
        - bougies, and
        - introducers
    - advanced skills in alternative airway maintenance:
        - confident laryngeal mask airway (LMA)
        - competent intubating laryngeal mask airway (ILMA)
        - confident independent needle cricothyroidotomy and other percutaneous cricothyroidotomy techniques, and
        - competent in surgical cricothyoidotomy under supervision
    - advanced ventilation techniques – for situations including acute pulmonary oedema, severe asthma, acute or severe respiratory infections, blunt or penetrating chest trauma, near drowning, and pulmonary aspiration:
        - advanced manual ventilation
        - mechanical ventilation techniques
        - advanced non-invasive ventilation, and
        - use of a portable ventilator
    - indirect laryngoscopy
    - insertion of chest drains
    - difficult intra-venous placements:
        - non-standard sites
        - intra-osseous insertion
        - venous cutdown
    - central vein access
    - arterial line insertion
    - use of syringe drivers, and
    - rapid infusion techniques.
- ***Time-critical and Definitive emergency management*** – Demonstrate the ability to provide safe and effective time-critical and definitive emergency management for a comprehensive range of emergency conditions, including:
    - airway and breathing emergencies – difficult foreign bodies, severe asthma, respiratory distress tension pneumothorax, compromised airways, hypoventilation, hypoxia, and chest trauma:
        - Confident needle thoracocentesis
    - circulation emergencies – chest pain, acute coronary syndromes, cardiogenic shock, hypovolaemic shock, hypertensive emergencies, haemostatic emergencies, cardiac

tamponade, acute myocardial infarction, thrombo-embolic emergencies including pulmonary embolism, gas embolism, and anaphylaxis:

- application of Advanced Cardiac Life Support (ACLS) algorithms
- defibrillation, cardioversion and external cardiac pacing
- advanced thrombolytic therapy, including management of complications
- platelet inhibitor and anticoagulant therapy
- advanced hypotensive therapy
- competent periocardiocentesis with on-site or distant guidance
- advanced haemostatic therapy
- advanced anti-arrhythmic therapy
- confident administration of inotropes
- principles of angioplasty and stenting
- principles of occult blood loss in trauma, and
- confident blood transfusion and fluid resuscitation including minimum volume fluid resuscitation.

- neurologic emergencies – neurologic trauma, coma, stroke, cerebral ischaemia, space occupying lesions, intracranial haemorrhage, subarachnoid haemorrhage, altered mental status, acute confusional states, delirium, undifferentiated headache, Guillian-Barre Syndrome, seizures, status epilepticus, meningitis, and neurogenic shock:
  - seizure monitoring and control, and
  - confident performance of burr hole with distant guidance from a neurosurgeon
- musculoskeletal emergencies – simple and complex fractures and dislocations, compound wounds, spinal injuries, ischaemic limbs, degloving injury, amputated digits, acute back pain/sciatica, and maxillofacial injury:
  - confident and independent splinting, casting and reduction of simple fractures and dislocations
  - competent reduction of complex fractures/dislocations under supervision, including minimisation of neurovascular compromise
  - confident initial management of compound wounds
  - confident initial management of spinal injuries, including awareness of patterns of spinal injury without radiological abnormality
  - repair of simple tendon injuries, and
  - confident and independent joint aspiration

- dermatological and soft tissue emergencies – foreign bodies, abscesses, thermal, chemical and electrical burns, frostbite, necrotising infections, bite wounds, crush injury, neurovascular injury, degloving injury, and acute desquamating conditions
    - removal of superficial foreign bodies
    - confident and independent abscess drainage
    - confident and independent wound management, including prophylactic antibiotic administration, local anaesthetic, tetanus injections, wound cleaning, debridement and wound closure techniques
    - confident and independent initial management of minor burns
    - competent initial management of moderate or severe burns with on-site or distant guidance
    - management of rhabdomyolysis/acidosis
    - competence in compartment pressure monitoring and management, including escharotomy under direct supervision
    - pressure care of soft tissues at risk from ischaemia and infection, and
    - regulation of body temperature in patients with dermatological emergencies
- obstetric and gynaecologic emergencies – haemorrhage in early pregnancy, trauma in pregnancy, miscarriage, precipitate delivery, common labour and delivery complications, hypertensive urgencies, hyperemesis, pre-eclampsia, eclampsia, and post-partum problems including fluid embolus, uterine rupture, haemorrhage, sepsis, and retained products of conception (POC):
    - confident initial management of haemorrhage in early pregnancy
    - competent initial management of trauma in pregnancy
    - confident management of miscarriage
    - timely recognition and transfer of patients requiring surgical intervention
    - confident management of common labour and delivery complications
    - seizure control in eclampsia
    - management of precipitate delivery with distant guidance, and
    - competent initial management of post-partum problems
- abdominal and urologic emergencies – acute renal failure, foreign body ingestion, abdominal trauma, acute urinary retention, oesophageal varices, and paraphimosis:
    - confident initial management of acute renal failure
    - removal of GI foreign bodies
    - urethral and suprapubic catheterisation
    - control of oesophageal varices, and
    - competent reduction of paraphimosis with on-site or distant guidance

- metabolic and endocrine emergencies – hypoglycaemia, diabetic ketoacidosis (DKA), hyperosmolar non-ketotic states, hypokalaemia, hyperkalaemia, hypocalcaemia, hypercalcaemia, hyponatraemia, Addisonian crisis, hypothermia, and hyperthermia:
    - confident and independent insulin infusion
    - confident and independent intravenous potassium replacement, and
    - confident and independent IV fluids for endocrine emergencies
- acute infections – Undifferentiated sepsis, septicaemia, urosepsis, neutropenic sepsis, febrile convulsion, septic shock, exotic infectious diseases, nosocomial infections, needle stick injury and other body fluid exposure:
    - chemotherapeutics for undifferentiated sepsis
    - be aware of and able to follow protocol for management of needle stick injury and other body fluid exposure, and
    - confident application of infection control procedures, public health reporting procedures and management of contact persons
- toxicologic and toxinological emergencies – drug/alcohol overdose, accidental and deliberate toxic ingestion, terrestrial and marine envenomation, deliberate chemical biological or radiological (CBR) incidents, polypharmacy overdose, and delayed presentations:
    - confident and independent antivenom and antidote administration
    - confident and independent GI decontamination
    - confident and independent use of venom detection kit (VDK)
    - competent administration of whole blood clotting time (WBCT) test, and
    - decontamination procedures for deliberate CBR incidents – for patients, staff members and in an emergency department
- environmental emergencies – hypothermia, hyperthermia, barotrauma, near drowning, electrical injury, and smoke/gas inhalation:
    - re-warming techniques
    - cooling techniques
    - temperature monitoring
    - initial management of diving injuries, including hyperbaric medicine
- ocular emergencies – chemical and thermal trauma, blunt and penetrating trauma, hyphaemia, blowout fracture, UV trauma, snow blindness, acute vision loss, acute chalazion, glaucoma, viral and bacterial infections, foreign bodies, and peri-ocular lacerations:
    - assessment/removal of difficult foreign bodies, and
    - repair of peri-ocular lacerations

- dental and E.N.T. emergencies – dental trauma, acute infection, maxillofacial trauma, anterior and posterior epistaxis, aural and nasal foreign bodies, and quinsy:
    - tooth preservation techniques
    - infection prevention and management
    - confident and independent management of anterior and posterior epistaxis
    - removal of difficult foreign bodies
- psychiatric emergencies – acute psychosis, suicide threat or attempt, violent self-harm, and severe drug or alcohol intoxication:
    - confident risk assessment, engagement and acute counselling skills
    - confident administration of rapid-acting antipsychotics and other medication where appropriate
    - competent and appropriate administration of chemical restraint, and
    - use of relevant legislation for compulsory admission.

- ***Paediatric and neonatal emergencies*** – Demonstrate advanced skills in managing childhood and neonatal emergencies, including:
    - confident paediatric and neonatal advanced life support
    - paediatric calculations – appropriate dosages and equipment size
    - confident estimation and administration of fluid requirements for resuscitation and ongoing maintenance
    - lumbar puncture, bladder tap and phlebotomy in children
    - procedural sedation
    - competence to perform paediatric conscious sedation with on-site supervision
    - paediatric pain management techniques
    - confident airway management in children and neonates, including:
        - foreign body removal
        - management of stridor, croup, and epiglottitis
        - paediatric intubation
    - confident management of Sudden Infant Death Syndrome (SIDS)
    - cdvanced intra-venous access techniques – intra-osseous infusion and neonatal umbilical catheterisation
    - confident management of acute infections in children, including neonatal infections, sepsis, and meningitis
    - seizure management, including diagnosis of the underlying cause(s)
    - management of diabetic ketoacidosis (DKA) in children
    - warming techniques in children and neonates

- recognition of serious gastro-intestinal conditions, including pyloric stenosis and intussuception
- recognition of uncommon but serious neonatal conditions including prematurity, sepsis, respiratory failure and congenital abnormalities, and
- care for psychological needs of children and carers in emergency situations.

- ***Treatment complications or failure*** – Discuss the potential complications (including possible treatment failure) of the emergency procedures and definitive therapies listed above, describe the signs and symptoms of these complications, and outline appropriate rescue plans, including:
  - post-procedural complications – thromboembolism, vascular insufficiency, infection, wound breakdown, perforation/obstruction, mechanical failure, pneumothorax, spinal headache, renal failure
  - complications of therapeutics – allergy/anaphylaxis, toxicity, drug interactions, GI bleeding, dystonic reactions, neuroleptic malignant syndrome, transfusion reactions, over-hydration, over-anticoagulation, and
  - complications of dialysis.
- ***Emergency retrieval and transport*** – Demonstrate advanced knowledge and skills in coordination of emergency retrieval and transportation, including:
  - pre-hospital response and management
  - principles of aeromedical transport
  - 'packaging' for safe transport
  - monitoring during transport
  - managing emergencies during transport
  - transportation of the acutely psychotic patient, and
  - communications – ability to effectively communicate by distance methods with retrieval staff and consulting emergency medicine specialists, including both providing and receiving treatment advice.

4.4 Domain 4. Population health

The registrar will:

- ***Community health issues*** – Demonstrate the ability to assess trends in emergency presentations and identify underlying community health issues, for example:
  - substance abuse
  - infectious diseases, and
  - traumatic injuries.

- ***Injury prevention*** – Discuss the principles of injury prevention in rural and remote contexts and demonstrate the ability to implement an injury prevention program.
- ***Infectious disease control*** – Outline epidemiologic characteristics and discuss prevention and control measures for infectious disease outbreaks, including:
    - immunisation and post-exposure prophylaxis
    - community epidemics
    - nosocomial outbreaks
    - tropical and exotic infections, and
    - sexually transmitted infections.
- ***Disaster management principles*** – Discuss the principles for disaster prevention, preparedness, response and recovery in rural and remote communities.

4.5 Domain 5. Aboriginal and Torres Strait Islander health

The registrar will:

- ***Barriers to health care services –*** Discuss the barriers to health care and services for Indigenous people in the community, such as:
    - access to services
    - alienation by culturally inappropriate or even hostile health services
    - overt or structural racial discrimination
    - health impact of dispossession, and
    - administrative issues, such as entitlement cards and transport policies.
- ***Patterns of acute illness and injury –*** Discuss the patterns of acute illness and injury in indigenous populations, including:
    - nutritional patterns and associated metabolic illness
    - alcohol and substance use/misuse
    - acute gastro-intestinal illness
    - renal failure
    - traumatic injury patterns
    - domestic violence, and
    - sexually transmitted infections.
- ***Health attitudes, beliefs and customs*** – Be aware of local Indigenous attitudes, beliefs and customs relating to acute illness, injury and death, medical treatment, transportation, and separation from the family and local community.
- ***Cross-cultural communication skills*** – Demonstrate the ability to communicate with Indigenous community members in a culturally appropriate and medically effective manner during an emergency situation.

4.6 Domain 6. Professional, legal and ethical practice

The registrar will:

- ***Legal and ethical practice –*** Demonstrate the ability to establish and maintain appropriate procedures and protocols and provide appropriate staff training to ensure adherence to the legislative and ethical requirements governing the medical profession, including:
  - patient confidentiality
  - consent in emergency situations
  - notification of births and deaths, and
  - advanced directives and limits of resuscitation.
- ***Team care*** – Demonstrate awareness and sensitivity to the personal, social, emotional and psychological impact of emergency situations on emergency medical personnel, and be able to conduct appropriate staff/CI debriefing.
- ***Inter-professional education and cooperation –*** Discuss appropriate strategies and techniques for teaching emergency management skills to junior doctors and other medical staff in the emergency department.
- ***Emergency department management*** – Demonstrate the knowledge and skills required to establish and maintain appropriate emergency department systems and procedures:
  - trauma / priority team organisation
  - multi casualty preparedness/response
  - co-ordination with police and other agencies
  - risk management / critical decision making / dealing with uncertainty
  - use of electronic record systems
  - quality assurance and audit policies and procedures
  - storage and handling of blood products
  - organ donation and transplantation protocols
  - pharmaceutical dispensing
  - staff management/communication skills
  - inter-professional co-operation skills
  - complaint management, and
  - occupational health and safety measures.

4.7 Domain 7. Rural and remote context

The registrar will:

- ***Emergency care in non-hospital settings –*** Demonstrate the ability to conduct initial emergency assessment, stabilisation and time-critical emergency care in non-hospital settings, including:
  - under poor weather conditions
  - in non-sterile environments
  - with improvised equipment and supplies
  - without electricity, including electric lighting
  - independently – as the sole medically trained person on the scene, and
  - remotely – giving instructions over the telephone or radio.
- ***Hospital-in-the-home patients*** – Demonstrate the ability to manage minor emergency conditions in a 'hospital-in-the-home' environment.
- ***Nature of rural and remote settings*** – Discuss the characteristics of rural and remote settings and their impact on emergency medicine, including:
  - types of emergencies likely to be encountered
  - impact of rural and remote attitudes, which may cause delays in presentation for medical treatment until a chronic or minor problem has become an emergency.
  - distance, and
  - limited resource availability.
- ***Self care –*** Recognise the need to establish a peer support network and to utilise this network to debrief in times of personal or professional stress, especially following emergency situations, which may cause particular distress due to factors such as:
  - involvement of a friend, family member or colleague
  - multiple trauma or disaster scene, and
  - particularly horrific or gruesome nature of the injuries.

5. TEACHING AND LEARNING APPROACHES

The emphasis for Advanced Specialised Training in emergency medicine will be on acquiring relevant clinical experience and skills to competently practice emergency medicine. Teaching approaches will include, but are not limited to:

- *Clinical experience based learning* – the majority of teaching and learning should take a case based experiential format. This is the most valuable approach to learning specific clinical skills. It may occur within the rural emergency department or in remote or retrieval contexts.
- *Small group tutorials* – these may be face-to-face, via videoconference or using online tele-tutorial technology.
- *Simulation laboratory sessions* – these may be needed for those situations that are encountered infrequently in the clinical setting, or those requiring rehearsal of team and inter-professional co-operation.
- *Face to face education meetings* – these may be linked with regional training providers, undertaken by teleconference or video conference, or opportunistically through relevant conferences.
- *Distance learning modes* – these are available via the internet, using *Rural and Remote Medical Education Online* (RRMEO) and other sources.

6. SUPERVISION AND SUPPORT

Registrars undertaking Advanced Specialised Training in emergency medicine will require specific medical, cultural, professional and personal support and supervision arrangements.

This will include at least:

1 *Supervisor* – A local ACRRM accredited clinical supervisor who may, or may not, work in the same organisation as the registrar and assists with the clinical aspects of their practice. Registrars are required to establish and maintain a learning plan with their supervisor, which will be jointly reviewed on a regular basis.

2 *Mentor* – A mentor(s), who may be an external person(s) who currently works, or has previously worked, in a similar situation as the registrar. This role could be undertaken by several different people and could include: pastoral care, opportunities to debrief, or act as a sounding board about cultural or personal issues, and the provision of a two-way supportive and listening role.

7. ASSESSMENT

The assessment of Advanced Specialised Training registrars in emergency medicine has been kept in line with the FACRRM assessment program implemented in 2007, plus assessment that is specific to this post.

The assessment includes:

- STAMPS – Structured Assessment using Multiple Patient Scenarios
- *Supervisor and mentor feedback reports* – conducted twice at 6-monthly intervals
- *Clinical skills logbook*

8. ESSENTIAL RESOURCES

- Access to the Rural and Remote Medical Education On Line (RRMEO) http://www.rrmeo.org.au
- Cameron, P et al. *Textbook of Adult Emergency Medicine.* Edinburgh: Churchill Livingstone.
- Cameron, R et al. *Textbook of Paediatric Emergency Medicine.* Edinburgh: Churchill Livingstone.
- Tintinalli, J et al. *Emergency Medicine: a comprehensive study guide*. New York: McGraw-Hill.
- Bersten A, Soni N, Oh T. *Oh's Intensive Care Manual*. Edinburgh: Butterworth-Heinemann.
- McRae R, Esser M. *Practical fracture treatment*. Edinburgh: Churchill Livingstone.
- Murray L et al. *Toxicology Handbook*. Sydney: Elsevier
- Shand, F. *Drug doses*. Parkville Vic: Collective.
- *Australian Medicines Handbook Drug Choice Companion Emergency Care*. Adelaide: Australian Medicines Handbook Pty Ltd.

9. EVALUATION

The Advanced Specialised Training program in emergency medicine will be evaluated on an ongoing basis using both qualitative and quantitative methods. In the first 2 years registrar feedback will be critical to ensure the curriculum adequately meets the expectations of the registrar and their supervision needs. Therefore regular feedback regarding the curriculum and the post will be undertaken at the 6-month point and at the end of the term. All stakeholders involved in the process will also be asked to provide feedback on the post regarding the content,

feasibility, rigor and outcomes in preparing doctors to take on these roles. Stakeholders will include registrars, supervisors, employers, medical educators from the regional training provider, and others who may have been involved such as Rural Workforce Agencies, RVTS, NACCHO, Universities and health service providers. The information gathered will be collated by ACRRM and will feed into a 3-5 yearly review of the curriculum and regular review of the post.

The assessment process will also be evaluated. This will involve anonymous questionnaire surveys incorporating both quantitative and qualitative data from of all participants, i.e. candidates, examiners, invigilators and question writers.