Anaesthetic Registrar Rotations

Pietermaritzburg Department of Anaesthesia, Critical Care and Pain Management

Summary document

January 2019 version 1.5

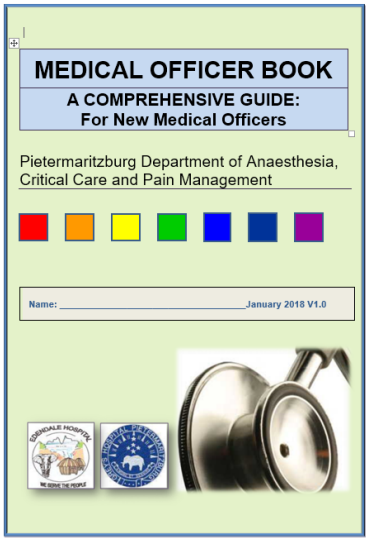
Table of Contents

Anaesthetic Registrar Rotations in PMB

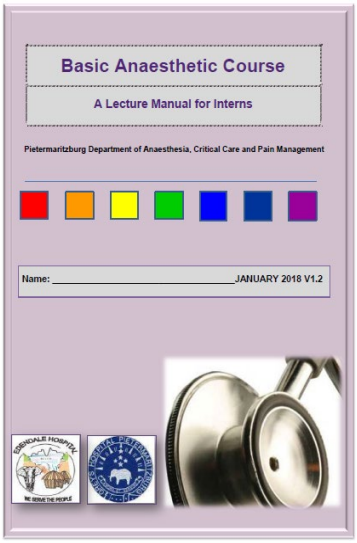
General Information/ Introduction

Consultant compiler	Zane Farina
Specific objectives	

Clinical / Practical	**Practical objectives**
	- Completion of necessary HR forms
	- Completion of working contract
	- Introduction and orientation to the anaesthetic department
	  ○ Staff
	  ○ Hospital layout
	  ○ Meetings
	  ○ Operating theatre efficiency
	  ○ Rosters and working requirements
	- Availability of necessary resources/ manuals

Academic	Academic objectives are dealt with separately in each rotation. NOTE: It is our objective to help registrars reach their goal of passing the FCA part 1 during their initial two years of rotation through the Pietermaritzburg Hospital Complex. **FCA Part 1 tutorials** Importantly, during the introduction to the department, the registrars will be made aware of the FCA Part 1 teaching program. They will obviously have a chance to discuss the exam goals and preparation and decide when they would like to join the program that works on an annual cycle. Once they have joined the program, they will have protected time on a Friday afternoon to attend tutorials that run from 14:00 in the ICU seminar room.
Specific material to assist reaching the objectives	
Suggested reading / resources	**Manuals and Books** **1. Medical Officer Book A comprehensive guide:**  This booklet combines many of the booklets listed below into one printing format. If you can't find an individual book, please check for it inside this larger manual.

2. PMB Basic Anaesthetic Course Lecture Manual



Introduction and set up of theatres, anaesthetic machine and equipment.

- Introduction and setup of theatres
- An Approach to anaesthesia
- The Anaesthetic Machine

Preoperative assessment and premedication.

- Preoperative Assessment and Premedication
- Diabetic Patients
- Hypertensive Patients
- Anaesthesia and Anticoagulation

Airway Management in Anaesthesia

Record keeping in anaesthesia, infection control and needle free techniques.

- Record Keeping in Anaesthesia
- Medico- Legal notes
- Needless IV Access and Infection Control in Theatre

Anaesthetic Drugs.

- Intravenous Induction Agents
- Inhalational Agents
- Muscle Relaxants and the Nerve Stimulator
- Local Anaesthetics

Regional Blocks

- Central Blocks
- Nerve blocks
- Management of LA Toxicity

Monitoring including placement of invasive lines.

- Monitoring in Anaesthesia

Patient positioning, theatre layout and Ergonomics.

Complications during anaesthesia.

- General complications during anaesthesia
- Malignant Hyperthermia
- CPR

Pain Control.

- Acute Pain Management

Anaesthesia for Caesarian Section.

- Anaesthesia for Caesarean Section
- Vasopressors for Obstetric Use
- The ESMOE Guidelines

Management of the trauma patient.

- Trauma and the Anaesthetic Implications

Paediatric Anaesthesia.
Fluid Management. Use of colloids and blood products.

- Fluid Therapy

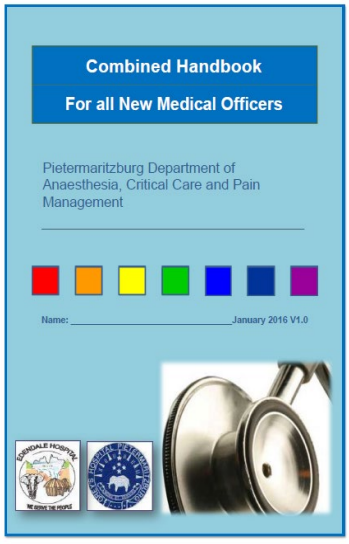
Postoperative complications.

- Post op complications
- Post-operative Nausea and Vomiting

ICU Lectures

- Recognising the critically ill
- Indications for ventilation
- Principles of setting a ventilator
- Inotropes and haemodynamic support
- Monitoring the critically ill patient
- Antibiotics
- Sedation and analgesia in ICU
- Management of renal dysfunction
- Nutrition in ICU
- Patient transportation

3. PMB Combined Handbook



Introduction
Who's who in anaesthesia
General principles and working hours
The metropole
ICU at Grey's
ICU at Edendale
Academic meetings
Morbidity and mortality meetings
Specific hospital notes

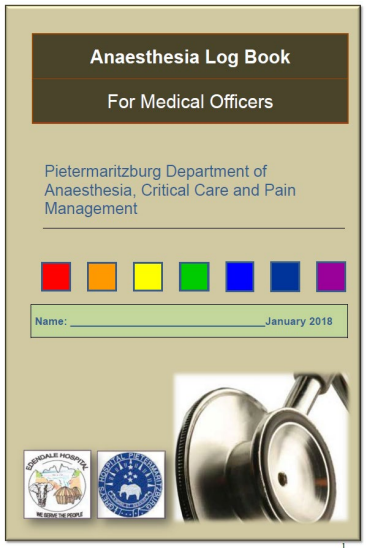
- Grey's
- Edendale
- Northdale

Call system

- Medical officers/ registrars
- Consultants

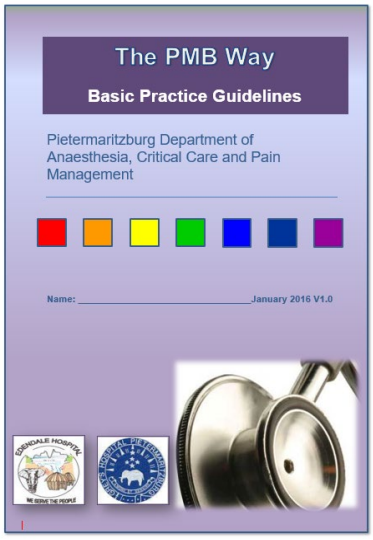
Interns in anaesthesia
The DA program
Further training in anaesthesia
Leave
The anaesthetic coordinator
Library system
The 2013 academic program
Conferences
Conclusion

4. PMB Anaesthetic Logbook



Keeping a logbook of all your cases is essential and forms part fo your "Registrar Portfolio". A complete portfolio is essential to be allowed to enter the final examination. This book allows you to keep a manual record. It is strongly advised that you move to an electronic record if you can.

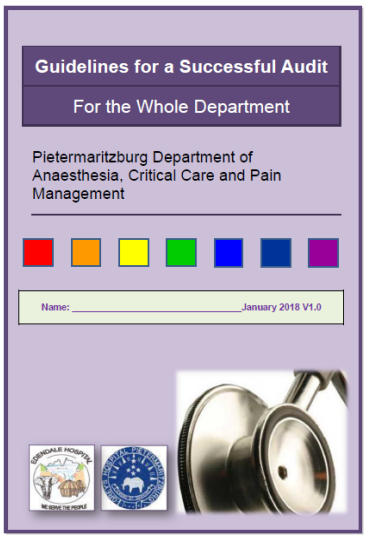
5. The PMB Way – Basic Practice Guidelines



Some pragmatic points about clinical care in PMB

- 16 Important Points to Remember
- The Basic Rules for a Spinal Caesarean Section
- Some Obstetric Tips
- Epidural Analgesia Policy: Labour Ward
- Infection Control in Theatre
- Preoperative Assessment
- Venous Access at Surgery
- Anaesthesia Preoperative testing
- PMB Metropolitan Maximal Surgical Blood Ordering Schedule
- The Rough Guide to Massive Blood Transfusion
- Emergency Surgery and Resuscitation
- Basic Haemodynamic Support
- Basic ICU Ventilation
- Levels of Medical Officers and Guidelines to Supervision
- The Surgical Safety checklist

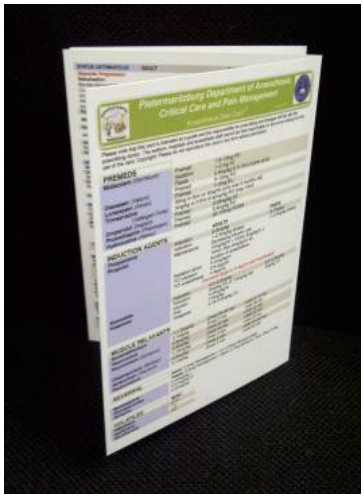
6. **Guidelines for a successful audit**



Advice on Audits in the PMB department.

- Getting started
- Supervision and registration
- Data collection
- Pilot audits
- Data analysis and write up
- Presentation, report and recommendation
- Implementation plan
- Re-audit and the audit cycle
- Publication
-

Pocket guides



1. Anaesthesia Data Card
2. Post-operative Pain Protocol
3. Telephone numbers cards

Other documentation

1. Staff rotations document
2. Call roster

Administrative documents in starter pack

- Parking and ID staff card application
- Application to pay salary into banking account or change of banking account
- Entity maintenance: Bank details
- Entity maintenance
- Claim for payment of incidental expenses
- Claim for each child attending school
- Performance contract for commuted overtime
- Overtime contract
- Tax on service bonus form
- Personal details form
- Performance agreement
- KZN Department of Health Secretariat / Head Office Library – Membership form
- Letter from the Department
- GEMS application form
- Rural allowance claim form
- Housing allowance claim form

Teaching/ tuts	FCA Part 1 tutorials (protected time for registrars) - Friday 14:00 – 17:00 Diploma in Anaesthesia Tutorials - Wednesday 14:30 – 17h30 Intern tutorials - Tuesday 14:30 – 16:00 - Friday 14:30 – 16h00 - Registrars may be involved in this program
Meetings (e.g. M and M meetings) specific to the rotation	Morbidity and Mortality Meetings - EDH – Monday 16h00 – 17h00 - EDH ICU – Thursday 07h00 –- 08h15 - Grey's - Tuesday 16h00 – 17h00 Combined Anaesthetic Departmental Academic Meeting - Friday 07h15 – 08h15
Consultant contact	Consultant contact occurs: On operating theatre lists Other rotations (for example, ICU, NICU, PICU, pain rotation) Tutorials Morbidity and Mortality Meetings (chaired by a consultant) Regular registrar meetings
Feedback system	
- Registrar assessment forms - Rotation assessment forms - EPMDS o Individual feedback from consultant	
Evidence for the registrar's portfolio	
- Registrar assessment forms - Rotation assessment forms - Anaesthesia Logbook - EPMDS feedback o Generated from an electronic database of feedback from seniors in the department	

NICU

Consultant compiler	Chantal Rajah
Specific objectives	
- Clinical / Practical	Preoperative Assessment First Examination of the Newborn Airway Management Fluid/Transfusion/Electrolyte/Glucose Management Neonatal Resuscitation Intravenous Access - Central/PICC - Peripheral - Umbilical Ventilation - CPAP/IPPV/Oscillator Management of Hyaline Membrane Disease Management of Neonatal Jaundice Management of congenital and nosocomial pneumonias Management of septic shock Neonatal transport Postoperative Care Documentation
- Academic	Neonatal anatomy Neonatal transitional physiology Neonatal physiology Pathology of prematurity Neonatal resuscitation Fluid/Transfusion/Electrolyte and Glucose management Surgical diseases o TOF/Oesophageal Atresia o Congenital Diaphragmatic Hernia o Abdominal Wall Defects (Gastroschisis/Omphalocoele) o Hernias o Malrotation o Pyloric Stenosis o Intestinal Atresia o NEC o Imperforate Anus Approach to murmurs, congenital heart disease Approach to important syndromes o Trisomy 13, 18, 21 o Beckwith Weideman o VATER, VACTREL, CHARGE ✓ Management of congenital infections/nosocomial infections Management of septic shock
- Other	✓ **Development of leadership skills in the NICU environment** ▪ Triage, prioritizing patients ▪ Teamwork and communication between nursing staff, anaesthetic staff, surgical staff ▪ Delegation of tasks to appropriate level staff, clear

	instructions, closed loop communication ▪ Managing conflict between colleagues/departments and appropriate channels for complaints ✓ **Development of ability to make difficult decisions** ▪ Knowledge of risks/benefits of surgery/anaesthesia, and ability to communicate these to patients/families in a sensitive manner ▪ Weighing up risks/benefits to form a decision ▪ Senior on call for paediatrics at night. ✓ **Participation in teaching/training**
Specific material to assist reaching the objectives	
- Suggested reading / resources	▪ Neonatal Resuscitation: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care, Circulation 2010 ▪ Neonatal resuscitation, Michael Clifford, Best Practice and Research Clinical Anaesthesiology 24(2010) 461-474 ▪ Physiology of the fetal circulation, Torvid Kiserud, Seminars in Fetal and Neonatal Medicine 2005: 10: 493-503 ▪ Evaluation of asymptomatic heart murmurs, Robert Johnson, Current Paediatrics 2005: 15: 532-538 ▪ Should I do this case? – The paediatric murmur, How do you deal with anaesthesia in a child with a murmur?, Johann Diedericks, March 2008 Vol.26 No.3 CME 141-144 ▪ Anaesthetic management of children with congenital heart disease for non-cardiac surgery, Michael C White, Continuing Education in Anaesthesia, Critical Care & Pain | Volume 12 Number 1 2012 ▪ Infantile pyloric stenosis, D. Dell, British Journal of Anaesthesia | CEPD Reviews | Volume 1 Number 3 [p85–88] 2001 ▪ Down's syndrome and Anaesthesia, V. Mitchell, Paediatric Anaesthesia, 1995:5:379-84 ▪ Congenital Diaphragmatic Hernia, Kevin P. Lally, Current opinion in Paediatrics 2002, 14:486-490 ▪ Developmental anatomy of the airway, Corina Lee, Edward Doyle, Anaesthesia and Intensive Care Medicine 2012, 13:5 ▪ Tracheo-oesophageal fistula (TOF) and oesophageal atresia (OA), Graham Knottenbelt, Adam Skinner, Best Practice and Research Clinical Anaesthesiology 24 (2010) 387-401 ▪ Abdominal wall defects, Thomas R. Weber, Current Opinion in Pediatrics 2002, 14:491–497 ▪ Necrotizing enterocolitis, Puja Sodhi, Continuing Education in Anaesthesia, Critical Care & Pain | Volume 12 Number 1 2012 ▪ Paediatric Surgery, N. Scott Adzick, NEJM 2000 Vol 342 Number 22 1651-1655 ▪ Equipment and monitoring for paediatric anaesthesia, Rebecca Jones, Anaesthesia and Intensive Care 2012 13:9 ▪ Vascular access in the neonate, Thierry Detaille, Best Practice & Research Clinical Anaesthesiology 24 (2010) 403–418

- Teaching/ tuts	▪ Daily Teaching Ward Round ▪ Academic Meeting 7:30, Thursday, First Floor Boardroom ▪ Journal Club 7:30, Friday, Medical Library Boardroom ▪ X ray meeting Alternate Tuesday, Radiology Tearoom ▪ Part 1 Teaching 15:00, Thursday, Anaesthetic Seminar room
- Meetings (e.g. M and M meetings) specific to the rotation	▪ Academic Meeting 7:30, Thursday, First Floor Boardroom ▪ Morbidity and Mortality Meeting 7:30, Friday, Medical Library Boardroom ▪ Journal Club 7:30, Friday, Medical Library Boardroom ▪ X ray Meeting Alternate Tuesday, Radiology Tearoom
- Consultant contact	▪ 1 Neonatologist on duty every day in NICU ▪ 1 Paediatric Specialist ▪ 2 Daily ward rounds in NICU ▪ Telephonic availability of consultants on call at all times ▪ Consultant presence at all meetings

Feedback system

Feedback to the registrar

1. The registrar assessment ('green') form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities.
2. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block.

Feedback by the registrar

1. Registrars should complete the assessment of rotation ('pink') form at the end of the block.
2. Feedback and suggested improvements are welcome throughout the rotation.

Evidence for the registrar's portfolio

1. Green Forms
    a. End of block assessment of registrars by consultants

2. Pink Forms
    a. End of block assessment of the block, its strengths and weaknesses, criticism.

3. Logbook of all surgical cases done during the rotation
    a. If you're not already keeping a logbook, start now! It is vital to keep a record of your cases, both for yourself and for the department to be able to see where you have experience, and where you may need to spend some more time. It is currently not a requirement to sit the FCA part II exam, however it is a requirement for your portfolio which the HOD will review before he signs the necessary documentation required for the CMSA application.
    b. The Royal College of Anaesthetists logbook can be downloaded from http://www.logbook.org.uk/index.htm

4. Attendance of academic meetings should be noted

5. Presentations done should be recorded

Neonatal and Paediatric Anaesthesia

Consultant compiler	Chantal Rajah
Specific objectives	
Clinical/Academic	Core Knowledge • Neonatal anatomy • Neonatal transitional physiology • Neonatal physiology • Pathophysiology of prematurity • Neurotoxicity • Resuscitation • Fluid/Transfusion/Electrolyte and Glucose management • Preoperative assessment and Premedication • Surgical diseases - TOF/Oesophageal Atresia - Congenital Diaphragmatic Hernia - Abdominal Wall Defects i. Gastroschisis ii. Omphalocoele - Hernias - Malrotation and Volvulus - Pyloric Stenosis - Intestinal Atresia - NEC - Imperforate Anus - Biliary atresia - Intussusception - Neuroblastoma • Airway • Difficult airway • URTI/Allergy/Asthma • OSA • ENT: stridor, T+ As, papillomas • Cleft lip/palate • Airway emergencies e.g. ENT, Foreign body, burns, caustic ingestion • Approach to murmurs, congenital heart disease • Approach to important syndromes - Trisomy 13,18,21 - Beckwith Weideman - Pentralogy of Cantrell - VATER, VACTREL - CHARGE • Management of septic shock

	• PONV • Emergence delirium • Paeds sedation • Analgesia and Regional anaesthesia • Burns anaesthesia • MH: Muscular dystrophy, myopathy • Anaesthesia for foetal surgery and EXIT procedure • Awareness in paediatrics • Day case anaesthesia • Cerebral palsy • Paeds neuro: (meningomyelocoele, VPS, TBI, tumours) • Anaesthesia for craniofacial surgery • Obesity in children • Anaesthesia for liver transplant • Child on chemotherapeutic drugs • HIV in paeds • Osteogenesis imperfect • Scoliosis surgery • Anaesthesia for interventional radiology AV malformations, tumours Cardiac catheterisation, percutaneous closure PDA,VSD, ASD, valvular commissurectomy)

- Practical Skills	• The Paediatric lists are usually high turnover lists and require good patient preparation and theatre setup. These are just a few things that can help to improve efficiency and management of our patients: 1.Good communication and Teamwork (with the surgeons/NICU/PICU/nursing staff) 2. Timely ordering of premedication/preoperative fluids and blood products 3. Appropriate ordering of investigations and checking of results. • <u>Neonatal/Paeds emergency cases during the day:</u> This is the ideal learning opportunity and we will ensure that you get involved. • <u>The Paeds lists for the week are as follows:</u> 1. Monday: Paed surgery 2. Wednesday: Paed surgery ENT (am): adenoids/tonsils/papillomas

	3. Thursday: Paeds ortho Plastics (am): clefts Opthalmology (1st Thursday of the month): strabismus surgery/lens washouts/ptosis repair 4. Friday: Paeds ortho (casualty list, alternate Fridays) Burns Neurosurgery (VP shunts, once a month) • <u>Preoperative Assessment:</u> Please ensure that you do all preoperative assessments and discuss your assessment and plans with the consultant supervising the list. There are preop assessment forms to summarise your patient and plan. This can be found in the last drawer on the side of the neonatal trolley in OT5 or in a box outside Theatre. • <u>Airway Management:</u> Understanding airway anatomy, correct positioning, correct technique of bag mask ventilation and laryngoscopy (with Miller and Macintosh blades), airway devices, paediatric circuits and recognition and management of the anticipated and unanticipated difficult airway. • <u>Fluid/Transfusion/Electrolyte/Glucose Management</u> Preop fluids: please ensure that you order 10ml/kg of apple juice to be given at 6am. This must be written under “other orders” on the yellow form (not in your plan). During the slate, you can order fluids telephonically if things change. In recovery: please offer the child apple juice if allowed. You can get this the Theatre managers. Intraop fluids: understanding fluid management relevant to surgical pathology and interventions. Blood products: ensuring appropriate ordering and use • Resuscitation • <u>Intravenous Access:</u> learning landmark and ultrasound guided techniques. - Central/PICC - Peripheral - Umbilical • Ventilation - CPAP/IPPV/Oscillator

	• Regional anaesthesia/analgesia - Caudal - Epidural: please complete the Paediatric epidural form and follow-up on all epidurals that you do. Handover the plan to the on-call team at night or over the weekend. During the rotation you will be asked to give a tutorial on epidural management to the PICU doctors and nurses. - Peripheral blocks: developing ultrasound guided skills • Management of Hyaline Membrane Disease • Management of Neonatal Jaundice • Transportation of the ill neonate or paediatric patient • Postoperative Care and follow up • Documentation: anaesthetic record, postop analgesia orders and pain score form, epidural form and postop follow up notes • Audit: do one audit during the rotation. This can involve theatre/NICU/PICU. Past audits have been entered as posters for PACSA
Specific material to assist reaching the objectives	
- Suggested reading / resources	Stewart's Handbook of Paediatric Anaesthesia Part 1 Refresher Course Lectures Part 2 Refresher Course Lectures Journal Articles (Pediatric Anaesthesia) PACSA: Refresher notes A student guide to paediatric surgery Protocols
- Teaching/ tuts - meetings) specific to the rotation	▪ In theatre teaching ▪ X-ray meeting (Tuesday 7:15) ▪ M&M meeting (Tuesday 16:00): These are extremely valuable as we all learn from our mistakes. They are not intended to embarrass or intimidate anyone, but for us to discuss difficult cases, different management options, and try to prevent similar problems in the future. If you feel uncomfortable presenting a particular case – ask the senior or consultant who was with you on the slate, or on call.

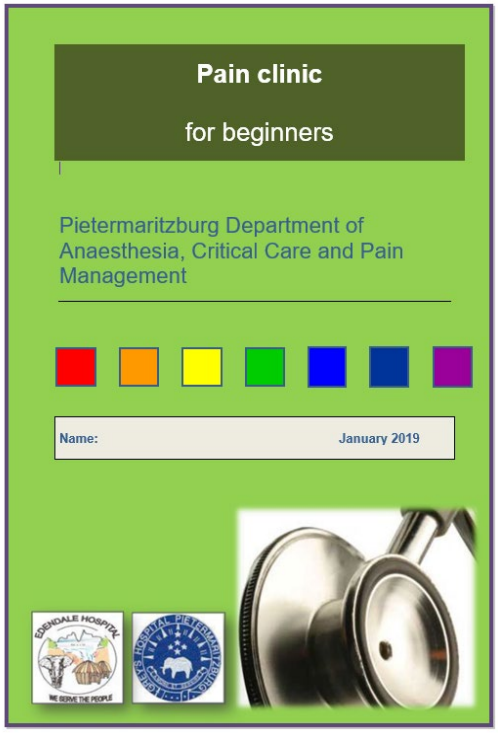
	▪ Part 1 Teaching ▪ Academic Meeting (Friday 7:15) ▪ Paediatric surgery academic meeting (Thursday 13:00)
- Consultant contact	Consultant contact will occur: • With all pain clinics • Formal presentations • In-service training • Research and audit • Interdisciplinary academic meetings and workshops • Pain ward rounds • Interventional pain blocks
Feedback system	
Midblock Feedback (Anaesthetics) End of Block Feedback (Anaesthetics) – Green Assessment forms Registrar feedback on rotation – Pink Assessment forms Feedback and suggested improvements are welcome throughout the rotation.	
Evidence for the registrar's portfolio	
1) Logbook a) Is an essential part of medical practice. It is vital to keep a record of your cases, both for yourself and for the department to be able to see where you have experience, and where you may need to spend some more time. It is currently not a requirement to sit the FCA part II exam, however it is a requirement for your portfolio which the HOD will review before he signs the necessary documentation required for the CMSA application. b) Keep a log of all topics discussed c) The "Logbox" solution is recommended by SASA and the CMSA for Anaesthetists https://logbook.logbox.co.za 2) Presentations a) Epidural management (NICU/PICU staff) b) Paediatric anesthesia principles (Intern tutorial) 3) Green End of Block Assessment Forms a) End of block assessment of registrars by consultants 4) Pink Forms a) End of block assessment of the block, its strengths and weaknesses, criticism.	

Contact numbers		
Name	**Cell Number**	**Speed Dial**
Dr C Rajah	0845200361	6827
Dr N Hendricks	0829243833	6956
Dr Z Farina	0824467928	6821
Dr N Mzoneli	0837170455	6785
Mr Mangray	0748856307	6813
Mr Govindasamy	0825519008	6786
Mr Madziba	0721704623	6697
Mr Harilal	0741019038	6888
PICU	3014/3015	
NICU	3366/3363	
Ward F1	3017/3018	
Ward E1	3010/3011	
Ward A1	3062/3063	
Blood bank	6995/6996	

Pain

Consultant compiler	Carel Cairns
Specific objectives	
- Clinical / Practical	▪ Friday 09h00 Pain Clinic. ▪ Ability to clinically assess a patient with chronic pain: history, examination. ▪ Particular emphasis on the neurological and spine examination. ▪ Ability to formulate a management plan. Mostly the registrar will see the new patients first. ▪ Learn when to refer to Ortho, Physio, Psychology, Psychiatry. ▪ Wednesday 07:30 Pain Blocks: ▪ Fluoroscopically- guided needle placement and the use of contrast medium. ▪ Learn about / perform the common "blocks" • Lumbar epidural steroid injections • Caudal steroid injections • Diagnostic blocks for ?lumbar facet syndrome • Pulsed radio-frequency treatment to the median branches innervating the lumbar facets • Diagnostic / Steroid blocks for sacro-iliac joint syndrome. • Intra-foraminal lumbar steroid injections for radiculopathy • Cervico-thoracic (stellate) ganglion block • Lumbar sympathetic block • Coeliac plexus block • point injections for myofascial pain syndrome ▪ Radio-frequency generator and TENS-machines
- Academic	• Pain physiology: acute, chronic and transition from acute to chronic. Peripheral and central pain mechanisms. The difference between nociceptive and neuropathic pain. • Common Chronic pain syndromes: diagnosis and treatment options. Special emphasis on: ○ Lower back pain in all its multiple possible causes ○ SI Joint pain ○ Fibromyalgia ○ CRPS ○ Trigeminal Neuralgia ○ Pancreatitis ○ Phantom limb

	○ Psychological/Psychiatric complications and contributions to pain. • Pharmacology relating to acute and chronic pain including analgesics, neuropathic agents, disease- modifying anti-rheumatic drugs, anti-depressants, anti-anxiolytics, mood stabilisers, anti-spasmodics, and drugs for insomnia. • Opioids for non-cancer pain. • Basic knowledge regarding pain blocks for chronic pain including the management of potential complications. • Anatomy related to blocks for chronic pain with emphasis on the spine. • The value and limitations of fluoroscopy. • Application of the biopsychosocial model in the treatment of patients with chronic pain. • The value of an interdisciplinary approach. • The working of an appropriate referral system assisting with the treatment of the patient in the community especially the availability of medication at base hospitals and their community-clinics. • Non-pharmacological non-block techniques including mirror visual feedback, TENS, CBT, physiotherapy, occupational therapy, functional- and social assessments. • Correct professional conduct and attitudes towards patients with chronic pain. • Medico-legal and disability claims involving patients with chronic pain. • Working knowledge of conditions we try to not see at the clinic, but invariably do have some involvement in. ○ Severe OA ○ Outpatient palliation ○ Migraine ○ Cancer pain.
- Other	• Pain rounds wherever practical. • Help with follow up of inpatient referrals.

Specific material to assist reaching the objectives	
- Suggested reading / resources	**Suggested reading**  ▪ Basic PMB Pain clinic book. A pragmatic approach to patients at pain clinic. ▪ See electronic "Pain Syllabus" folder. It is not comprehensive but is meant to be a realistic amount of reading that will cover the basics. It will be frequently updated, and a registrar will be expected to improve some aspect of it in their time here.
- Meetings (e.g. M and M meetings) specific to the rotation	▪ M&M (Tuesday 16h00) ▪ These are extremely valuable as we all learn from our mistakes. They are not intended to embarrass or intimidate anyone, but for us to discuss difficult cases, different management options, and try to prevent similar problems in the future. ▪ Academic meetings (Friday 07h15) ▪ Quarterly interdisciplinary meeting, usually Fr afternoon. Not compulsory (usually clashes with Part 1 tut) But useful.

- Consultant contact	Consultant contact will occur: • With all pain clinics • Formal presentations • In-service training • Research and audit • Interdisciplinary academic meetings and workshops • Pain ward rounds • Interventional pain blocks
Feedback system	
Feedback to the registrar 1. The registrar assessment ('green') form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities. 2. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block. **Feedback by the registrar** 1. Registrars should complete the assessment of rotation ('pink') form at the end of the block. 2. Feedback and suggested improvements are welcome throughout the rotation. 3. Each registrar should contribute to further development of the Pain rotation, review literature and update the registrar guidelines as appropriate.	
Evidence for the registrar's portfolio	
1. Green registrar assessment form **2. Logbook of all pain cases done during the rotation** ▪ Enter pain blocks done in anaesthesia logbook ▪ Pain audits done – acute and chronic pain ▪ Workshops attended ▪ Research involvement **3. Attendance of pain rotation-related and academic meetings should be noted** **4. Presentations done**	

Burns

Consultant compiler	Mariette Grobbelaar
Specific objectives	
- Clinical / Practical	**Skills** ✓ Pre-operative assessment of burn patient ✓ Intra-operative management • Peripheral IV access • Insertion of invasive monitoring (arterial lines, CVCs) • Applied pharmacology Induction agents Ketamine Muscle relaxants Analgesia • Difficult airway management Inhalational burns Securement of ETT • Regional block techniques • Management of peri-operative fluids and blood strategy transfusions (massive transfusion) and coagulopathy use of TEG Techniques to minimize blood loss • Intra-operative temperature management • Recognition and management of complications during surgery • Monitoring and interpretation of data ✓ Post-operative care **Cases to be seen** ✓ Initial resuscitation of burn patient ✓ Difficult airway management ✓ Major burns ✓ Anaesthesia for critically ill burns patient ✓ Paediatric burns anaesthesia ✓ Burn surgery in the elderly ✓ Massive transfusion
- Academic	**General** ✓ Applied basic sciences in general practice ✓ Thermoregulation ✓ Patient positioning ✓ Knowledge of co-morbid disease in anaesthesia ✓ Managing the paediatric patient ✓ Managing the elderly patient ✓ Basic trauma management (ATLS principles) **Related to burn surgery** ✓ Pathophysiology of burn injury ✓ Initial resuscitation of the burn patient ✓ Pre-operative assessment and optimization of the burn patient

	✓ Fluid management in the burn patient ✓ Blood transfusion including massive transfusion ✓ Alternatives to blood transfusion ✓ Monitoring of resuscitation including static and dynamic measures of fluid status ✓ Coagulation monitoring including TEG ✓ Management of coagulopathies ✓ Basic surgical principles ✓ Management of critically ill patient

- Other	**<u>Burns team</u>** ✓ Function as a member of the burns team! ✓ Participate in decision making regarding the management of burns patient with emphasis on the anaesthetic contribution ✓ Contribute to further development of the burn rotation, review literature and adapt the guidelines as appropriate **<u>Anaesthetic duties</u>** ✓ Manage the 'floor' and on call team as an 'MO1' ✓ Participate in teaching and training of junior staff and nurses ✓ Maintain a good professional relationship with colleagues and nursing staff ✓ Conflict management skills
Specific material to assist reaching the objectives	
- Suggested reading / resources	1. **FCA 2 2017. S149 Anaesthetic management in paediatric burns. P N Mogane.** *Southern African Journal of Anaesthesia and Analgesia 2017; 23(2)(Supplement 1)* 2. **Paediatric burns anaesthesia: the things that make a difference Jenny M. Thomas and Kotie Bester.** *Southern African Journal of Anaesthesia and Analgesia 2014; 20(5):190-196* 3. **A practical guide to paediatric burns. Jenny Thomas and Heinz Rhode 2006.** 4. **A review of the peri-operative management of paediatric burns: Identifying adverse events. H Rode.** *S Afr Med J 2016;106(11):1114-1119* 5. **Predicting postoperative haemoglobin changes after burn surgery. P Slabber.** *S Afr Med J 2017;107(5):424-427.* 6. **Succinylcholine-induced Hyperkalemia in Acquired Pathologic States. David C. Warltier, M.D., Ph.D., Editor.** *Anesthesiology 2006; 104:158–69* 4. **Onset and effectiveness of rocuronium for rapid onset of paralysis in patients with major burns: priming or large bolus. TH Han.** *British Journal of Anaesthesia 102 (1): 55–60 (2009)* 5. **Fluid resuscitation management in patients with burns: update. P. Guilabert.** *British Journal of Anaesthesia, 117 (3): 284–96 (2016)* 6. **The Burning Truth(s). Moore R.** *S Afr Fam Pract 2014;56(2)(Suppl 1):S10-S12* 7. **Practical perioperative pain control in children and adults.** *SAJAA 2008; 14(6): 11-17*

	Other useful documents 1. Edendale power point stats presentation 2. Data cards
- Teaching/ tuts	There is always anaesthetic consultant cover allocated to the burns list. Please discuss the slate with the consultant on the pre-operative day to maximise input and troubleshooting. Registrars are given the opportunity and exposure to gain the knowledge and practical skills required to manage burns patients. Weekly rosters with OT allocations appear on the noticeboards latest on Friday the previous week. See the attached list with contact details of all members of the anaesthetic department.

- Meetings (e.g. M and M meetings) specific to the rotation	All members of the burns unit meet at 13:30 in the Burns Unit Office on the 4th floor. Peri-operative optimization and operation details for cases the following week are discussed by the multi-disciplinary team. Communication is vital to optimize the burns service.
- Consultant contact	Consultant contact will occur on each burns operating list, as well as at the burns unit meetings, and regular anaesthetic morbidity and mortality meetings. Case discussions will occur before and after each operating list.
Feedback system	
Feedback to the registrar 3. The registrar assessment (‘green’) form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities. 4. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block. **Feedback by the registrar** 4. Registrars should complete the assessment of rotation (‘pink’) form at the end of the block. 5. Feedback and suggested improvements are welcome throughout the rotation. 6. Each registrar should contribute to further development of the burns rotation, review literature and update the registrar guidelines as appropriate.	
Evidence for the registrar’s portfolio	
1. Green registrar assessment form **2. Logbook of all burns surgery cases done during the rotation** **3. Attendance of burns-related and academic meetings should be noted** **4. Presentations done**	

Obstetrics

Consultant compiler	Carel Cairns /Dave Bishop
Specific objectives	
- Clinical / Practical	▪ Acquire experience and skill in managing obstetric emergencies. i.e. ○ Preterm labour ○ Premature rupture of membranes ○ Foetal compromise i.e. abruptio placentae with a live baby ○ Antepartum / Postpartum haemorrhage ○ Pre-eclampsia / eclampsia. ○ Cord prolapse ○ Ectopic and extra uterine pregnancy ○ Coagulopathy ○ Sepsis ○ Retained placenta ○ Amniotic fluid embolus ▪ Managing co-morbid conditions and appreciate the interactive effects of pregnancy upon these. ▪ Practical skills ○ Siting of epidurals and CSE's ○ TAP blocks ○ Managing epidural analgesia. ○ Developing clinical judgement as to analgesia efficacy and options for a specific patient. ○ Caesarean section by epidural. ○ Epidural Blood patch ○ Use of the cell saver and the TEG monitor ○ Assessing and managing the undiagnosed cardiac parturient ○ Interacting with labour ward staff and patients and their families in a professional manner.
- Academic	**Academic** ▪ Thorough review of maternal and neonatal physiology. ▪ Detailed knowledge of the pharmacology related to obstetrics. ▪ Be familiar with the ethical and legal considerations around pregnancy, consent etc. ▪ Knowledge and understanding of current practice, ESMOE guidelines, starvation guidelines and when to investigate a specific patient further. ▪ Giving lectures and practical teaching to other anaesthesia providers, labour ward staff and Obstetricians, regarding all aspects of analgesia/anaesthesia for obstetrics. ▪ Development of situation specific guidelines by review of the appropriate literature. ▪ Attend Anaesthesia and Obstetric M&M meetings and academic programs. ▪ Assist in research and Mmed programs.

	▪ Gain an understanding of anaesthetic practices outside of big hospitals.
- Other	✓ **Development of leadership skills in the theatre environment** ▪ Triage, prioritizing patients ▪ Teamwork and communication between nursing staff, anaesthetic staff, surgical staff ▪ Delegation of tasks to appropriate level staff, clear instructions, closed loop communication ▪ Managing conflict between colleagues/departments and appropriate channels for complaints ✓ **Development of ability to make difficult decisions** ▪ Knowledge of risks/benefits of surgery/anaesthesia, and ability to communicate these to patients/families in a sensitive manner ▪ Weighing up risks/benefits to form a decision of when and how to proceed with high risk cases ✓ **Participation in teaching/training** ▪ Formal (structured) - through weekly tuts and academic meetings ▪ Informal teaching of nursing staff and junior anaesthetic staff in theatre
Specific material to assist reaching the objectives	
- Suggested reading / resources	1. Anaesthesia-related maternal deaths in South Africa, Rout CC, Farina Z. South Afr J Anaesth Analg 2012;18(6):279-280 2. Anaesthesia-related maternal deaths in South Africa, Chapter Seven of the 5th Saving Mothers Report 2008-2010. Rout CC, Farina Z. South Afr J Anaesth Analg 2012;18(6):281-301 3. Anaesthesia for Caesarean section: Update in anaesthesia 4. Update on general anaesthesia for caesarean section. Dyer RA South Afr J Anaesth Analg 2011;17(1):110-112 5. Pre-eclampsia, Severe Pre-eclampsia and Hemolysis, Elevated Liver Enzymes and Low Platelets Syndrome: What Is New? Etienne Ciantar; James J Walker. Posted: 09/14/2011; Women's Health. 2011;7(5):555-569. © 2011 Future Medicine Ltd 6. ESMOE guidelines 7. Regional Anesthesia Topic of the Week: Obstetric Anesthesia 22/03/2009 8. Refresher course notes.
- Teaching/ tuts	Existing departmental academic meetings: Greys and EDH 07h30 and 16h00. Structured obstetric tutorials to be developed and informal “on the job” input from consultants.
- Meetings (e.g. M and M meetings) specific to the rotation	▪ Attending all compulsory departmental meetings: We./Fr. Morning meetings, M&M activities (Mo. and/or Tu.) ▪ Obstetric department M&M’s as far as is practical. Some interdisciplinary meetings could be very valuable in fostering mutual understanding and cooperation. Weekly review of labour ward statistics

- Consultant contact	Consultant contact will occur on a daily basis in theatre and during the planning of elective and emergency cases. A formal teaching programme is being developed. Ad hoc teaching will occur on a daily basis in theatre.

Feedback system

Feedback to the registrar

5. The registrar assessment ('green') form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities.
6. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block.

Feedback by the registrar

7. Registrars should complete the assessment of rotation ('pink') form at the end of the block.
8. Feedback and suggested improvements are welcome throughout the rotation.

Evidence for the registrar's portfolio

1. Green Forms
    a. End of block assessment of registrars by consultants

2. Pink Forms
    a. End of block assessment of the block, its strengths and weaknesses, criticism.

3. Logbook of all surgical cases done during the rotation
    a. If you're not already keeping a logbook, start now! It is vital to keep a record of your cases, both for yourself and for the department to be able to see where you have experience, and where you may need to spend some more time. It is currently not a requirement to sit the FCA part II exam, however it is a requirement for your portfolio which the HOD will review before he signs the necessary documentation required for the CMSA application.
    b. The Royal College of Anaesthetists logbook can be downloaded from http://www.logbook.org.uk/index.htm

4. Attendance of academic meetings should be noted

5. Presentations done

ICU

Consultant compiler	Richard von Rahden/Rob Wise
Specific objectives (See below for full list)	
Clinical / Practical	1. To give Registrars (training specialists) the core skills and knowledge required to recognize, assess and stabilize a critically ill patient 2. To give Registrars a basic grounding in the principles of critical care 3. To fulfill the requirements for Registrars as required by their respective disciplines in the Colleges of Medicine and by the Health Professional Council of South Africa 4. To provide a clinical service for patients in the intensive care units in the Pietermaritzburg Metropolitan Complex
Academic	In their 3-month Critical Care block, Registrars will rotate for approximately 6 weeks each to the Grey's Hospital Adult Intensive Care Unit and Edendale Hospital 2R Intensive Care Unit. Registrars will be assigned to start the block at either of the two Units and will then be rotated to the other Unit for the second half of their block. The training program will be shared between the two units over the entire duration of the block. **Week One.** Formal Orientation to ICU by ICU Sister in Charge & Lead MO Induction Lecture 1: Basic ICU Supportive principles Induction Lecture 2: Basic Ventilation Induction Lecture 3: Basic Haemodynamic support **Week Six (end of first rotation)** 1. Basic Competency MCQ Test (Focus: resuscitation & stabilization) 2. Professional Attributes Assessment **Week Twelve (endof second rotation)** 1. End of Block MCQ Test 2. End of Block Assessment **To be done in either rotation:** Simulation training session (9h00-14h00) - Airway management principles **-** Principles of Resuscitation and Scenarios Clinical Assessments (graded) - Cardiac arrest resuscitation management - Basic ventilator setup - Basic critical care echocardiography - Basic procedural ultrasound

	THEORETICAL KNOWLEDGE	PRACTICAL SKILLS	NOTES
GENERAL CRITICAL CARE PRINCIPLES	Recognition, assessment and triage of the critically ill patient		
	Transport of the critically ill patient		
	End of life care in the critically ill patient		
	Ethical principles in the ICU		
AIRWAY MANAGEMENT	Assessment of airway	Use of oxygen delivery devices	
	Induction agents: Pharmacology and appropriate use	Use of bag-mask-valve ventilation	
	Muscle relaxants: Pharmacology and appropriate use	Endotracheal intubation	
	Tracheostomy: Indications and complications	Use of airway adjuncts eg LMA	
		(Insert percutaneous tracheostomy)	
RESPIRATORY SYSTEM	Basic concepts in ventilation	Start a patient on a ventilator safely	
	Pneumonia: Nosocomial, Ventilator-Associated	Use non-invasive ventilation on a patient	
	Principles of lung protective ventilation		
	Aspiration syndromes	Do pleurocentesis/ insert intercostal drain	
	ARDS	Basic CXR interpretation	
CARDIOVASCULAR	Congestive cardiac failure: Early management	Perform advanced cardiac life support	
	Management of severe rhythm disturbances	ECG interpretation: - Basic ECGs - Acute coronary syndromes - Electrolyte abnormalities - Rhythm disturbances	
	Understand the different forms of shock and how to manage them	Insertion of invasive monitoring devices and interpretation of data:	

		Central venous catheters and arterial lines	
	Vasoactive agents: Pharmacology and use: Adrenaline, Dobutamine, Phenylephrine	(Use of non-invasive haemodynamic monitors - Vigileo)	
	Haemodynamic effects of ventilation		
DELIVERY OF OXYGEN	Understand the concepts of oxygen delivery, organ perfusion and markers related to it	Interpretation of arterial/venous blood gas data	
ELECTROLYTES	Understand the implications of electrolyte abnormalities and how to correct them: Sodium, Potassium, Calcium, Phosphate and Magnesium	Interpretation of acid-base abnormalities	
FLUID	Know the different fluid therapies available and indications for use		
RENAL (GFR)	Acute Kidney Injury: Mechanisms, RIFLE Classification, Prevention, Management	Insertion of haemodialysis and peritoneal dialysis catheters	
	How to manage the oliguric patient		
	Basic principles of renal replacement therapy		
	Appropriate use of diuretics		
	Contrast-induced nephropathy		
	Rhabdomyolysis		
HAEMATO - LOGICAL	The use of blood component therapy	Interpretation of clotting profiles	
	Massive blood transfusion and complications		
	Managing the coagulopathic patient.		
INFECTIONS	Sepsis, SIRS, Multisystem Organ Failure: Pathophysiology, recognition and management	Sampling for cultures (blood and other sites)	
	Investigation of nosocomial sepsis		
	Surviving Sepsis Campaign Guidelines		
	Appropriate antimicrobial use		

	Principles of infection control		
GASTRO-INTESTINAL	Principles of nutrition		
	Implementation of enteral and total parenteral nutrition		
	Acute abdominal sepsis		
	Abdominal compartment syndrome: Pathophysiology, recognition and management		
	Pancreatitis		
	Acute gastrointestinal bleed		
	Implementation of stress ulcer prophylaxis		
ANALGESIA & SEDATION	Analgesic agents: Pharmacology and appropriate use: Paracetamol, NSAIDs, Opioids	(Epidural use: Assessment of level and adequacy)	
	Sedative agents Pharmacology and appropriate use: Benzodiazepines, neuroleptics		
	Assess level of sedation		
NEURO	Assess coma scale		
	Assess brainstem death		
	Assess spinal cord pathology/ trauma		
	Principles of neuroprotection		
	Critical illness weakness		
THROMBO PROPHYL AXIS	Venous Thromboembolic Disease: Pathophysiology, Prevention, Diagnosis, Management, Pharmacology of agents		
ENDOCRINE	Common metabolic / endocrine emergencies: Hyper/hypoglycaemia, Diabetic Ketoacidosis, Adrenal insufficiency, hyperthyroidism		
	The role of corticosteroids in the critically ill patient		
OTHER IMPORTANT CRIT CARE TOPICS	Acute neuromuscular disorders: Guillain-Barre Syndrome, myasthenia gravis		
	Status epilepticus		
	Acute coronary syndrome		
	Hypertensive emergencies		
	Severe asthma		
	HAART related complications		
	Eclampsia		

	Obstetric haemorrhage		
	Poisoning and envenomation		
	Initial management of polytrauma		
	Blunt chest trauma		
	Management of abdominal trauma		
	Head injury		
	Initial management of burns		
	Hypo- and hyperthermia		

Other	Involvement in the registrar teaching program Involvement in the intern teaching Management skills related to: - Interdepartmental communication - Personal communication - Duty rosters - Database usage / data collection - Presentation skills - Morbidity and mortality meeting preparation
Specific material to assist reaching the objectives	
Suggested reading / resources	**Booklets** **1. ICU clinical Protocols and Guidelines** General Guidelines • ICU admission criteria • Withdrawal of active life support in ICU • Miscellaneous standardised administrative practices for ICU patients • Drug Dosages and indications in critically ill patients Airway and breathing • Baseline ICU ventilator settings Circulation • Basic haemodynamic support • Initial use of inotropes and vasopressors in critically ill patients • Administration of amiodorone for inotrope induced tacharrhythmia • Management of ST elevation myocardial infarction Renal • Acute kidney injury Infections • Community acquired pneumonia • Aspects of HIV management Feeding • Enteral feeding aspiration regime • Intra-abdominal hypertension and abdominal compartment syndrome Analgesia and sedation (Neuro) • Analgesia and sedation • Neuroprotective techniques in ICU • Status epilepticus Thrombosis management

	• Thromboprophylaxis • Stress ulcer prophylaxis • Gastric stress ulcer prophylaxis Glucose management • Glucose control for critically ill patients • Diabetic ketoacidosis Steroids • Use of low-dose steroids in patients requiring inotropes 2. **Pietermaritzburg Generic Critical Care Mnemonic System** 3. **Richard's Initial Stabilization Outline** **Relevant recent critical care related studies** including • **ABC** *Awake and breathing trial* • **ACURASYS** *Cisatracurium for early ARDS* • **Annane 2002** *Hydrocortisone therapy for septic shock* • **ANZICS Dopamine** *Renally-dosing dopamine in early renal dysfunction* • **ARDSnet 2000** *Lower tidal volumes for ARDS* • **Bernard 2002** *Australian hypothermia study for out-of-hospital arrest* • **CAST** *Early aspirin use in acute ischemic stroke* • **CESAR** *Conventional vent support vs. ECMO for ARDS* • **Chastre 2003** *8 vs. 15 days of antibiotics for VAP* • **COMMIT** *Early use of metoprolol in acute MI* • **CORTICUS** *Hydrocortisone therapy for septic shock* • **CRASH 2** *Tranexamic acid in trauma patients* • **CRISTAL** *Colloids versus crystalloids for ICU hypovolemia* • **DOSE** *Furosemide bolus vs. infusion, low vs. high dose in decompensated heart failure* • **ECASS III** *Alteplase 3 to 4.5 hours after acute ischemic stroke* • **EPaNIC** *Early vs. late parenteral nutrition* • **ESCAPE** *Efficacy of PA catheters in decompensated heart failure* • **FACTT** *Conservative vs. liberal fluid management in ARDS* • **HACA** *European hypothermia study for out-of-hospital arrest* • **IABP-SHOCK II** *Intraaortic balloon support in ACS with early revascularization* • **Jones 2010** *Lactate clearance vs. ScvO2 for Early Goal-Directed Therapy* • **Kress 2000** *Daily interruption of sedative infusions* • **LaSRS** *Late rescue steroids for ARDS* • **Leuven I** *Intensive insulin therapy in the SICU* • **Leuven II** *Intensive insulin therapy in the MICU* • **Meduri 1998** *Meduri protocol for unresolving ARDS* • **Meduri 2007** *Meduri protocol for early ARDS* • **NICE-SUGAR** *Intensive insulin therapy in the MICU/SICU* • **NINDS** *Alteplase within 3 hours for acute ischemic stroke* • **PROSEVA** *Prone positioning in severe ARDS* • **PROWESS** *Xigris for severe sepsis* • **PROWESS-SHOCK** *Xigris for septic shock* • **Rivers 2001** *Early goal-directed therapy for severe sepsis and septic shock* • **SAFE** *Albumin vs. saline for fluid resuscitation* • **SHOCK** *Early revascularization versus medical stabilization in cardiogenic shock* • **SLEAP** *Light sedation with and without daily interruption* • **SOAP-II** *Dopamine vs norepinephrine for shock* • **Strøm 2010** *Sedationless mechanical ventilation* • **Temkin 1990** *Phenytoin for post-traumatic seizure prophylaxis* • **TTM** *Therapeutic hypothermia with 33°C versus 36°C*

	• **VA Status Co-Op Study** *Comparison of four treatments for status epilepticus* • **VASST** *Vasopressin vs additional norepinephrine for septic shock* • **Wunderink 2012** *Linezolid vs. vancomycin for MRSA HAP* **Reading lists** Medical Officers and Registrars starting in the ICU will be given a link to a Dropbox repository containing curated updated relevant reading. Registrars may request access to the Dropbox at any time.
Teaching/ tuts	- Will occur according to unit protocol inside each unit
Meetings (e.g. M and M meetings) specific to the rotation	Orientation - Formal orientation to ICU by ICU Sister in Charge / Lead Medical Officer (Day 1) Registrar teaching program - Unit specific programs Morbidity and mortality meeting - Unit specific M & M Anaesthetic/ ICU Departmental Academic Meeting - Friday 07h30 – 09h00
Consultant contact	Consultant contact occurs on a daily basis. Daily ward rounds each day. Regular contact with consultants occurs while performing procedures, assessing outlying patients in the wards and reviewing referrals. Consultants are also on hand to assist with/ and or teach procedures. Every referral is discussed with the consultant on duty. The consultant reviews patients admitted with the registrar.
Feedback system and evidence for the Registrar's portfolio	
- MCQ results o Feedback from MCQ tests - Feedback forms from consultants - ICU Logbook (for Registrars) - Registrar assessment forms - Rotation assessment forms - List of procedures performed	

Out-of-theatre

Consultant compiler	Chantal Rajah
Specific objectives	
- Clinical / Practical	**"Out of theatre" anaesthesia** ▪ ERCP ▪ CT Scanner ▪ MRI ▪ ECT ▪ Day case surgery **Competence at sedation at all levels** ▪ Minimal sedation/analgesia ▪ Moderate sedation/analgesia ▪ Deep sedation/analgesia ▪ General anaesthesia **The use of dissociative and non-dissociative sedation** **The use of a variety of sedation techniques** ▪ Simple ▪ Advanced **Practical experience with preparation in the following areas:** ▪ Patient Selection ▪ Consent for sedation ▪ Environmental assessment ▪ Decision making regarding essential equipment ▪ Personnel assessment ▪ Monitoring levels ▪ Appropriate documentation ▪ Discharge and Home-readiness assessments **Regional anaesthesia for ophthalmic surgery** ▪ Peribulbar blocks ▪ Subtenon Blocks ▪ Periprocedural sedation **Clinical Governance/audit** ▪ Collect theatre statistics weekly and present at M+M ▪ Analyse and assess theatre efficiency, adverse events ▪ Individual case assessment ▪ Propose improvements to existing system where appropriate

- Academic	**Knowledge base to include the following areas:** ▪ Definitions relating to sedation ▪ SASA standards of sedation for adults and paediatrics ▪ Basic Sciences relevant to area ▪ Appropriate pharmacology o Sedatives: Benzodiazepines (midazolam) vs non-benzodiazepines (clonidine, dexmedetomidine, droperidol) o Anaesthetic induction agents (propofol, ketamine, etomidate) o Analgesics (Opioids, nitrous oxide, local anaesthetics) o Novel agents (including 'ketofol', melatonin, others) **Knowledge of procedures:** ▪ ERCPs ▪ MRI ▪ CT Scans ▪ Gastroscopy/Colonoscopy ▪ Interventional ultrasound guided procedures ▪ Sedation for eye surgery under regional blocks **Recovery and Discharge Criteria**
- Other	✓ **Assist with development of the registrar program** ✓ **Foster research interests in the areas covered within the block** ✓ **Supplement suggested reading lists**
Specific material to assist reaching the objectives	
- Suggested reading / resources	**Essential/Mandatory Reading** • Guidelines for the safe use of procedural sedation and analgesia for diagnostic and therapeutic procedures in adults: 2010. S Afr J Anaesthesiol Analg 2010:16(4)(Supplement 1):S1-S24 • Guidelines for the safe use of procedural sedation and analgesia for diagnostic andtherapeutic procedures in children: 2010. S Afr J Anaesthesiol Analg 2010:16(5)(Supplement 1):S1-S37 **Highly Recommended** ▪ Anaesthetist Involvement in Gastroscopy & Colonoscopy. Dr M Gordon. 2009 Part II Refresher Course. ▪ Ocular anatomy and physiology relevant to anaesthesia. Andrew Presland and John Myatt. Anaesthesia and Intensive Care Medicine, 2010. ▪ Sedation an Anesthesia Care for Ophthalmologic Surgery during Local/Regional Anesthesia. Mary Ann Vann, Babtunde

	O. Ogunnaike, Girish P. Joshi. Anesthesiology 2007. Anesthesiology 2007; 107:502–8. (Review Article) ▪ Local anaesthesia for ocular surgery. Caroline Carr. Anaesthesia and Intensive Care Medicine, 2010. ▪ New modalities and paradigms for sedation: "new sedation agents". Michael G. Rossi, Keith A. Candiotti. Techniques in Gastrointestinal Endoscopy (2009) 11, 171-176 ▪ Anesthesia and sedation outside the operating room: how to prevent risk and maintain good quality. Claudio Melloni. Current Opinion in Anaesthesiology 2007, 20:513–519 ▪ Safety in magnetic resonance units: an update. Association of Anaesthetists of Great Britain and Ireland. Anaesthesia, 2010, 65, pages 766–770 ▪ Ventilation strategies in gastrointestinal endoscopy. Joshua H. Atkins. Techniques in Gastrointestinal Endoscopy (2009) 11, 192-196 ▪ Bispectral-Index-Guided Versus Clinically Guided Remifentanil/Propofol Analgesia/Sedation for Interventional Radiological Procedures: An Observer-Blinded Randomized Study. Dahaba AA, et al. Anesth Analg 2006;103: 378 –84.
- Teaching/ tuts	▪ Ongoing participation in PMB academic program ▪ In-theatre teaching with consultants allocated
- Meetings (e.g. M and M meetings) specific to the rotation	▪ Morbidity and Mortality Meetings (16h00 Grey's Hospital Seminar Room) ▪ Friday Morning Academic Meeting (07h30 Grey's Hospital Seminar Room)
- Consultant contact	Consultant contact will occur on all out-of-theatre lists and procedure in the form of planning and teaching. There is other consultant interaction when collecting and presenting statistics and planning elective procedures. Further consultant contact will occur at the regular departmental meetings.

Feedback system

Feedback to the registrar

1. The registrar assessment ('green') form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities.
2. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block.

Feedback by the registrar

1. Registrars should complete the assessment of rotation ('pink') form at the end of the block.
2. Feedback and suggested improvements are welcome throughout the rotation.

Beginning of block questionnaire

- Self-assessment, expectations and goals/priorities (see appendix A)

End of block questionnaire

- Self-assessment, criticism, comments (see appendix B)

Evidence for the registrar's portfolio

Green Forms

a. End of block assessment of registrars by consultants

Pink Forms

b. End of block assessment of the block, its strengths and weaknesses, criticism.

Logbook of all surgical cases done during the rotation

a. If you're not already keeping a logbook, start now! It is vital to keep a record of your cases, both for yourself and for the department to be able to see where you have experience, and where you may need to spend some more time. It is currently not a requirement to sit the FCA part II exam, however it is a requirement for your portfolio which the HOD will review before he signs the necessary documentation required for the CMSA application.
b. The Royal College of Anaesthetists logbook can be downloaded from http://www.logbook.org.uk/index.htm

Attendance of academic meetings should be noted

Presentations done

General Rotation

(TCI, Awareness monitoring, PCA/PCEA, Ultrasound etc)

Consultant compiler	Guy Henderson / Nosisi Mzoneli
Specific objectives	
- Clinical / Practical	**Skills** ✓ Set-up and administration of total intravenous anaesthesia (TIVA) and target controlled infusions (TCI) ✓ Set-up, administration, maintenance and monitoring of patient controlled analgesia infusions (intravenous (PCA) and epidural (PCEA)) ✓ Prevention and monitoring of awareness under anaesthesia ✓ Basic skills for ultrasound-guided placement of local anaesthetic blocks and intravenous catheter placement ✓ Set-up, preparation for and performance of fibre-optic bronchoscopy and intubation ✓ Preparation for and management of patients undergoing laparoscopic surgery. ✓ Anaesthesia for day case surgery ✓ Anaesthesia for the obese patient ✓ Prevention and management of post-operative nausea and vomiting (PONV) ✓ Anaesthesia for patients with auto-immune diseases ✓ Peri-operative management of patients on anticoagulant therapy ✓ Anaesthesia for the elderly patient **Cases to be seen** ✓ ENT ✓ Maxillo-facial ✓ Plastics ✓ Complicated upper GIT/ lower GIT surgery ✓ Laparoscopic surgery ✓ Orthopaedics, including spinal surgery ✓ Complicated urological procedures
- Academic	✓ **TIVA/TCI** ▪ Pharmacology • The exponential function, half lives and time constants • 3 compartment model • Context sensitive half-life • Cp, Cet • Principles of bolus/elimination/transfer and programs built into the TCI processor (Marsh, Schnider, Kataria, Minto, Gepts etc) ▪ Practical • Patient/case selection i.e. suitability for use of TIVA/TCI technique • Side effects and complications: prevention, recognition and management thereof • Appropriate monitoring

	✓ **PCA/PCEA** ▪ Physiology • Definitions: Acute and chronic pain, inflammatory/nociceptive and neuropathic pain, sensitization (peripheral/central), allodynia, hyperalgesia, phantom phenomena, pre-emptive and preventative analgesia • Pain pathways • Pain modulation: gate control theory, supraspinal mechanisms, endogenous opioids and endorphins • Physiology of receptors – central/spinal/peripheral • Advantages of patient controlled analgesia over intermittent bolus regimes ▪ Pharmacology • Mechanisms of action of drugs used for analgesia • Multi-modal analgesia and synergy between classes • Commonly used protocols for PCA/PCEA infusions ▪ Practical • Patient selection • Appropriate monitoring: haemodynamic, neurological etc • Side effects of commonly used agents: prevention and treatment • Recognition and management of local anaesthetic toxicity ✓ **Awareness** ▪ Physiology & Pharmacology • Mechanisms of action of anaesthetic agents • Sleep physiology and the EEG • Memory formation: implicit and explicit • Psychological consequences of awareness ▪ Physics • Cerebral function monitoring, specifically awareness monitoring: ○ Auditory evoked responses, BIS, Entropy, EMG, Heart rate variability ▪ Practical • Case selection for use of BIS monitoring i.e. identification of patients at risk for awareness • Prevention: mechanisms to reduce risk of awareness: pre-op, intra-op • Identification of signs that patient may be aware • What to do if awareness is suspected: intra-op, post-op. • Medico-legal implications

	✓ **Ultrasound** ▪ Physics • Basics of ultrasound ▪ Applications • Vascular access • Placement of local anaesthetic blocks ✓ **Fibre-optic bronchoscopy** ▪ Indications/Contraindications ▪ Applied anatomy • Airway anatomy: nasopharynx, oropharynx, larynx, trachea, bronchi • Nerve supply of laryngeal structures • Airway blocks: glossopharyngeal, superior laryngeal, transtracheal ▪ Practical • Patient preparation, informed consent, ability to co-operate, positioning • Preparation of airway o Vasoconstrictors o Local anaesthetics: spray/gel/swabs/gargle/nebulized o Tube preparation and lubrication • Technique for holding/handling/advancing the fibre-optic scope • Similar precautions at end of procedure • Proper cleaning and care for scope after use ✓ **Laparoscopic surgery** ▪ Advantages/disadvantages ▪ Physiological changes ▪ CVS ▪ Respiratory ▪ Renal ▪ Neurological ▪ Complications ▪ General ▪ Respiratory ▪ Cardiac ▪ PONV ▪ Anaesthesia ▪ Choice of technique and airway management ▪ Positioning ▪ Monitoring ▪ Ventilation ▪ Haemodynamics

	✓ **Day Case Surgery** ▪ Benefits/Drawbacks ▪ Patient selection & contraindications ▪ Issues ▪ Patient factors ▪ Procedure-related factors ▪ Anaesthetic factors ▪ Discharge criteria ✓ **Anaesthesia for the Obese Patient** ▪ Obesity: Definitions, distribution of body fat etc ▪ Metabolic syndrome: implications ▪ Pre-operative evaluation & planning ▪ Co-morbidities & chronic meds ▪ Resp system ▪ Airway, OSA & related issues ▪ CVS ▪ GIT ▪ Investigations ▪ Counseling re risks/possibility of awake intubation/IV access/invasive monitoring ▪ Thromboprophylaxis ▪ Intra-op Concerns ▪ Transfer/positioning ▪ Equipment/monitoring/IV access ▪ Drug choices and alteration of pharmacokinetics ▪ Airway management and ventilation ▪ Analgesia plan ▪ Post-op Concerns ▪ Level of care (ward vs. HCU vs. ICU) ▪ Thromboprophylaxis ▪ Analgesia ▪ PONV ✓ **Post-operative Nausea and Vomiting (PONV)** ▪ Gastrointestinal physiology ▪ Identification of patients at risk for PONV ▪ Pharmacology of anti-emetics ▪ Protocols for prevention of PONV ✓ **Anaesthesia for patients with Auto-Immune Diseases** ▪ Rheumatoid Arthritis, SLE, Systemic Sclerosis ▪ Definitions, epidemiology and diagnostic criteria ▪ Considerations: ▪ Articular involvement esp. airway ▪ Extra-articular manifestations • Pulmonary • CVS • Renal • Haematological • Psychological/Psychiatric • Neurological ▪ Medication

	• Treatment options: steroids/DMARDS/biological • Common complications of medication • Peri-operative steroid supplementation guidelines ✓ **Perioperative management of patients on anticoagulant therapy** ▪ Physics • Monitoring of coagulation: o Laboratory tests and applications o TEG/ROTEM analysis o Non-pharmacological thromboprophylaxis ▪ Physiology • Coagulation cascade • Platelet physiology ▪ Pharmacology • Thrombin inhibitors o Direct : Argatroban, Melagotran, Ximelagotran o Indirect: ▪ Vit K Antagonists (warfarin) ▪ ATIII activation (heparins) • Unfractionated heparin • LMW heparin (enoxaparin) ▪ Factor X inhibitors: Fondaparinux, Rivaroxaban • Antiplatelet agents o COX inhibitors: ASA, NSAIDS o Inhibitors of platelet ADP: Clopidogrel, Ticlopidine o Inhibitors of platelet glycoprotein IIb/IIIa: Abciximab, Eptifibitide, Tirofiban • Fibrinolytics o Streptokinase o Urokinase o Tissue plasminogen activator (tPA) ▪ Neuraxial anaesthesia and anticoagulation – guidelines ✓ **Anaesthesia for the elderly patient** ▪ Physiological changes occurring with ageing including altered pharmacokinetics ▪ Patient assessment and necessary investigations ▪ DVT risk assessment and thromboprophylaxis ▪ Post-operative cognitive dysfunction

- Other	✓ **Development of leadership skills in the theatre environment** ▪ Triage, prioritizing patients

	▪ Teamwork and communication between nursing staff, anaesthetic staff, surgical staff ▪ Delegation of tasks to appropriate level staff, clear instructions, closed loop communication ▪ Managing conflict between colleagues/departments and appropriate channels for complaints ✓ **Development of ability to make difficult decisions** ▪ Knowledge of risks/benefits of surgery/anaesthesia, and ability to communicate these to patients/families in a sensitive manner ▪ Weighing up risks/benefits to form a decision of when and how to proceed with high risk cases ✓ **Participation in teaching/training** ▪ Formal (structured) - through weekly tuts and academic meetings ▪ Informal teaching of nursing staff and junior anaesthetic staff in theatre
Specific material to assist reaching the objectives	
- Suggested reading / resources	**1. General** ▪ PMB Basic Anaesthesia Course Lecture Manual ▪ The PMB way ▪ PMB data card **2. TIVA/TCI** ▪ **Core knowledge** ▪ Pharmacology for Anaesthesia and Intensive Care. Peck, Hill and Williams. Section 1, page 51, chapter 6: Mathematics and Pharmacokinetics. ▪ Understanding pharmacokinetics. Dr I Joubert, 2009 Part I Refresher course. ▪ An introduction to total intravenous anaesthesia. Yuill G, Simpson M. *BJA CEPD reviews. Vol 2 No 1 2002*. ▪ Pharmacokinetic models for propofol—defining and illuminating the devil in the detail. Absalom AR, Mani V, De Smet T, Struys MMRF. BJA 103 (1): 26–37, 2009 ▪ Introduction to TIVA. Dr L Ryan (adapted from Dr J Keshav's "TCI…the bare minimum) ▪ **Extra reading** ▪ Recent advances in intravenous anaesthesia. Sneyd JR. BJA 93 (5): 725-36, 2004

3. PCA/PCEA

- **Core knowledge**
  - Acute Pain: Dr J Murphy, 2010 FCAII Refresher Course
  - Chronic pain including CRPS:
    - Dr E Frolich, 2009 and 2010 FCAII Refresher Courses
    - Dr R van Zyl, 2007 FCAII Refresher Course
    - Dr N Lowery, 2005 FCAII Refresher Course
  - PCAs: Dr L Lasersohn, 2005 FCAII Refresher Course
  - Labour analgesia: Dr K Mathie, 2009 FCAII Refresher Course
  - Local anaesthetic toxicity: Dippenaar JM. SAJAA 2007; 13(3): 23-28
  - Intralipid: FMM – K Keerath, 20 August 2010 (can be downloaded from UKZN website)

4. Awareness

- **Core knowledge**
  - Memory and drugs which affect memory. Dr J Hammerschlag, 2007 Part I Refresher Course
  - Cerebral Monitoring. Dr D van Zijl, 2005 and 2006 Part I Refresher Courses.
  - Monitoring the depth of Anaesthesia. Miller's Anaesthesia, 7th Edition, Section IV, chapter 39.
  - Awareness:
    - Physics and measurement in Anaesthesia and Intensive Care, chapter 26, Davis & Kenny.
    - Dr J Groves, Wits Part II Refresher Course

5. Ultrasound

- **Core Knowledge**
  - Principles of Ultrasound for the Anaesthesiologist. Prof A Bösenberg, 2005 Part 1 Anaesthesia Refresher course.
  - Ultrasound for central venous access. Hatfield A, Bodenham A. Continuing Education in Anaesthesia, Critical Care and Pain. Volume 5, Number 6, 2005.
  - Placement of local anaesthetic blocks
    - Local blocks: how to do them. Dr R van Zyl, 2008 Part II Refresher Course. This refresher covers the following blocks: ankle, wrist, interscalene, stellate ganglion, coeliac plexus.

- What block for what anatomical site? Dr P du Plessis, 2010 Part II Refresher Course. This refresher covers the brachial plexus anatomy well.
- Transversus abdominus plane block. FMM – L Pillay, 13 March 2009 (can be downloaded from UKZN website).

- **Useful website**: www.nysora.com This is the New York School of Regional Anaesthesia website and is very useful for tips and techniques for blocks, and also has some ultrasound anatomy.

6. Fibre-optic bronchoscopy

- **Core knowledge**
  - Airway anatomy
    - Netter's Anatomy Atlas – plates 60, 71
  - Airway blocks:
    - Regional and Topical anaesthesia for endotracheal intubation. FMM – VR Nurbadh, 12 June 2009 (can be downloaded from UKZN website)
  - Awake fibre-optic intubation – the basics. ATOTW 201, 18th October 2010

7. Laparoscopic surgery

- **Core knowledge**
  - Anaesthesia for laparoscopy: a review. Gerges FJ, Kanazi GE, Jabbour-khoury. Journal of Clinical Anaesthesia (2006) 18, 67-78.
  - Anaesthesia for laparoscopic surgery. Dr M Hart, 2011 Part 2 Refresher Course.

8. Day Case Surgery

- **Core knowledge**
  - Ambulatory (Outpatient) Anaesthesia. Miller's Anaesthesia, 7th Edition. Section V, chapter 78.
  - Anaesthesia for paediatric day-case surgery. Dr P Penfold, 2011 Part 2 Refresher Course.

9. Anaesthesia for the obese patient

- **Core knowledge**
  - Anaesthesia for the obese patient. FMM – Dr J Keshav, 2008 (can be downloaded from the UKZN website)
  - Diagnosis and Management of the Metabolic Syndrome: An American Heart Association/National Heart, Lung and Blood Institute Scientific Statement: Executive Summary. Circulation, October 2005;112:e285-e290

10. PONV

- **Core knowledge**
  - Practical gastric physiology. Jolliffe DM. Continuing Education in Anaesthesia, Critical Care and Pain. Vol 9, No. 6 2009.
  - Gastrointestinal Pharmacology. Dr D Murfin, 2007 Part 1 Refresher course.
  - Post-operative Nausea and vomiting. Miller's Anaesthesia, 7th Edition, chapter 86.

11. Auto-immune diseases

- **Core knowledge**
  - Anaesthesia for the adult patient with Rheumatoid arthritis. Fombon FN, Thompson JP. Continuing Education in Anaesthesia, Critical Care and Pain. Volume 6, number 6, 2006.
  - Stoelting's Anesthesia and Co-Existing Disease, 5th edition. Chapter 18: Skin and Musculoskeletal diseases (includes sections on RA, SLE and SS).

12. Anticoagulant therapy

- **Core knowledge**
  - Platelet antagonists. Prof James, 2007 Part 2 Refresher Course
  - Controlling the clots. Prof James, 2005 Part 2 Refresher Course
  - Monitoring of coagulation abnormalities. Prof TG Ruttman, 2005 Part 1 Refresher Course
  - Neuraxial anaesthesia and anticoagulation. Horlocker TT, Mayo clinic lecture notes.

	13. Anaesthesia for the elderly patient ▪ **Core knowledge** ▪ Ageing – definitions and concepts. Prof AC Lundgren, 2007 part 1 Refresher Course ▪ Geriatric Anaesthesia. Miller's Anaesthesia, 7th Edition. Section V, chapter 71 ▪ Stoelting's Anaesthesia and Co-Existing Disease, 5th edition. Chapter 25: Geriatric disorders. ▪ Peri-operative interventions for post-operative cognitive dysfunction: A Meta-analysis. FMM – Z Moyce, 27 July 2012. (can be downloaded from UKZN website) ▪ Postoperative cognitive dysfunction. Hanning CD. BJA 2005, 95(1): 82-87. ▪ The granny with the fractured hip. Dr R von Rahden, Part 2 Refresher Course.
- Teaching/ tuts	▪ The allocation of theatre slates will differ from week to week. Below is a summary table of the weeks' lists - look at your weekly allocations in advance and try to identify slates where you may be able to gain experience with: o TIVA/TCI and use of the BIS monitor, o Ultrasound guided nerve blocks/catheter placement o PCEA/PCEA, o Fibreoptic scope etc. ▪ Please note this is simply a guide and of course there will be overlap between some of the slates and the techniques you can use.
- Meetings (e.g. M and M meetings) specific to the rotation	▪ M&M (Tuesday 16h00) ▪ These are extremely valuable as we all learn from our mistakes. They are not intended to embarrass or intimidate anyone, but for us to discuss difficult cases, different management options, and try to prevent similar problems in the future. If you feel uncomfortable presenting a particular case – ask the senior or consultant who was with you on the slate, or on call. ▪ Academic meetings (Friday 07h30)
- Consultant contact	On some OT slates and on your calls, you may be the most senior person involved in the case. There will be times that you are required to make management or administrative decisions that will affect patients and other staff members. If you are EVER uncomfortable or unsure of what to do in a particular situation, whether it is a clinical or logistical problem – please do not hesitate to phone the consultant on call, we are here to support you and help your growth. There may not always be a consultant allocated to your daily theatre list, however the consultant on the floor is always available if there is something which you'd like to discuss or if you need an extra pair of hands while performing a procedure.

Feedback system

Feedback to the registrar

1. The registrar assessment ('green') form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities.
2. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block.

Feedback by the registrar

1. Registrars should complete the assessment of rotation ('pink') form at the end of the block.
2. Feedback and suggested improvements are welcome throughout the rotation.

Beginning of block questionnaire

- Self-assessment, expectations and goals/priorities (see appendix A)

End of block questionnaire

- Self-assessment, criticism, comments (see appendix B)

Evidence for the registrar's portfolio

1. Green Forms
    a. End of block assessment of registrars by consultants

2. Pink Forms
    a. End of block assessment of the block, its strengths and weaknesses, criticism.

3. Logbook of all surgical cases done during the rotation
    a. If you're not already keeping a logbook, start now! It is vital to keep a record of your cases, both for yourself and for the department to be able to see where you have experience, and where you may need to spend some more time. It is currently not a requirement to sit the FCA part II exam, however it is a requirement for your portfolio which the HOD will review before he signs the necessary documentation required for the CMSA application.
    b. The Royal College of Anaesthetists logbook can be downloaded from http://www.logbook.org.uk/index.htm

4. Attendance of academic meetings should be noted

5. Presentations done

Outreach

Consultant compiler	Zane Farina/David Bishop
Specific objectives	
- Clinical / Practical	**An understanding of the Public Health System in SA** ▪ Levels of Hospital care ○ District ○ Regional ○ Tertiary ○ Central ▪ Referral Patterns and drainage areas **Capacity to work within the framework of anaesthesia departments through a comprehension of their structure and their processes** **Facilities at hospitals** ▪ Patient Selection ▪ Drug formularies ▪ Appropriate equipment ▪ Appropriate disposables ▪ Supply chain management ▪ Engineering facilities ○ Oxygen ○ Water ○ Electricity **Support and training for rural medical staff** ▪ Context sensitive guidelines ▪ Inreach systems ▪ Appropriate training ○ Long Term doctors ○ Foreign doctors ○ CSOs ○ Rural Nurses **Clinical Governance/audit** ▪ Basic statistics and audit of peripheral facilities ▪ COHSASA guidelines **Leadership** ▪ Take charge of one district hospital in PMB drainage area ▪ Coordinate outreach visits and activities with department and junior MO's **Report writing and analysis** ▪ Basic statistics and audit of peripheral facilities ▪ COHSASA guidelines ▪ Write and interpret meaningful reports to effect positive change at the district hospital

- Academic	**Knowledge base to include the following areas:** ▪ SASA minimum standard for anaesthetic care **Knowledge of procedures:**
- Other	✓ **Assist with development of the registrar program** ✓ **Foster research interests in the areas covered within the block** ✓ **Supplement suggested reading lists**
Specific material to assist reaching the objectives	
- Suggested reading / resources	**Essential/Mandatory Reading** • Perioperative patient outcomes in the African Surgical Outcomes Study: a 7-day prospective observational cohort study Biccard, Bruce M; Abadagan, Hippolyte et al.The Lancet , Volume 391 , Issue 10130 , 1589 – 1598 • Context is king–obstetric anaesthesia management strategies in limited resource settings. DG Bishop, RN Rodseth, RA Dyer. 2017. International journal of obstetric anesthesia. • Recipes for obstetric spinal hypotension: the clinical context counts. Bishop DG, Rodseth RN, Dyer RA. SAMJ. 2016; 106(9):861-864. • Oxytocin – ensuring appropriate use and balancing efficacy with safety. Farina Z, Fawcus S. SAMJ 2015; 10(4)271-274. • 'But it's just a spinal': Combating increasing rates of maternal death related to spinal anaesthesia Z Farina, C Rout S Afr Med J 2013;103(2):81-82. DOI:10.7196/SAMJ.6308 **Highly Recommended** ▪ The development of a scoring tool for the measurement of intern doctor performance in managing hypotension and intra-operative collapse during spinal anaesthesia for caesarean section on a patient simulator. Horsten G, Rodseth RN, Ramroop S, Wise R. South Afr J Anaesth Analg. 2015; 1(1):1-7.
- Teaching/ tuts	▪ Ongoing participation in PMB academic program ▪ In-theatre teaching with consultants allocated ▪ Feedback from MOs at District hospitals on efficacy of teaching
- Meetings (e.g. M and M meetings) specific to the rotation	▪ Morbidity and Mortality Meetings (16h00 Grey's Hospital Seminar Room) ▪ Friday Morning Academic Meeting (07h30 Grey's Hospital Seminar Room)

- Consultant contact	Consultant contact will be by reports read by Dr Farina and Dr Bishop. Telephonic advice on remote situation from consultant on the floor. Scheduled meetings with Dr Farina and Dr Bishop on developmental plans for drainage hospitals

Feedback system

Feedback to the registrar

3. The registrar assessment ('green') form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities.
4. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block.

Feedback by the registrar

3. Registrars should complete the assessment of rotation ('pink') form at the end of the block.
4. Feedback and suggested improvements are welcome throughout the rotation.

Beginning of block questionnaire

- Self-assessment, expectations and goals/priorities (see appendix A)

End of block questionnaire

- Self-assessment, criticism, comments (see appendix B)

Evidence for the registrar's portfolio

Green Forms

c. End of block assessment of registrars by consultants

Pink Forms

d. End of block assessment of the block, its strengths and weaknesses, criticism.

Reports and records of all district hospital visits

c. Incorporate in relevant sections of your registrar portfolio
d. Include details of teaching that you have given, reflect on the quality of facilities that you see and standard of care delivered.

Attendance of academic meetings should be noted

Teaching provided

Emergency Medicine and Family Medicine Registrar Rotation

Consultant compiler	Gill Reay
Specific objectives	
- Clinical / Practical	<u>After 2 weeks in Anaesthesia you should have learnt:</u> 1. The Anesthetic Machine • Understand the Anesthetic Machine, including the supply of Medical Gasses • Check the Anesthetic Machine and Airway Trolley. Theatre set up 2. A basic understanding of Spinal Anesthesia with a special emphasis on Obstetrics • Anatomy and Physiology of the spinal block • Advantages and Contra indications • Complications and management of these complications 3. Understand the principles of a RSI, including the indications for and execution of a RSI 4. The dosage, basic pharmacodynamics and kinetics, as well as indications and contraindications of the following drugs • Suxamethonium • Atropine • Phenylephrine • Ephedrine <u>After 4 weeks in Anaesthesia you should have learnt:</u> 1. Obstetric Anaesthesia • Understand the physiology of pregnancy related to anaesthesia • Complications of pregnancy and the anaesthetic management thereof ○ PIH ○ APH including Placenta Praeiva amd Abruptio ○ Cord Prolapse, IUD ○ PPH ○ Abortions, Extra-uterine pregnancies and Hydatidiform mole 2. Drug Knowledge- an understanding of • Inductions agents • Muscle relaxants and Reversal agents 3. Monitoring, incl the Nerve Stimulator <u>After 6 weeks in Anaesthesia you should have learnt:</u> 1. The principles of the Anaesthetic Premed visit including

	• Airway assessment incl the Mallampati Assesment ; The ASA classification • Pre- operative assessment of patients with common co- morbidities eg Hypertension, Diabetes Mellitus, Thyroid disease, Respiratory disorders and Cardiac Disease • Fasting Guidelines 2. Commonly used drugs in premedication 3. To plan an appropriate anesthetic for each patient 4. Recovery Room management and discharge criteria <u>After 2 months in Anaesthesia you should have learnt:</u> 1. The principles of utilizing Face masks, LMAs and ETT 2. A basic approach to a difficult airway, incl The Difficult Airway Algorythm 3. To anaesthetise ASA 1 and 2 patients on your own, having discussed your plan with a senior 4. Local Anaesthetic drug indications and dosages, prevention and treatment of LA toxicity 5. Basic principles of Ventilation <u>After 3 months in Anaesthesia you should have learnt:</u> 1. The principles of peri- operative management of the Trauma patient including • Assesment of shock, Interpretation of FBC, ABG, u and e, Coag Profile • Management of Fluids and Blood Products • Insertion and interpretation of CVPs and A-lines • Temperature control • Indications for post- operative ventilation and the initial management of the patient whilst awaiting an ICU bed 2. Basic principles of Orthopaedic anesthesia, including • An approach to commonly used regional anaesthetic techniques • An understanding of peri- operative DVT prevention techniques • An understanding of the Arterial tourniquet, positioning in Orthopaedic Surgery and the complications of Fat Embolism Syndrome 3. To recognize and manage both common and uncommon Peri- operative Emergencies including • HyperCarbia and Rising Airway Pressures • Malignant Hyperthermia, Thyrotoxic crisis, DKA, Asthma and Anaphylaxis • Electrolyte imbalances • Intra-operative Arrythmias, including Tachycardias and Bradycardias • Advanced CPR including drug therapy

- Academic	**1. Human Anatomy and Physiology** 1.1. Human anatomy considered in relation to anaesthetics with special reference to airway management, insertion of invasive lines, regional anaesthesia and pain management. 1.2. Human physiology considered in relation to anaesthesia including cardiovascular, respiratory, neuro, renal, hepatic, endocrine, paediatric, maternal and foetal physiology. **2. Clinical Pharmacology** 2.1. Pharmacology of drugs for anaesthesia including inhalational agents, nonvolatile anaesthetic agents including opioids and other analgesics, muscle relaxants, cholinesterase inhibitors, anticholinergic drugs, and local anaesthetics and their interactions with commonly prescribed drugs. 2.2. Pharmacology of drugs used in association with anaesthesia including adrenergic agonists and antagonists, hypotensive agents, cardiac and anti-hypertensive agents and other adjuncts to anaesthesia including premedicants. 2.3. Pharmacology related to interactions between anaesthesia drugs and drugs used in the treatment of disease. **3. Elementary Physics** 3.1. Application to anaesthetic practice. **4. Anaesthetic Equipment and Monitors** 4.1. Understanding of the design and function of the anaesthetic machine, breathing systems, medical gas systems, and safety in the operating room. 4.2. The indications, contraindications, techniques and complications, and clinical considerations relevant to the most widely used anaesthetic monitors. **5. Practise of Anaesthesia** 5.1. Preoperative evaluation, resuscitation, interpretation of investigations and premedication in preparation for anaesthesia. 5.2 The application of both general and regional anaesthesia to surgical procedures including obstetrics, trauma, orthopaedics, paediatrics, ophthalmology, otorhinolaryngologic, genitourinary, dental and outpatient anaesthesia. 5.2. Anaesthesia in its relationship to disease including cardiovascular, respiratory, renal, endocrine, and liver disease. Management of patients with fluid and electrolyte disturbances, acid-base disturbance, and immune compromise. 5.3. Complications of anaesthesia both intra and postoperative. Management of critically ill patients postoperatively with cardiovascular, respiratory and renal compromise. **6. Cardiopulmonary resuscitation according to the Resuscitation Council of South Africa guidelines** 6.1. Basic cardiopulmonary resuscitation.

<table>
<tr><td></td><td>6.2. Differences in basic cardiopulmonary resuscitation for children and adults
6.3. Obstructed airway in adults, children and infants.
6.4. The universal Advanced Life Support algorithm.</td></tr>
<tr><td colspan="2">Specific material to assist reaching the objectives</td></tr>
<tr><td>- Suggested reading / resources</td><td><u>Essential Reading</u>

1. PMB Basic Anaesthetic Course Lecture Manual
2. The PMB Way – Basic Practice Guidelines
3. Pocket Guides
Anaesthesia Data Card
Pain Protocol Card

<u>Suggested Other References</u>

4. Clinical Anaesthesia Morgan and Mikhail
5. Oxford Handbook of Anaesthesia</td></tr>
<tr><td>- Teaching/ tuts</td><td>Teaching will happen:
▪ In theatre on a daily basis
▪ On call with anaesthetic registrars
▪ DA tutorials
▪ Intern tutorials
▪ Departmental academic meetings</td></tr>
<tr><td>- Meetings (e.g. M and M meetings) specific to the rotation</td><td>You will be expected to attend the following Departmental Meetings:

<table><tr><td>Monday 15h30</td><td>Morbidity and Mortality Meeting</td><td>2nd Floor Seminar Room</td></tr><tr><td>Wednesday 07h30</td><td>Departmental Academic Meeting</td><td>2nd Floor Seminar Room</td></tr></table>
The following Tutorials are optional. Weigh up the subject being discussed and the clinical learning opportunities in OT which you might miss by attending the tutorial

<table><tr><td>Tuesday 14h30</td><td>Intern Tutorial</td><td>2nd Floor Seminar Room</td></tr><tr><td>Wednesday 14h15</td><td>DA Tutorial</td><td>2nd Floor Seminar Room</td></tr></table></td></tr>
<tr><td>- Consultant contact</td><td>You will have senior contact on a daily basis in theatre and at all your tutorials and departmental meetings.</td></tr>
</table>

Feedback system
Feedback to the registrar 3. The registrar assessment ('green') form serves as the formal feedback to the registrar at the end of the block. Registrars are evaluated on academic knowledge, patient care and personal qualities. 4. Informal feedback should be provided during the rotation and problem areas addressed before the end of the block. **Feedback by the registrar** 3. Registrars should complete the assessment of rotation ('pink') form at the end of the block. 4. Feedback and suggested improvements are welcome throughout the rotation.
Evidence for the registrar's portfolio
1. Green Forms a. End of block assessment of registrars by consultants 2. Pink Forms a. End of block assessment of the block, its strengths and weaknesses, criticism. 3. Logbook of all surgical cases done during the rotation c. If you're not already keeping a logbook, start now! It is vital to keep a record of your cases, both for yourself and for the department to be able to see where you have experience, and where you may need to spend some more time. It is currently not a requirement to sit the FCA part II exam, however it is a requirement for your portfolio which the HOD will review before he signs the necessary documentation required for the CMSA application. d. The Royal College of Anaesthetists logbook can be downloaded from http://www.logbook.org.uk/index.htm 4. Attendance of academic meetings should be noted 5. Presentations done