ORIENTATION

This block consists of an eight week term made up of 4 weeks of Critical Care, consisting of Anaesthetics, Emergency Medicine and Intensive Care and 4 weeks in Acute Surgery. During the 4 week critical care attachment, you will rotate for 3 weeks through the Anaesthetic and Emergency Departments in both morning or afternoon slots and you will also spend one week in the Intensive Care Unit (ICU).

During the 4 week acute surgery placement, in addition to involvement in the normal routine of the surgical placement, you will be expected to spend up to half the time in critical care areas associated with your surgical “patient journey”. That will involve spending time in the Emergency Department assessing patients who are being admitted acutely to your surgery service, becoming involved in the anaesthesia for those patients, scrubbing in to the operative procedure in theatres, becoming involved in post-operative management in the ICU, and finally following the patient back into the community.

During your 8 week block you will also attend an ALS/BLS session that Dr Heather Low organizes and a patient safety and critical care simulation training session run by Dr Adam Rehak and Ms Stephanie O’Reagan. Both these sessions are compulsory and will be held on Level 6 of the Kolling Building at the Sydney Clinical Skills and Simulation Centre. The dates and times for these sessions along with your clinical attachment rotations will be provided to you by the Northern Clinical School.

During the 8 week block you will also attend at least one Patient-Doctor bedside tutorial each week. These will be run in the Emergency Department and coordinated by the ED physicians. Students in both the critical care and acute surgery placements are expected to attend these each week. The dates and times will be provided by the Northern Clinical School.

Coordinators & Supervisors for this attachment are:

Critical Care attachment and ED Coordinator - Dr John Vassiliadis (Mobile - 0412022912, pager # 45677), at RNSH Tuesdays and Wednesdays only
Supervisors In the ED include: Drs Rob Day (Director), Liz Swinburn (Deputy Director), Mark Gillett, Tony Joseph, Richard Lennon, Andrew Haig, Jennie Martin, John Morgan and Stuart Watkins.

Anaesthetics and Pain Service Coordinator - A/P Ross MacPherson (pager # 41853)

Intensive Care Coordinator - Dr Heather Low (phone 9926 8656 pager #41175)

Acute Surgery Coordinator - Professor Leigh Delbridge (phone 9926 7014, email leighd@med.usyd.edu.au)

OBJECTIVES:

Emergency Medicine

The Critically-ill patient in the Emergency Department

General (for Patients presenting with Shortness of Breath, Chest Pain, Abdominal Pain, Altered Mentation or Trauma [SCAAT])
- Demonstrate a systematic approach to the clinical assessment of the undifferentiated critically ill patient
- Discuss the initial management of the undifferentiated critically ill patient
- Discuss the importance of repeated and timely reassessment of the critically ill patient

Chest
- Demonstrate a systematic approach to the clinical assessment and initial management for a patient presenting to the emergency department with shortness of breath
- Demonstrate a systematic approach to the clinical assessment and initial management for a patient presenting to the emergency department with chest pain
Abdomen
- Demonstrate a systematic approach to the clinical assessment and initial management for a patient presenting to the emergency department with abdominal pain

Head
- Demonstrate a systematic approach to the clinical assessment and initial management for a patient presenting to the emergency department with an altered mentation
- Discuss how to recognise and initiate treatment for common drug overdoses

Trauma
- Demonstrates a systematic approach to the clinical assessment of the patient with serious trauma
- Discuss the initial management of the patient with serious trauma

Essential Emergency Procedures

1. Core

1.1. Venous cannulation
1.2. Cervical spine immobilisation
1.3. Emergency intubation; adult, child
1.4. Defibrillation (mannequin)
1.5. Wound closure
1.6 Nasogastric tube insertion
1.7 Acute resuscitation (mannequin)
1.8 Prescribing oxygen
1.9 Nebuliser
1.10 Splinting; ankle, forearm/wrist
1.11 Urethral catheterisation

Intensive Care

Describes the signs of airway obstruction
Describes the indications and rationale for safe oxygen therapy in the critically ill patient
Describes the principles of controlled oxygen therapy in the patient with COPD (emphasising the importance of alleviating life threatening hypoxia)
Demonstrates a systematic clinical assessment of breathing and oxygenation
Describes the clinical signs and treatment of a tension pneumothorax
Describes the clinical features of shock
Describes effective fluid resuscitation
Describes control of external haemorrhage
Describes alternatives to peripheral venous access
Describes the indications, risks and safe administration of blood products
Describes the indications for central venous catheterisation
Describes how to recognise and initiate treatment for acute heart failure
Describes the causes, presentations and treatment of oliguria
Describes the role of vasoactive drugs in treatment of the shocked patient
Describes normal physiological ranges for basic vital signs including pulse, BP, SpO2, respiratory rate, urine output and body temperature.
Demonstrates a systematic approach to chest X-ray interpretation recognising common and life threatening abnormalities
Describes the importance of repeated and timely reassessment of the acutely ill patient
Demonstrates/describes how to obtain an arterial blood gas
Describes a systematic approach to arterial blood gas analysis
Describes the indications and complications of arterial line insertion
Describes the ethical and legal implications of attempting/not attempting resuscitation
Demonstrates how to set up and use an oxygen/air driven nebuliser and describes indications for use of either
Adheres to the basic principles of infection control measures including handwashing
Describes a rational approach to antibiotic prescribing in the patient with sepsis

Anaesthetics and Pain Service (see Anaesthetics workbook)
Acute Surgery

Trauma

Be able to describe the priorities and a sequential and logical approach to the assessment, stabilization and management of a patient involved in trauma including:
- Initial resuscitation
- Primary and secondary survey
- Cervical spine stabilization

Describe the indications and precautions for the use of various initial investigations in the patient with multitrauma including:
- Cervical spine x-ray
- Mobile chest x-ray
- Peritoneal lavage
- CT Scanning

With regard to the anatomical and physical basis, identify the potential injuries which can arise from various mechanisms of trauma:
- Deceleration injuries
- Steering wheel injury
- Seat belt injury
- Motor bike accidents
- Pedestrian accidents

Identify and describe the clinical presentation, mechanism of injury and the emergency management of the following conditions:
- Cervical spine injury
- Spinal injury
- Pelvic fracture
- Tension pneumothorax
- Haemothorax
- Cardiac tamponade
- Flail chest
- Splenic rupture
- Liver laceration
- Renal trauma
- Pulmonary contusion
- Long bone fracture
- Head injury
- Facial fractures

Identify the anatomical structures at risk in the following stab injuries:
- Left mid axillary line in the 10th intercostal space
- Epigastric
- Left flank stabbing
- Left lower abdominal quadrant anteriorly
- Interscapular stabbing

Wound management

Compare and contrast the following iatrogenic and traumatic wounds in regards to causation, anatomical structures traversed or involved, repair, scar and expected pain:
- A lower abdominal transverse incision (Pfannesteil)
- An upper abdominal roof top incision
- A 4 cm laceration across the wrist
- A laceration on the back of the hand
- A scalp laceration in the side of the head
- A laceration on the sole of the foot
Define and describe the principles of management in the following types of wounds:
- Clean wounds
- Contaminated wounds

Describe the clinical and histological basis of wound healing and list the systemic and local factors which may delay healing.

Recognise the presence of the following in a post operative surgical wound:
- Dehiscence
- Infection
- Delayed healing
- Haematoma

Be able to advise a patient with a laceration regarding the indications, contraindications and side effects of:
- Tetanus immunisation,
- Antibiotics
- Suturing

Fractures and dislocations

Be able to identify and describe, radiologically and clinically, the bones of the upper limb, lower limb, pelvis and vertebral column.

Define the following terms:
- Closed fracture
- Compound fracture
- Comminuted fracture
- Pathological fracture
- Greenstick fracture
- Intra-articular

Be able to describe the principles of fracture reduction, joint immobilisation and healing.

Be able to describe the mechanism and management (immediate and delayed) of sports injuries including strains, sprains, ruptures, cruciate injuries and ankle ligament injuries.

Be able to describe the mechanism, diagnosis, complications (neurovascular, infective, compartment syndrome, ischaemic contracture and malunion) and management of the following fractures:
- Colles
- Scaphoid fractures
- Supracondylar fractures of the arm
- Humerus fracture
- Collar bone fracture
- Neck of femur
- Tibial fractures
- Ankle fractures

Be able to describe the mechanism complications and management of dislocations of the following:
- Shoulder
- Hip
- Patella
- Ankle
- Finger

Haematemesis and Melaena

Generate a list of potential diagnoses in a patient with haematemesis and or melaena with regard to the anatomical structures and processes which may result in disease or dysfunction.

Be able to describe the principles of resuscitation and indications for blood transfusion in a patient with haematemesis and melaena.

Be able to take a history, perform a physical examination and investigate a patient with haematemesis and melaena in order to be able to arrive at a diagnosis.
Recall the definition, aetiology, epidemiology, pathology, signs and symptoms, management and prognosis of the main causes of haematemesis and melaena including the following:
- Oesophageal carcinoma
- Reflux oesophagitis
- Carcinoma of the stomach
- Benign tumours of the stomach including leiomyoma
- Gastritis including gastric erosions
- Peptic ulcer disease
- Duodenal carcinoma
- Hereditary telangiectasia of the GI tract

Confusional states and paralysis

Generate a list of potential diagnoses in a patient with confusion or paralysis with regard to the anatomical structures and processes which may result in disease or dysfunction.

Be able to take a history, perform a physical examination and investigate a patient with confusion or paralysis (transient or permanent) in order to be able to arrive at a diagnosis.

Recall the definition, aetiology, epidemiology, pathology, signs and symptoms, management and prognosis of the main causes of confusion:
- Transient ischaemic attacks
- Stroke
- Brain tumours
- Chronic subdural haematoma
- Vertebrobasilar insufficiency
- Metabolic disorders including hyponatraemia, SIADH, hypernatraemia, liver ailure, renal failure, diabetic ketoacidosis
- Infective states eg urinary tract infection

Burns

Generate a list of possible forms or causes of burns. Your list should include the following:
- Thermal - fire, boiling water, boiling fat etc
- Chemical - acid, alkaline
- Electrical energy

Describe and define the rule of 9s.

Describe the immediate, short term and long term management and sequelae of burns.

ASSESSMENT

Student will have a formative assessment with feedback during their Emergency, ICU and Anaesthetic rotations.

In the **Emergency Department (ED)** it will be done by Dr John Vassiliadis or other Emergency Physician when he is not available and will include a case presentation and discussion of an emergency patient, using the standard of performance used in the summative long case. You will also be expected to provide a log book of procedures you performed while in the ED and cases you were involved in.

In the **Intensive Care Unit** the formative assessment will take the form of a long case presentation to your supervisor.

In the **Anaesthetic Department** see the anaesthetic workbook for more information on the assessment procedure.

In the **Acute Surgery** attachment, the formative assessment will also take the form of a long case presentation to your supervisor.

There will be an MCQ exam based on the critical care objectives of all three rotations at the end of year 3 and 4.

Looking forward to meeting you all and I hope you find your attachments interesting, challenging and enjoyable.

Dr John Vassiliadis