

Masters of Medicine (Rural Health)

*University of Papua New Guinea.
School of Medicine and Health Sciences.*



Training Manual

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School of Medicine and Health Sciences UPNG.



MMED (Rural Health)

Training Manual - Part 1. Overview

Page

- 5. Introduction**
- 6. M.Med. (Rural Health) Regulations**
- 13. Essential general competencies of specialist Rural Health Practitioners**
- 15. Specific Core Competencies :**
 - General**
 - Generic**
 - Anaesthesiology**
 - Child Health**
 - Health Administration/Management**
 - Internal Medicine**
 - Laboratory Medicine**
 - Obstetrics and Gynaecology**
 - Ophthalmology**
 - Otorhinolaryngology**
 - Psychiatry**
 - Public Health**
 - Surgery**
- 20. Other Competencies**
- 21. The Research Project**
- 23. Examinations**
- 26. Recommended Texts**

Training Manual – Part 2. Training Modules

Page

28.	<u>Training Modules</u>
	Expectations and Requirements
29.	Module 1 – Surgery
69.	Module 2 – Anaesthesia
86.	Module 3 – Child Health
103.	Module 4 – Obstetrics and Gynaecology
137.	Module 5 – Internal Medicine
153.	Module 6 – Psychiatry
156.	Module 7 – Public Health
158.	Module 8 – Ophthalmology and Otolaryngology
161.	Module 9 – Laboratory medicine
163.	Module 10 – Management and Leadership
166.	<u>Log Books – Procedures and case reports.</u>
166.	Generic procedures
166.	Surgery
171.	Anaesthesia
174.	Child Health
176.	Obstetrics and Gynaecology
178.	Internal Medicine

Page

- 180. Psychiatry**
- 181. Public Health**
- 181. Ophthalmology and Otorhinolaryngology**
- 182. Laboratory procedures**

- 183. Acknowledgments**



Introduction

Rural Generalist Medicine

Generalist Medicine is “an academic and clinical discipline, focused on the provision of ***continuous, comprehensive, coordinated and contextualized*** primary health care for individuals, families and communities.” 1.

Rural Generalist Medicine in Papua New Guinea extends this idea. It *is* concerned with the provision of high levels of curative and preventative health care services at the district hospital, health centre, aid post and community levels in rural areas; however it *also* entails a level of management and leadership of the district health services less common in other countries. PNG’s rural doctors often are responsible for huge district populations, sometimes as lone medical practitioners.

In Papua New Guinea the rural generalist postgraduate training program is the Master of Medicine, Rural Health (MMed (Rural Health)). The awarding of this degree follows supervised experience and demonstration of general and specific competencies in the clinical disciplines, supervised postgraduate training in a district hospital setting and postgraduate training in aspects of public health and health administration.

The graduate of the MMed (Rural Health) will be a vocationally trained rural generalist with the experience and skills in all aspects of health care provision and preventative medicine necessary to be an effective leader with the final responsibility for the challenges presented to him or her at the District Hospital level.

Regulations

Preamble

The Masters of Medicine (Rural Health) program is designed for Papua New Guinea. Its purposes are:

- To provide a high level of curative and preventative health services for the majority of the PNG population who continue to live in the rural and remote areas of the country.
- To provide a recognized career structure and professional status for medical officers wishing to serve in rural communities.

Responsibility for the running and co-ordination of the MMed (Rural Health) course lies with the Postgraduate Committee of the School of Medicine and Health Sciences. The development of the program shall be included as a responsibility of the Discipline of Rural and Generalist Medicine which falls under the Division of Clinical Sciences.

Recognition of Training

The Degree of MMed (Rural Health) is recognized by the National Department of Health and the Medical Board of Papua New Guinea as a specialist qualification equivalent to the MMed in any other discipline.

Core Structure of the Training Program.

1. The program can be entered in the third year post graduation from medical school. The entry requirement is two years of pre-registration training and full registration with the Medical Board of Papua New Guinea. The required training time is a minimum of 6 years unless status for prior learning is granted by the Post Graduate Committee. The program must be completed within 8 years from initial enrolment unless special exemption is given by the Post Graduate Committee.

2. The candidate must have secured employment by and “sponsorship” from the administrators of a district hospital, and this hospital will be the base for the majority of the training period. The MMED (Rural Health) Application Form must be signed by three parties before any candidate can begin training. The three parties are –
 - a. The employer
 - b. The training candidate
 - c. Training co-ordinator MMED (Rural Health) on behalf of SMHS.

The Sponsorship and Training agreement outlines the roles and responsibilities of all parties for the duration of the training time.

3. The curriculum is designed to:
 - allow a high degree of flexibility
 - enable a major part of the training to be undertaken at district hospital level
 - ensure that essential competencies are acquired during training.
4. There is to be a Part 1 examination and a Part 2 examination.
 - The Part 1 shall be the Common Core Curriculum examination and either the Surgical Part 1 **or** the Obstetrics and Gynaecology Part 1 specialty core examination in conjunction with a satisfactory clinical performance appraisal
 - The Part 2 examination shall be an exit examination and shall consist of written and clinical examinations. There shall be at least one external examiner.
5. Since it is usual that the part 1 training will be undertaken in blocks rather than as a continuous program, the Part 1 examination shall normally be taken by the end of the third year of enrolment.

6. Candidates are afforded two attempts to successfully complete the Part 1 exam. A third and final chance can only be granted upon the direct request of the training supervisors and co-ordinator.
7. Candidates must demonstrate that they have achieved the core competencies in the various disciplines as indicated below. Assessment of these competencies will be by a variety of means including written assignments, case reports, and supervised procedures recorded in a training log book.
8. Training in the clinical areas may be carried out in District hospitals providing that the candidate is supervised by suitably qualified persons. Qualifications required for supervision in each discipline are determined by the SMHS Postgraduate Committee with the guidance of Heads of respective disciplines. Where such supervision is not available at a district hospital, candidates will be required to spend time in centres where such supervision exists.

The following are the minimum requirements for directly supervised training in the **clinical** disciplines. The accreditation of clinical supervisors shall be at the discretion of the Postgraduate committee acting on the advice of Academic Discipline Heads

- Surgery. A minimum of 3 months supervised by an accredited surgeon
- Obstetrics and Gynaecology. A minimum of 3 months supervised by an accredited obstetrician
- Anaesthesiology. A minimum of 4 months. These must be supervised by an accredited doctor with anaesthetic training
- Paediatrics. A minimum of one month supervised by a specialist paediatrician or another doctor with a high degree of experience in the field as recognized by Academic heads of the discipline.

- Internal Medicine. A minimum of two months supervised by an accredited doctor.

Training in the areas of Public Health will be largely undertaken through the completion of requisite written assignments similar to those required for the MPH (UPNG).

Teaching in Management and Leadership will be conducted by means of an intensive 4 week program (usually in the second half of the training) accompanied by requisite assignments.

The execution and presentation of a research project is a requirement of the program. The research must be assessed by external examiners and accepted by the Postgraduate Committee. Presentation of a research project is a requirement for eligibility for the Part 2 examination; it must be presented **before** the Part 2 examination can be undertaken.

Completion of at least one recognised practical skills training course is desirable but not mandatory. These courses include EMST, APLS, ELS, PTC, PHTLS, EMSB and CCRISP courses. (Emergency Management of Severe Trauma, Advanced Paediatric Life Support, Emergency Life Support, Primary Trauma Care, Pre Hospital Trauma Life Support, Emergency Management of Severe Burns, and Care of the Critically Injured Surgical Patient)

Courses in other skill areas such as Radiography, Ultrasonography, Solar and Radio installation and Maintenance, and basic general maintenance will also be offered throughout the course of the training.

Notes on the Core Structure

1. Trainees are deemed to have joined the training program when they enrol for the course with the UPNG, having secured a position with and sponsorship by a District Hospital or other recognized facility. Health facilities of Levels 5-7 will NOT usually be accepted as qualifying as a

suitable base for employment and service of a trainee in the MMED (Rural) program.

2. Trainees will remain in the employ of their sponsoring district hospital FOR THE DURATION of the entire training period (being periodically released on **full** salary for the purposes of training rotations). It is ESSENTIAL that the student recognizes the authority and oversight of the employer in this process prior to agreeing to join the program. In the event of failure of the trainee to attend to agreed obligations of work at the district hospital, the hospital retains the right to advise the Post Graduate Committee to withdraw the candidate from training and in most cases it is likely that the PGC will accede (agree) to this request.
3. In special circumstances, prospective trainees can apply to the MMED (Rural Health) Training Co-ordinator to seek recognition of suitable training undertaken prior to enrolment.
4. Trainees will keep a logbook of experience for each discipline. Trainee registrar assessment forms will be completed and forwarded to the MMED (Rural Health) Training Co-ordinator as soon as each training rotation is finished.
5. Trainees wishing to undertake experience beyond these guidelines must have prospective approval (ie. in advance) from the Postgraduate Committee *and* the employer in order to remain on the MMED (Rural Health) program.

Training exemptions

Trainees holding any of the following Diplomas:

Child Health (DCH)
 Gynaecology and Obstetrics (DGO)
 Anaesthesia (DA)

may be given exemption in that field during training for the MMED (Rural Health).

Additional qualifications

Trainees have the option of obtaining any one of DCH, DGO, DA, DO, DLO during their training. An intention to do so must be made known to the Postgraduate Committee. These diplomas require a minimum of 9 months in the discipline under the supervision of a Specialist in that Discipline. The nine months need not necessarily be completed in a single rotation. Consent of the sponsoring district hospital will be required before undertaking any such extra training.

Postgraduate Committee control

The MMED (Rural) program is under the control of the Postgraduate Committee. Trainees wishing to seek experience beyond the program, take leave from the program or in any way depart from these Regulations, must seek approval from the Postgraduate Committee to stay on the program.

Responsibility of trainees

It is the trainee's personal responsibility;

1. to be fully informed and aware of all requirements of the MMED (Rural) training program;
2. to make all applications and to provide all information required by the Postgraduate Committee;
3. to ensure that Registrar Training Assessment forms are properly completed and are submitted to the Training Co-ordinator and Postgraduate Committee in a timely manner;
4. to provide the Training Co-ordinator and Postgraduate Committee with contemporary advice on rotations being undertaken and of contact details;
5. to consult with the Chair of the Postgraduate Committee or Training Co-ordinator on all aspects of training.

Application for training

Application is made to the Chair of the Postgraduate Committee, School of Medicine and Health Sciences, Taurama Campus, University of Papua New Guinea.

In addition, candidates are advised to send an application to the Associate Dean of Postgraduate Affairs before the end of June in the year prior to that in which they wish to commence.



Bibliography.

1. Cairns Consensus Statement

Essential General Competencies of a Specialist in Rural Health

There are seven main roles, each with their own key competencies:

Professional

- Deliver highest quality care with integrity, honesty and compassion
- Exhibit appropriate personal and interpersonal professional behaviour
- Practice medicine ethically consistent with the obligations of a physician

Communicator

- Establish therapeutic relationships with patients/families
- Obtain and synthesize relevant history from patients/families/communities
- Listen effectively
- Discuss appropriate information with patients/families.
- Discuss important and relevant issues with members of the health care team
- Communicate effectively with the community in which he/she works

Collaborator

- Consult effectively with other members of the health care team
- Contribute effectively to other interdisciplinary team activities

Medical Expert

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care
- Access and apply relevant information to clinical practice

Manager

- Utilize resources effectively to balance patient care, learning needs, and outside activities
- Allocate finite health care resources wisely
- Work effectively and efficiently as a leader in a healthcare organization
- Utilize information technology to optimize patient care, life-long learning and other activities

Health Advocate

- Identify the important determinants of health affecting individual patients and communities.
- Contribute effectively to improved health of patients, the community, the province and the nation
- Recognize and respond to those issues where advocacy is appropriate

Scholar

- Develop, implement and monitor a personal continuing education strategy
- Critically appraise sources of medical information
- Facilitate learning of patients, hospital staff, students and other health professionals
- Contribute to the development of new knowledge through research



Specific Core Competencies for a Specialist in Rural Health

General

Candidates must have a detailed knowledge of the contents of the Standard Treatment Manuals for Internal Medicine, Paediatrics and Obstetrics and Gynaecology, and of the rationale for the recommended treatments. They must be fully competent in carrying out these treatments.

Generic

There are a number of clinical competencies which cross discipline boundaries (eg inserting a chest drain, managing a patient with shock). These competencies are listed in a separate section of the candidates Log Book. They must be done whilst under supervision, but supervision is not confined to a specific discipline.

Anaesthesiology

All candidates must have a log book which demonstrates supervised experience and competence in:

- Cardiopulmonary resuscitation
- Establishment, maintenance and protection of the airway
- Local and regional anaesthetic techniques
- Ketamine anaesthesia
- Neuroleptic Anaesthesia
- Management of shock.
- Anaesthetic management of obstetric emergencies

Child Health

All candidates must have a log book which demonstrates supervised experience and competence in:

Neonatal resuscitation
Care of Low Birth Weight babies
Management of children with:
Severe Pneumonia
Asthma
Meningitis
Severe Malaria
Severe diarrhoea
Septicaemic shock
Malnutrition
Tuberculosis
HIV/AIDS

In addition candidates should, if at all possible, have completed the Integrated Management of Childhood Illness (IMCI) training course or Hospital Care for Children course.

Health Administration

All candidates must have completed a 4 week Management and Leadership Training Intensive in the second half of the training. A 7500 word assignment on Administration must also be completed prior to the Part 2 exam.

Internal Medicine

All candidates must have a Log Book which demonstrates supervised experience and competence in the management of patients with:

Diabetes mellitus
Acute respiratory infection
Chronic Lung disease
Asthma
Severe malaria
Meningitis

Dehydrating diarrhoea
Septicaemic Shock
HIV/AIDS
Tuberculosis
Snake Bite
Drug overdose

Laboratory Medicine

All candidates must have a Log Book which demonstrates supervised experience and competence in the laboratory examination of:

Blood typing and Crossmatch.
Cerebrospinal Fluid (Cell count, Gram stain preparation)
Urine (microscopy)
Stool (microscopy for blood, ova, cysts and parasites)
Staining and examination of blood smears for malaria parasites
Staining and examination of sputums for Acid fast Bacilli
Measurement of Haemoglobin and white cell count
Use of rapid testing equipment for HIV, Syphilis, Malaria and pregnancy testing.

Obstetrics and Gynaecology

All candidates, whether they take Part 1 in Obstetrics and Gynaecology or acquire their training outside the framework of the Part 1 Obstetrics and Gynaecology course, must have a Log Book that demonstrates supervised experience and competence in at least the following areas of clinical management:

Antepartum haemorrhage and Placenta praevia
Ectopic pregnancy
Post-partum haemorrhage

- Retained Placenta
- Obstructed Labour
- Breech delivery
- Vacuum extraction and assisted delivery
- Caesarian section
- Toxaemia of pregnancy
- Tubal Ligation
- Dilatation and Curettage
- Family planning

In addition candidates are expected to have completed a basic course in obstetric ultrasonography.

Ophthalmology

All candidates must have a Log Book which demonstrates supervised experience and competence in the management of patients with

- Perforating eye injury
- Acute Red Eye
- Removal of foreign body

Otorhinolaryngology

All candidates must have a Log Book which demonstrates supervised experience and competence in the management of patients with:

- Chronic Suppurative Otitis Media
- Removal of foreign body in ear
- Removal of foreign Body in Nose
- Epistaxis

Psychiatry

All candidates must have a Log Book which demonstrates supervised experience and competence in the management of patients with:

Acute psychosis

Public Health

All candidates must have satisfactorily completed the assignments relating to various areas of public health which are outlined in the Module for Public Health in the second half of this Training Manual.

Surgery

All candidates, whether they take Part 1 in Surgery, or acquire their surgical training outside the framework of the Part 1 Surgery course must have a Log Book that demonstrates supervised experience and competence in at least the following areas of surgical management

Burns

Gunshot and arrow wounds

Head injuries

Common Fractures

Acute Abdominal emergencies

Intestinal obstruction

Perforated bowel or abdominal viscera

Penetrating wounds of the chest

Pneumothorax

Empyema

Traumatic amputations

Other Competencies

Candidates should be encouraged to develop other competencies, such as in basic equipment maintenance, solar installation and radio maintenance during the course of their training.

The two week Solar and Radio Maintenance Course offered by MAF Technologies in Goroka will usually be taken by trainees during the first three years of the training program.



The Research Project

It is a requirement that trainees submit a Research Project to the Postgraduate Committee to be eligible to sit the Part 2 Examinations.

Learning Objectives

To develop some understanding of:

1) the main principles of research:

- hypothesis design
- methodology
- objective outcomes and implementation
- participation in research

2) the concepts of critical literature appraisal and evidence-based medicine

3) appropriate statistical concepts

The project should relate to the practice of Rural Health in Papua New Guinea and should be presented in the standard format of ;

Abstract

Aims/Objectives

Introduction

Methods

Results

Discussion

Conclusions

An Abstract is a structured summary, and includes aims/objectives, methods, results and conclusions.

The Introduction includes a focused review of relevant literature.

The Discussion includes a consideration of the place of the project in the medical context and in the context of the literature on the subject.

The project should be guided by a supervisor but should be the candidates own work

The presentation of research projects at the Annual Symposium of the Medical Society of Papua New Guinea is desirable. Publication in a refereed journal is encouraged.



M.Med (Rural Health) Examinations

Exams are conducted in the two weeks at the end of October/beginning of November each year.

Part 1 Examinations

Written examinations are undertaken in both the Common Core and the Specialty Core of the Part 1 program of choice (ie. This will be Surgery if Surgery is chosen as a Part 1 field of study, and Obstetrics/Gynaecology if this is chosen.)

Of equal importance is the appraisal of clinical competence and professionalism throughout the training period.

Part 1 examinations are usually undertaken after the successful completion of all components of the first three years of training.

SMHS often conducts courses to assist students to prepare for the Part 1 Common Core exam each year. The Department of Rural and Generalist Medicine will assist MMED (Rural Health) students to attend these courses when they are run. In addition DRGM will run a further training session for MMED (Rural Health) students particularly directed at the Surgery or O&G Part 1 exams. The program may also support students to attend this training and it is strongly encouraged that all MMED (Rural Health) students attend.

Part 2 Examinations

Eligibility to sit the part 2 examinations is dependent on:

Submission of the research project,

Completion of log books, case records and assignments.

Certification by Heads of Disciplines, and Rural Hospital supervisors that all requirements have been met.

The Part 2 examinations consist of written, practical, clinical and viva voce components.

Part 2 Written component

There will be:

A Clinical Discipline written exam consisting of multiple short answer questions
- duration 3 hours

A further written exam utilizing Visual Aid Questions - duration 3 hours

A Public Health/Hospital management paper consisting of Short answer/essay questions - duration 3 hours

Practical stations exam – duration 4 hours

Part 2 Clinical exam component

These will be conducted in each of the five major disciplines, Surgery, Medicine, Paediatrics, O&G and Anaesthesia. Short cases will each be of 10-15 minutes duration. (10 mins with patients and 5 with examiners) Long cases will be 30 minutes with a patient, 20 minutes with examiners.

Surgery: 2 short cases, 30 minutes

Medicine: 1 short case, 15 minutes
1 long case, 30 minutes

Paediatrics: 2 short cases, 30 minutes

O&G: 2 short case, 30 minutes

Anaesthesia: Viva voce exam (see below)

Viva voce exams

There will be an oral discussion of 30 minutes at the end of each of the clinical exams in the above disciplines.

In addition there will be a 45 - 60 minute viva in Anaesthetics covering clinical scenarios and basic knowledge in the field.

Part 2 Examiners

Examiners for the Part 2 clinical and viva voce exams will comprise at least:

- One PNG specialist in the relevant specialist field
- One PNG rural generalist
- One overseas examiner from the Royal Australian College of General Practitioners or Australian College of Rural and Remote Medicine

The external examiner will review all research projects and give feedback on exam results to the Post Graduate committee.



Textbooks, CD and Web sites

Books

Anaesthesia

- Primary Anaesthesia (HBI)
- Clinical Anaesthesiology – Morgan and Mikhail
- Oxford Handbook of Anaesthesiology (HBI)
- Anaesthesia Video Library (HBI)
- Essentials of Anaesthetic Equipment (Churchill Livingstone)
- Short Textbook of Anaesthesia (Ajay Yadav)

Surgery

- Surgical Exposures in Orthopaedics – Hoppenfeld
- Primary Surgery Vols 1 and 2. (HBI)
- Practical Fracture Management (McRae)
- A Short Practice of Surgery (Bailey and Love)
- Caesarean Section (de Kosta) – ebook available.

Internal Medicine

- Oxford Handbook of Clinical Medicine

Basic Sciences

- Clinically Oriented Anatomy – Moore
- Clinical Anatomy – Harold Ellis

Laboratory

- Laboratory Practice in Developing Countries (HBI)
- Manual of Basic Techniques for a Health laboratory (WHO)

Other

- Paediatrics for doctors in Papua New Guinea
- Clinical Tuberculosis (Crofton, Horne and Miller) TALC
- Primary Mother Care and Population (Mola and King)
- Eye care in Developing Nations (HBI)
- Diseases of the ear, nose and throat – lecture notes (Ray Clarke)
- Otolaryngology (Stephanie Madison Ed)
- Accident and Emergency Radiology - A Survival Guide
- British national formulary (TALC) or Australian Medicines Handbook
- General Practice (Murtagh)
- Examination Medicine (Talley and O'Connor)

World Health Organization books

- Hospital Care for Children
- Surgery at the District Hospital

The Clinical Use of Blood
WHO Manual of diagnostic imaging
Pregnancy, Childbirth, Postpartum and Newborn Care
Management of Severe Malaria
TB/HIV clinical manual
Anaesthesia at the District Hospital.
Basic Epidemiology

CDs and DVDs

Safe Anaesthesia CD (HBI)
Anaesthesia Resource Vol 2 and 3) CD (HBI)
Ophthalmology (DVD)

Web sites

www.healthbooksinternational.org
www.booktopia.com.au

Other emails – bookorders@who.int

E-book or pdf. resources

Paediatrics in PNG (pdf)
Hospital Care for Children (pdf)
Management of the Child with Severe Malnutrition (WHO – pdf)
Caesarean Section (pdf)
Primary Surgery (pdf)
Standard Treatment Manuals (pdf)
PNG National Medicines Formulary (pdf)
Guidelines for the treatment of Malaria (pdf)
Ponsetti technique (pdf)

MMED (Rural)

Training Manual

Training Modules

Expectations and Requirements

Submission of Assignments

All formative assessments, logbooks and case-based learning tasks should be typed and saved in pdf. format, and submitted by Monday of the last week of the rotation to your module supervisor for marking. Please make sure a copy of all assignments is sent to the MMED (Rural Health) Training Co-ordinator for inclusion in your overall training record.

Dishonest Practices

Cheating and dishonest practices are not acceptable. These include the practice of plagiarism (claiming published work of others as your own), copying, collusion, etc. Any students caught committing any of these will be awarded a '0' grade on the assignment, and the case will be referred to the Student Disciplinary Committee for further action.

Note regarding Log Books

Procedures and assignments recorded in the following Training Modules may be undertaken during supervised placements **OR** done during service time at the home district hospital.



Module 1 - **Surgery**

1. Overview of the two streams of Surgical teaching in MMED(Rural)

As previously described, the MMED(Rural Health) program allows for two streams during the first three years of training. Students may elect to do their Part 1 in Surgery, or in Obstetrics and Gynaecology.

For students choosing to do their Part 1 in Surgery there will be 3 separate blocks of training, each of THREE months duration. They will take their Part 1 exams in Surgery (as well as doing the Common Core exam along with all other Part 1 post graduate students). The Aims and Objectives, Surgery Teaching Units, Tutorials and Assignments for these students will therefore entail the **FULL** program as outlined below.

For students doing their Part 1 in O&G, there will be ONE training block of three months duration. The Aims and Objectives, Surgery Teaching Units, Tutorials and Assignments will be the **ABBREVIATED** program as outlined below.

2. Aims and Objectives of the Surgery Module

- Aims and Objectives are listed in two groups below – the **ABBREVIATED** program (O&G Part 1 students), highlighted **in green**, and the **FULL** program which includes all of the Aims and Objectives of the abbreviated program PLUS the extra Aims and Objectives, highlighted **in brown**.

Abbreviated program trainees:

- Will be able to perform basic resuscitation of the pre-operative patient
- Will be able to perform minor general surgery independently
- Will have a general knowledge of the principles involved in the management of acute trauma
- Will have a sound knowledge and experience of the principles of post-operative care, including the management of pain
- Will have an understanding of when and how to effect safe and timely referral to a higher level surgical service.

Full program trainees – in addition to the above:

- Will be able to interpret appropriate investigations and imaging relevant to common surgical cases.
- Will be able to perform a wide range of basic bellwether general and trauma surgery procedures independently.

- The trainee will be able to effectively work in a team to deliver safe and appropriate surgical care INCLUDING referral where appropriate, for the majority of acute cases that will present to him or her at the rural hospital level.

3. Clinical Duties

To work as a registrar in the Surgery Department and under the specialist's guidance.

- Do ward rounds
- Conduct surgical outpatient clinics
- Attend to surgical emergencies on the wards and in the emergency department
- Provide surgical consultative services to other departments as required
- Assist in surgery with the consultant
- Perform surgeries independently or with assistance as directed
- Provide post-operative care
- Be involved in training of junior staff.

4. Teaching methods

Learning will be by clinical immersion supported by:

- Teaching ward rounds
- Teaching during surgery
- Department tutorials and case-based learning
- On-line case-based learning and other digital and video teaching materials

5. Content

Module 1: Surgery Units (Abbreviated program) (Full program)
1. Assessment and resuscitation of the patient with trauma
2. Principle of acute surgical management of wounds
3. Post-operative care and the management of pain
4. Theatres, instruments, asepsis and antibiotics
5. The surgery of sepsis – Introductory
6. Referring and transferring the patient safely

7. Closed treatment of common fractures
8. The surgery of sepsis - Advanced
9. The acute abdomen
10. Traction, casting and splints
11. Control of bleeding/open limb injuries
12. Other Common Surgical Procedures
13. The head injured patient and cervical spine injury
14. The management of burns

6. Assessment

Formative Assessment

- Logbook completed
- Written assignments – 1500-2500 words each. 20 assignments for those taking Part 1 in surgery or 7 assignments for those doing ONLY 3 months Surgery (see assignment topics in Point 6).
- Satisfactory Registrar assessment form

Summative Assessment

- Successful completion of both Common Core and Surgical Speciality Core Part 1 exams.
- Successful completion of the Common Core Components in the Part 2 exam will include Short Answer Questions (SAQ) and Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Viva exam - 15 minutes (component of Part 2 exam)
- Practical station questions (Part 2 exam)
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exams.

7. Tutorial and Case-Based Presentation (CBP) program during Surgery Training rotation.

A twice weekly tutorial/CBP program will be undertaken during the 9 months of surgery training blocks.

Tutorials - may be delivered by the supervisor OR presented by the trainee. Decision to be made locally by the surgical team.

Case-Based Presentations – Starting with the case scenarios mentioned below, the student will present his/her assessment of the likely issues involved and how they would approach each case. This can become a platform for deeper discussion and teaching of the issues involved in each scenario. ***In all case-based presentations, a rural scenario is assumed. Therefore transfer of the patient may or may not be possible or practical and the doctor must therefore be encouraged to discuss how they would manage the scenario in the setting where referral is NOT an option as well as when it is.***

Week 1 - Tutorial: Basic approach to the patient with trauma – First Aid and initial approach

Week 1 - Tutorial: Assessment of shock and resuscitation of the shocked patient (incl. all forms of shock)

Week 2 - Tutorial: Principles of antibiotic prescription.

Week 2 - Tutorial: Preparing the surgical patient for theatre.

Week 3 - Tutorial: Common surgical instruments

Week 4 - Tutorial: Setting up a theatre where there isn't one – how do I do that?

(Note: Primary Surgery Vol 1 Chapter 2 is a useful read for this tutorial)

Week 4 - Tutorial: How do I pack and sterilize my instruments? - principles

Week 4 – Case-Based Presentation – “A 30 y.o. woman weighing 50kg is brought in from the Jimi Valley having been stabbed in the left flank two days ago. Omentum is protruding out through the stab wound. She has a pulse of 130bpm, Resps of 40 min, looks distressed and has a BP of 100/60. Her abdomen is distended and rigid. Explain how you would manage this patient prior to her going to theatre for exploratory laparotomy.”

Week 5 - Tutorial: Practical session on sterilizing techniques – an afternoon in CSSD (3hrs)

Week 5 - Tutorial: Managing acute pain

Week 6 - Tutorial: Managing chronic pain – and principles of palliative care.
(Consult PNG Pain guidelines)

Week 6 – Case-Based Presentation - “*A 60 y.o. man with a past history of frequent renal colic, presents with 6 hours of severe intermittent abdominal pain, mostly in the left groin. He has microscopic haematuria. He denies regular medication use but you know he has presented multiple times to A&E in the past 6 months. Explain how you would initially manage his case including from the point of view of pain relief.*” Discuss equivalent dosing in the use of narcotics.

Week 7 - Tutorial: The management of wounds – **W.H.O. Video (supplied)**

Week 7 - Tutorial: Suture types, knot tying, instrument tying and left handed instrument use.

Week 8 – Case-Based Presentation – “*A 45 y.o. man with known inoperable hepatocellular carcinoma presents to your hospital with a huge hard RUQ mass and uncontrolled pain. Discuss the principles of pain relief and palliative care and any special issues that may be relevant in this case.*” Refer also to PNG Pain Guidelines

Week 8 - Tutorial: When to transfer, and principles in transfer by land, sea and air.

Week 9 - Tutorial: Furuncles, Carbuncles and Pyomyositis.

Week 9 - Tutorial: Osteomyelitis – Acute and Chronic

Week 10 – Case-Based Presentation - “*An 8 y.o child is carried in by its mother, with a very painful left leg, around the upper tibia and knee joint. The pain commenced 4 days ago and he has been unable to weightbear for 36 hrs. He is crying. The upper tibia and knee joint both appear swollen. The upper tibia is tender, red and swollen. The child has a fever of 38 degrees C. Discuss how you would approach this situation, any investigations you might do, possible diagnoses and your potential management plan.*”

Week 10 - Tutorial: Inserting a chest drain for pneumothorax, haemothorax (theory) and when to remove. Management of empyema.

Week 11 - Tutorial: Closed upper limb fractures – basic closed management of common fractures.

Week 11 - Tutorial: Closed lower limb fractures – basic closed management of common fractures.

Week 12 – Case-Based Presentation - “*A 9 y.o. boy falls out of a tree and is brought into your hospital crying in pain with a swollen left elbow. He seems unable to flex the elbow at all. His distal circulation and nerve function is normal. There are no obvious breaks in the skin. Describe your approach to this child and your plan of management. How would you distinguish between dislocated elbow and supracondylar fracture of the distal humerus if you had no X-ray?*”

Week 12 - Tutorial: Neurovascular assessment of the traumatized upper and lower limb.

Week 12 - Tutorial: When NOT to close a wound. Healing by secondary intention and delayed primary closure

Week 13 - Tutorial: Dental infections, pus in the throat and mouth spaces.

Week 13 – Case-Based Presentation – “*A 20 y.o. female presents with a 5 day history of swelling in the midline of the floor of the mouth, high fever, trismus and distress. Discuss the*

possible diagnoses in this case and scenarios for management. Consider carefully also the anaesthetic implications taking into account your rural setting.”

Week 14 - Tutorial: Pus around the kidney including discussion on renal TB.

Week 14 - Tutorial: Perianal abscess

Week 15 - Tutorial: Management of Septic arthritis – access to the hip and knee.

Week 15 - Tutorial: Appendicitis

Week 16 - Tutorial: Cholecystitis and Cholangitis

Week 16 - Tutorial: Basic technique in laparotomy

Week 17 – Case-Based Presentation - “*A young man is carried in on a stretcher having sustained a gunshot wound 2 days ago. On examining him you see that he has two entry wounds – one in the right iliac fossa, and another to the right of the umbilicus. There are no exit wounds. He clearly has peritonitis. He has no evidence of spinal cord injury. You resuscitate the patient and put in a catheter. There is no haematuria. It is decided to take him to theatre immediately. Discuss the following topics and follow the conversation wherever you think it may helpfully lead after that:*

1. Entry incision options; 2. Management if he has small bowel perforations; 3. Management if he has large bowel/rectal perforations; 4. Decontamination, irrigation, skin management.”

Week 17 - Tutorial: Principles in repairing gut

Week 18 - Tutorial: Basic stomas and stoma care

Week 18 - Tutorial: Perforated peptic ulcers

Week 19 - Tutorial: Bowel obstruction – Differentiating obstruction and ileus.

Investigations and causes in the PNG population and management.

Week 19 – Case-Based Presentation - “*A 45 y.o. woman who had surgery for a stab to the abdomen 10 years ago presents with a 5 day history of crampy abdo pain, tightness and 24 hrs of vomiting and inability to pass wind. Her weight is 55kg. Her pulse is 110bpm, BP, 95/50. She is afebrile. Her abdomen is tight and mildly tender but not peritonitic. You can't feel any obvious mass. You insert a catheter and get back a small amount of dark urine. Discuss the management options for this case.”*

Week 20 - Tutorial: Fracture management - **WHO Video (supplied)**

Week 20 - Tutorial: Casting and splinting practical

Week 21 - Tutorial: Upper limb traction techniques

Week 21 - Tutorial: Lower limb traction techniques

Week 22 - Tutorial: Open Fractures, Tendon and Soft tissue injuries - **WHO Video (supplied)**

Week 22 – Case-Based Presentation - “*A woman of 25 has been assaulted by another woman 4 hours ago. She comes to your hospital with several wounds – one to the side of the head which is superficial, one to the top of the shoulder and one to the forearm which is obviously deep. She has clearly been bleeding heavily. A bush tourniquet was applied above the elbow at some point and is still in place. She can't feel her hand and there are no pulses palpable. Her pulse is 90 bpm. BP 125/75. She is afebrile. She is not particularly pale clinically and other peripheries are warm. What is your approach to this situation?”*

Week 22 - Tutorial: Principles of tendon repair and rehabilitation of tendon injuries

Week 23 - Tutorial: Practical exercise – making a dynamic splint for flexor tendon repair of the hand (2 hrs)

Week 23 - Tutorial: Fractures and Dislocations of the Lower Limb and Pelvis – **WHO Video (supplied)**

Week 24 – Case-Based Presentation - “*A young man is brought in having just broken his leg playing soccer near your hospital. He is screaming in pain. You examine his very deformed left lower leg and it is clear there is a wound anteriorly and you can see part of the mid shaft of the upper tibia protruding through the skin. He has distal pulses in the foot and it is warm. He is very distressed and so an accurate neuro exam is difficult initially. Explain where you would go from here.*”

Week 24 - Tutorial: Common fractures and dislocations of the upper limb

Week 25 – Case-Based Presentation – “*A 25 y.o. male is brought in with a painful left shoulder. He fell over while drunk two nights ago and was afraid to come in because he didn't have any money for fees. He is reluctant to use the arm. You examine him and can clearly see that there is loss of shoulder curvature and you suspect he has a dislocation or fracture-dislocation. His distal neurovascular status is normal. He has no other injuries that you can ascertain. Explain how you would manage this situation including discussion about anaesthetic options for reduction.*”

Week 25 - Tutorial: Control of bleeding, management of major blood loss and principles of repairing vessels.

Week 26 - Tutorial: Enucleation of the destroyed eye and management of severe eye infection.

Week 26 - Tutorial: Scars – types of scars, minimizing scars and managing them.

Week 27 - Tutorial: Epigastric and umbilical hernia repair

Week 27 - Tutorial: Inguinal hernia repair

Week 28 - Tutorial: Diagnosing and managing strangulated herniae

Week 28 – Case-Based Presentation - “*A 60 y.o. man with a long history of an inguinal mass is brought in from the remote East Sepik region with a one week history of severe pain in the abdomen with vomiting and distention. He is severely dehydrated and critically ill. His pulse is very weak and rapid. He clearly has a very red and tender mass in the inguinal region as well as abdominal distention. You are highly suspicious of a strangulated or even incarcerated inguinal hernia. Discuss how you would manage this situation.*”

Week 29 - Tutorial: Common minor procedures. Lipomata and epidermal cysts.

Week 29 - Tutorial: Head injuries

Week 30 - Tutorial: Head and Spinal injuries – **WHO Video (supplied)**

Week 30 – Case-Based Presentation - “*A 30 y.o. woman is brought in after a car has rolled over on the highway. She is unconscious and has obvious bruising and a cut to the head. She has blood down her face and accumulating in one ear. She clearly also has a broken arm but you are unsure as to other injuries. Discuss how you would manage this case.*”

Week 31 - Tutorial: Burns, classification and first aid

Week 31 - Tutorial: The surgery of burns including techniques in skin grafting

Week 32 – Case-Based Presentation - “*A 2 y.o. child has been brought in having fallen into the ashes in the cook house. He was playing with other children while unsupervised and accidentally was pushed into the fire pit. He has circumferential burns to both hands including all fingers with*

some sparing of the thumbs and web spaces. The burns extend up to the distal forearms. The incident occurred 4 hours ago. There are no other injuries. The child weighs 11kg. Discuss your management.”

Week 32 - Tutorial: “The first law of medicine - Primum non nocere.”

Discuss what this ancient principle means and discuss at least TWO practical surgical scenarios where this principle may help to guide our decision making.

The last 4 weeks of rotation 3 will be set aside for catching up on unfinished topics and preparation for the Part 1 exam.

8. Written Assignments.

Written Assignments are the same as those in the MMED (Surgery) Part 1 curriculum, provided by the Division of Surgery.

For Students doing their Part 1 in Surgery, there are 20 of these assignments, and ALL must be completed in full in order to be able to sit for the Surgery Part 1 exam.

Students doing their Part 1 in O&G will choose ANY SEVEN assignments from the list of assignments below. Assignments will be of the same length as for students doing Part 1 in Surgery.

Assignments must be completed according to the following schedule as a MINIMUM:

For students taking their Part 1 in Surgery

Before the first surgical rotation commences – Assignments 1 and 2 completed

Before the second surgical rotation commences – Assignments 2-10 completed

Before the third surgical rotation commences – Assignments 11-18 completed

Before Part 1 exams – Assignments 19-20 completed

For students taking their Part 1 in O&G (and thus only doing one three month rotation in Surgery)

ALL SEVEN surgical assignments to be completed by the Monday of the final week of the surgical rotation.

All assignments will be between 1500-2500 words in length, typed, saved in .pdf format and emailed to the MMED (Rural Health) Training Co-ordinator who will ensure they are marked by the appropriate person in the Division of Surgery and returned to you with comments.

Surgical Assignments are as follows:

(Note the topic and the points needing to be covered (above) in the question (given at the bottom))

1. Cancer :

Neoplasia, dysplasia, anaplasia, hyperplasia, hypertrophy, cell cycle and tumour cell behaviour, spread.

Application of tumour cell behaviour to treatment.
 Causes of cancer, carcinogenesis, oncogenes, tumour suppressor genes.
 Reading : standard texts and journals and internet research..

ASSIGNMENT : What is cancer and how does it develop?

- 2 Cancer screening program in relation to a common cancer in PNG. How to set up a screening program.
 Reading : articles on breast cancer, data on cancer in PNG.

ASSIGNMENT : What are the pros and cons of setting up a cancer screening program in a tropical country like PNG? Choose one common cancer to illustrate your answer.

- 3 Blood / Haemopoiesis

Haemopoiesis, erythropoietin, stem cells and blood constituents, embryology and development of haemopoiesis, application to health and disease : agranulocytosis, myelofibrosis, polycythaemia, splenomegaly and hypersplenism. Functions of spleen, tropical splenomegaly.

ASSIGNMENT : Discuss the development of the different cells of the blood in relation to common disorders which may affect the outcome of a surgical procedure. Discuss the pathology of splenomegaly in the tropics.

4. Blood transfusion : blood groups, transfusion policies, safety of blood, transfusion reactions, infections transmitted by blood transfusion.

ASSIGNMENT : A patient asks you, “How safe is blood transfusion and what are my options if I need blood”? What will you explain to her about the risks of blood transfusion, the need for a cross-match and alternative to heterologous transfusion.

5. Cytokines:

Production, actions in inflammation, wound healing, haemostasis, cell growth and tumours. Interleukins, tumour necrosis factor (TNF) and other growth factors.

ASSIGNMENT : What are Cytokines and how are they produced? Discuss the role of cytokines in wound healing, inflammation, haemostasis and neoplasia.

6. Wound healing and inflammation

Including healing of specialised tissues such as bone, bowel etc.

ASSIGNMENT : Describe the physiology of wound healing in an abdominal wound, bowel, bone (fracture healing) and tendon. What factors may influence the process you described in surgical patients?

7. Haemoglobin, oxygen transport and respiratory failure.
Structure and types of haemoglobin, oxygen affinity, oxygen dissociation curve, haemoglobinopathies, sickle-cell disease.

ASSIGNMENT : Describe the oxygen dissociation curve. What factors in surgery and anaesthesia may affect it? Describe the typical picture you would see in a patient with the different types of respiratory failure, discuss the potential causes and likely results of the blood gases.

8. Genetics and molecular biology :
Principles of inheritance, oncogenes, techniques in molecular biology.
Activities : attend paediatric MMed tutorials and read reviews in course materials which must then be summarised. Research the internet for latest information on genetic and molecular biology.

ASSIGNMENT : What genetic defects or additions occur? What surgical diseases have a genetic component? Discuss the future potential of gene therapy and the role of genetic counselling for surgical patients.

9. Nerve conduction, neurotransmitters in peripheral nerves and the brain. Relate to peripheral nerve injuries, drugs and testing of nerve functions.

ASSIGNMENT : Discuss the physiology of nerve conduction and the types of injuries that occur to peripheral nerves. How would you diagnose nerve damage and assess recovery in the median nerve?

10. Pain : Pain receptors. Pain pathway. Use of analgesics and mechanism of action.

ASSIGNMENT : Why do patients feel pain? Discuss the pain pathways and the use of analgesics and local anaesthetic agents for the relief of pain.

11. Urodynamics and physiology of micturition. Drugs that affect micturition. Spinal injury and urinary tract.

ASSIGNMENT : Describe the pathophysiology of urinary incontinence. Discuss the various problems that occur with micturition in spinal cord injury, prolonged outflow obstruction and the use of tricyclic anti-depressants.

12. CSF production and circulation, intracranial pressure, cerebral blood flow.

ASSIGNMENT : Discuss the pathophysiology of raised intracranial pressure.

13. Calcium homeostasis : Vitamin D, Parathyroid hormone.

Reading papers on Osteoporosis and bone densitometry and commenting. Renal calculi and hyperparathyroidism.

ASSIGNMENT : Consider a patient with renal calculi and hypercalcemia. Discuss the possible reasons and the underlying pathophysiology. Discuss in detail the pathology of osteoporosis and osteomalacia.

14. Functions of the Liver

ASSIGNMENT : Describe the function of the liver and apply it to the understanding of portal hypertension and cirrhosis : Discuss results of derangements of the liver, such as hepatic encephalopathy, pruritus and ascites.

15. Contents of bile, physiology of bile secretion, formation of gallstones, pathology of acute cholecystitis

ASSIGNMENT : Describe the gross and microscopic anatomy of the liver. Describe the contents of bile and physiology of gallbladder contraction. Explain the pathophysiology underlying portal hypertension, pruritis, ascites and the development of gallstones.

16. Oedema, microcirculation and its control, colloid osmotic pressure.

ASSIGNMENT : A patient presents with unilateral swelling of the leg. Discuss the possible causes explaining the underlying pathophysiology.

17. Thrombosis, embolism, venous thromboembolism and thrombolysis.

ASSIGNMENT : What is thrombosis and embolism? Discuss the use of anticoagulants and thrombolytic agents in surgery.

18. Gastric secretion – physiology. Helicobacter pylori, duodenal ulceration and upper G.I. pathophysiology.

ASSIGNMENT : Discuss the physiology of gastric secretion. What is the role of Helicobacter pylori in gastritis, duodenal ulcer and gastric cancer.

19. Surgical infections :
- Osteomyelitis
 - HIV Infection
 - Extrapulmonary tuberculosis
 - Necrotising Fasciitis.

ASSIGNMENT : Discuss each infection in detail including management and what precautionary measures you may take as surgeons in your practice

20. Antibiotics in Surgery. Prophylactic and curative uses. Classifications, doses, routes of administration, excretions, side-effects, common drug interactions, antibiotic policies.

ASSIGNMENT : It is your task to make recommendations for an antibiotic policy. Describe such a policy and how you would monitor its effectiveness.

Detailed Curriculum – Surgery Module

UNIT 1 - ASSESSMENT AND RESUSCITATION OF THE PATIENT WITH TRAUMA

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

ART1	First aid of the unconscious patient, of basic wounds, of open and closed fractures.
ART2	Principles of Primary survey including airway stabilization and assessment of breathing.
ART3	Show an understanding in the assessment of shock, estimating blood loss and understand the principles of emergency fluid replacement.
ART4	Secondary survey of the injured patient and the prioritizing of injuries
ART5	Assessment of neurovascular status of the injured limb.
ART6	Management of septic shock (for example secondary to penetrating abdominal injury)

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SART1	Intravenous cannulation including techniques for emergency access.
SART2	Selection of fluids and calculation of fluid resuscitation
SART3	Management of hypovolemic, hypoxic and cardiogenic shock
SART4	Needle thoracotomy for tension pneumothorax

SART5	Insertion of a chest drain
SART6	Demonstrating stabilization of cervical spine and log rolling.
SART7	Setting up an IV drip and the use of rapid infusing sets

DETAILED LEARNING CONTENT**Unit 1**

Topic	Learning Outcomes	Method
First aid of the unconscious patient, basic wounds, open and closed fractures.	<ul style="list-style-type: none"> • Principles of first aid – the DRSABCDE algorithm • Control of bleeding by pressure dressing. • Principles of using tourniquets • The Coma position • Cleaning and dressing wounds in a first aid situation. • Options for home-made splints • Triaging patients and a strategy for mass casualty events. 	
Principles of Primary survey including airway stabilization.	<ul style="list-style-type: none"> • Detecting airway obstruction and basic airway manoeuvres • Cervical spine stabilization • Sizing Guedel airways. Inserting a nasopharyngeal airway • Detection of tension pneumothorax and how to do emergency needle thoracotomy. • How to insert a chest drain for pneumo and haemothorax • Oxygen giving devices – knowing approximate percentage of oxygen they give and flow rates they need. • AVPU and Glasgow Coma Score for assessing the level of consciousness. • Pelvic sling for massive pelvic injury 	
Show an understanding in the assessment of shock, estimating blood loss and understand the principles of emergency fluid replacement.	<ul style="list-style-type: none"> • Clinical signs of shock and quantifying approximate % of Total Blood Volume loss • Hypovolaemic vs cardiogenic vs septic shock • Content of the various IV fluids and which ones should be used in emergency situations. • Colloid vs Crystalloid vs blood products 	
Secondary survey of the injured patient and the prioritizing of injuries	<ul style="list-style-type: none"> • The need for exposure • Safely rolling the patient • Maintaining normothermia • Full head to toe examination 	

	<ul style="list-style-type: none"> • Prioritizing of injuries 	
Assessment of neurovascular status of the injured limb.	<ul style="list-style-type: none"> • The 5 “P’s” of the ischaemic limb • Common pulse sites in upper and lower limbs • A management plan for the ischaemic limb • Basic tests for nerve function in the upper limb • Basic tests for nerve function in the lower limb 	
IV access, anatomy of venous system, peripheral vein access	<ul style="list-style-type: none"> • Anatomy of venous system required for venous access • Central line • Cut down • Intraosseous access 	
Management of septic shock (for example secondary to penetrating abdominal injury)	<ul style="list-style-type: none"> • Appropriate antibiotic choice • The need for oxygen • Basic knowledge of vasopressors • Remembering tetanus 	

Resources: EMST Training Manual (10th Edition)

UNIT 2 - PRINCIPLE OF ACUTE SURGICAL MANAGEMENT OF WOUNDS

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

SMW1	Cleaning and debriding of wounds
SMW2	Appropriate dressings and immobilization
SMW3	The importance of minimizing swelling
SMW4	Assessment and management of compartment syndrome
SMW5	When not to close a wound
SMW6	The need for coverage of bone, tendon, nerves and vessels
SMW7	Basic amputation techniques
SMW8	Techniques in closing wounds

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SSMW 1	Irrigating, decontamination, disinfecting, and immobilizing an injured limb
SSMW 2	Debriding a wound
SSMW 3	Dressing and bandaging a wound appropriately
SSMW 4	Elevating injured limbs
SSMW 5	Applying a slab or a cast with a window

SSMW 6	Performing simple amputations. Use of a Gigli saw
SSMW 7	Suturing of wounds

DETAILED LEARNING CONTENT**Unit 2**

Topic	Learning Outcomes	Method
Cleaning and debriding of wounds	<ul style="list-style-type: none"> Decontaminating wounds Irrigation methods and fluids Debridement of devitalized tissues Disinfection - options 	
Appropriate dressings and immobilization	<ul style="list-style-type: none"> What is the best sort of dressing? Intervals for dressing changes How to bandage and the different bandage types Basic splints. How to plan for a window in a cast. 	
The importance of minimizing swelling	<ul style="list-style-type: none"> The evidence for elevation How to elevate upper and lower limbs 	
Assessment and management of compartment syndrome	<ul style="list-style-type: none"> Understanding compartment syndrome and time frames for action. Checking for distal perfusion Splitting of a cast How to do a fasciotomy 	
When not to close a wound	<ul style="list-style-type: none"> Assessing the “risk status” of a wound for infection. Crush injuries and degloving injuries Delayed primary closure Healing by secondary intention. 	
The need for coverage of bone, tendon, nerves and vessels	<ul style="list-style-type: none"> Basic principles of getting skin over tissues that must have soft tissue coverage. 	
Basic amputation techniques	<ul style="list-style-type: none"> Fish mouth flaps Guillotine amputation What to do with major nerves and vessels. Deciding the level of amputation. 	
Techniques in closing wounds	<ul style="list-style-type: none"> Basic interrupted suture technique Subcutaneous supporting sutures Suturing narrow angle skin flaps Closing dead space When to leave a drain Minimizing scarring. When to remove sutures Use of steristrips Use of a stapler. 	

	<ul style="list-style-type: none"> • Horizontal and vertical mattress sutures. • Near – far, far – near technique. 	
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Resources:

Primary Surgery Volume 1 – Trauma, Chapters 54 and 56
 Bailey and Love – Short Practice of Surgery (Chapter 3)

UNIT 3 - POST-OPERATIVE CARE AND THE MANAGEMENT OF PAIN**Learning Outcomes**

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

PCP1	Post-operative pain relief - oral
PCP2	Post-operative pain relief - parenteral
PCP3	Management of fluid balance post operatively
PCP4	Positioning the patient
PCP5	The care of skin
PCP6	Physiotherapy and rehabilitation
PCP7	Nutrition

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SPCP 1	Calculating safe drug dosages of simple analgesics
SPCP 3	Calculating equivalent narcotic dosages

DETAILED LEARNING CONTENT**Unit 3**

Topic	Learning Outcomes	Method
Post-operative pain relief - oral	<ul style="list-style-type: none"> • Pharmacology of Paracetamol and NSAID's • Contraindications to NSAID's • Other oral analgesics • Dosaging 	
Post-operative pain relief - parenteral	<ul style="list-style-type: none"> • Pharmacology of opiates • Side effects and contraindications to opiates • Dosing and dosing equivalence with opiates. • Methods of delivery – Intramuscular, IV infusion, Patient controlled infusion. • Accounting and handling of Dangerous Drugs of Addiction. 	

Management of fluid balance post operatively	<ul style="list-style-type: none"> • Composition of IV fluid types • Calculating maintenance fluid rates • Considering extra losses • The concept of “third space” and third space losses. • Sodium – distribution, daily requirements, hypo and hypernatraemia • Potassium – distribution, daily requirements, hypo and hyperkalaemia • Creatinine – origins, limits and calculating Glomerular Filtration Rate. • The physiological “stress response.” 	
Positioning the patient	<ul style="list-style-type: none"> • What positions are comfortable • What positions compromise ventilation • Elevating traumatized limbs • Prone vs supine 	
The care of skin and mucous membranes.	<ul style="list-style-type: none"> • Do I need to be worried about skin? • The patient at risk of pressure sores. • What does compromised skin look like? • Avoiding pressure points • Pressure care mattress and regular turning • Can my patient drink or sip fluids? • Mouth and nose care. 	
Physiotherapy and rehabilitation	<ul style="list-style-type: none"> • Chest physiotherapy • Home-made inspiratory aids • The ranging and stretching of joints • The “6-pack” of hand exercises • Splinting to maximize function. • “Intrinsic position” of the hand and splinting of the hand. 	
Nutrition	<ul style="list-style-type: none"> • When can my patients start to drink and eat? • Clear fluids, free fluids, light diet and full diet. • Nasogastric feeding • Nutritional requirements in the normal and sick patient. • Adjuncts to normal feeding in the catabolic patient. 	

Resources: A Short Practice of Surgery – Bailey and Love (27th Ed) - Chap 23 and 24

UNIT 4 - THEATRES, INSTRUMENTS, ASEPSIS AND ANTIBIOTICS

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

TIA1	What does a theatre need to be?
TIA2	The sterile and non-sterile zones in a theatre.
TIA3	Scrubbing, gowning and gloving
TIA4	Sterilizing techniques
TIA5	Antiseptic technique for surgery where there is no sterilizer
TIA6	Cost effective surgery
TIA7	Basic theatre instruments
TIA8	Suture types and needle types
TIA 9	The surgical “count” and “team time outs”
TIA10	Antibiotic use in surgery.

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

STIA1	A proper surgical scrub
STIA2	Learning to gown and glove
STIA3	How to operate a steam sterilizer
STIA4	Naming basic surgical instruments
STIA5	Identifying suture and needle types
STIA6	Draw a plan for a basic theatre layout.
STIA7	Tying surgical knots both one and two handed
STIA8	Using clamps and scissors left handed

DETAILED LEARNING CONTENT

Unit 4

Topic	Learning Outcomes	Method
What does a theatre need to be?	<ul style="list-style-type: none"> • An assessment of my own theatre • What do I really need to get started? • Where to get instruments? • Options for theatre lighting • Possible theatre layouts • How to make an arm-board. • Options for drapes • Keeping records 	
The sterile and non-sterile zones in a theatre.	<ul style="list-style-type: none"> • What is the sterile zone and how to maintain it? • Keeping the theatre clean – procedures for cleaning 	
Scrubbing, gowning and gloving	<ul style="list-style-type: none"> • Aseptic theatre technique • The surgical scrub • Gowning technique 	

	<ul style="list-style-type: none"> • How to put on gloves before an operation and replace them during an operation. • Draping techniques. 	
Sterilizing techniques	<ul style="list-style-type: none"> • Steam sterilizing • Disinfectants and antiseptics • Other sterilizing techniques 	
Antiseptic technique for surgery where there is no sterilizer	<ul style="list-style-type: none"> • Antiseptic preparation of instruments, drapes and a sterile field. 	
Cost effective surgery	<ul style="list-style-type: none"> • What is it that costs money in theatre? • Common examples of what can be made locally instead of purchasing • Reusing vs throwing away – examples • Bulk suture and mayo needles 	
Basic theatre instruments	<ul style="list-style-type: none"> • Scissors and dissectors • Forceps • Needle holders • Other tissue holding devices • Curettes • Retractors and hooks • Clamps • Scalpels and blades • Left handed instrument technique – scissors and clamps • Others 	
Suture types and needle types	<ul style="list-style-type: none"> • Monofilaments and braided • Absorbable vs non-absorbable • Pre-packaged and bulk • Taper, cutting and blunt needles. • Surgical knots and performing hand ties one and two handed 	
The surgical “count” and “team time outs”	<ul style="list-style-type: none"> • What to count • Count technique • Taking time out before surgery 	
Antibiotic use in surgery.	<ul style="list-style-type: none"> • Common causes of wound infection. • Antibiotic prophylaxis • Treatment of common infections 	

Resources:

Primary Surgery Volume 1 – Non Trauma, Chapter 2
 Bailey and Love – Short Practice of Surgery (Chapter 7)

UNIT 5 - THE SURGERY OF SEPSIS – INTRODUCTORY

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

SSI1	Furuncles and carbuncles
SSI2	Pyomyositis
SSI3	Basic procedure in draining abscesses
SSI4	Acute osteomyelitis
SSI5	Chronic osteomyelitis
SSI6	Septic arthritis of the knee
SSI7	Digital infections – paronychia and pulp space infections
SSI8	Tendon sheath infections
SSI9	Pus in the throat and mouth

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SSI1	Surgical management of furuncle and carbuncle
SSI3	Draining a pyomyositis
SSI4	Drilling a tibia in acute osteomyelitis
SSI5	Draining pus and irrigation of knee joint
SSI6	Incising a pulp space infection
SSI7	Opening a tendon sheath appropriately and draining pus
SSI8	Incising a Quinsy

DETAILED LEARNING CONTENT

Unit 5

Topic	Learning Outcomes	Method
Furuncles and carbuncles	<ul style="list-style-type: none"> • Technique for surgical management of carbuncle and furuncle • Associated illnesses 	
Pyomyositis	<ul style="list-style-type: none"> • Common sites for pyomyositis. • Vaccination site abscesses • The difference between pyomyositis and subcutaneous infection and cellulitis • Tips in finding pus in muscles 	
Basic procedure in draining abscesses	<ul style="list-style-type: none"> • Incision • Locating • Breaking loculations • Irrigation • Curette • Inserting drains 	
Acute osteomyelitis	<ul style="list-style-type: none"> • Classic features and locations 	

	<ul style="list-style-type: none"> • The place of radiology and other investigations • Management acute osteomyelitis including whether to drill or not • Complications 	
Chronic osteomyelitis	<ul style="list-style-type: none"> • Clinical and radiological features • The place and timing of surgery • Complications of surgery 	
Septic arthritis of the knee	<ul style="list-style-type: none"> • Clinical features of septic arthritis • Differential diagnoses • Anatomy of the knee joint • Surgical management of pus in the knee • Complications 	
Digital infections – paronychia and pulp space infections	<ul style="list-style-type: none"> • Managing paronychia • Pulp space infection – clinical features and technique for I&D. 	
Tendon sheath infections	<ul style="list-style-type: none"> • Clinical features of tendon sheath infections • Anatomy of flexor tendon sheath, digital nerves and vessels • Mid axial points • How to open and drain the tendon sheath 	
Pus in the throat and mouth	<ul style="list-style-type: none"> • Peritonsillar abscess (Quinsy) • Technique for draining Quinsy • Retropharyngeal abscess • Dental infections • Ludwig's angina 	

Resources: Primary Surgery Volume 1 – Non Trauma, Chapter 5

UNIT 6 - REFERRING AND TRANSFERRING THE PATIENT SAFELY

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

RAT1	Assessing the risk-benefit ratio in transfer.
RAT2	Particular considerations for the patient in transfer.
RAT3	Special considerations when transferring by air.

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SRAT1	Securing a patient and equipment for transfer
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DETAILED LEARNING CONTENT

Unit 6

Topic	Learning Outcomes	Method
Assessing the risk-benefit ratio in transfer.	<ul style="list-style-type: none"> • Is it safer to stay? • Who is at the other end and will the patient be seen in a timely manner? • What problems will we encounter on the way? • Costs to the patient and family. • Language and cultural barriers. • Where will the family stay? • The need for blood? • Have I established good communication with the team at the other end? 	
Particular considerations for the patient in transfer.	<ul style="list-style-type: none"> • Pain control • Oxygen • The stress of transfer for the patient in extremis. • Securing tubes • Good documentation that is clear. • Team ready to receive without delay at the other end. • Communications en-route. • Dressings, drugs, necessary supplies for the transfer • Accompanying family and other persons • Maintaining enough space to work. 	
Special considerations when transferring by air.	<ul style="list-style-type: none"> • Problems caused by low atmospheric pressure <ul style="list-style-type: none"> • Lower oxygen partial pressures • Trapped gas in the patient • ETT tube balloons • Penetrating eye injuries • Risks to the patient <ul style="list-style-type: none"> • Turbulence • Very small working space and inability to stop • Risks to the aircraft <ul style="list-style-type: none"> • Psychiatric disturbance 	

Resources:

UNIT 7 - CLOSED TREATMENT OF COMMON FRACTURES AND DISLOCATIONS

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

CTF1	Principles of fracture reduction and enlocations
CTF2	Common Upper Limb fractures
CTF3	Common Upper Limb dislocations
CTF4	Common Lower Limb fractures
CTF5	Common Lower Limb dislocations
CTF6	Anaesthetic considerations

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SCTF1	Enlocating a dislocated finger
SCTF3	Managing a dislocated elbow
SCTF4	Managing a dislocated shoulder
SCTF5	Managing a dislocated hip
SCTF6	Managing a distal radius fracture (Colles type)
SCTF7	Managing a forearm fracture
SCTF8	Managing a fractured humerus
SCTF9	Managing a fractured tibia
SCTF10	Managing a fractured femur

DETAILED LEARNING CONTENT

Unit 7

Topic	Learning Outcomes	Method
Principles of fracture reduction and enlocations	<ul style="list-style-type: none"> Considering bone and soft tissue The effects of tissue trauma Basic technique for reducing a fracture. 	
Common Upper Limb fractures	<ul style="list-style-type: none"> Bennett's fracture of the thumb Colle's fracture of the distal radius Midshaft radius and/or ulna fractures Supra condylar fracture of the elbow Mid shaft fracture of the humerus 	
Common Upper Limb dislocations	<ul style="list-style-type: none"> Dislocation of fingers Posterior dislocation of the elbow Dislocation of the shoulder 	
Common Lower Limb fractures	<ul style="list-style-type: none"> Ankle fractures Fractured tibia Fractured midshaft femur Fractured neck of femur 	
Common Lower Limb dislocations	<ul style="list-style-type: none"> Posterior dislocation of the hip 	

Anaesthetic considerations	<ul style="list-style-type: none"> • Regional vs general anaesthesia. • Do I need muscle relaxation? • Considering the airway • When I am surgeon and anaesthetist 	
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Resources:

The Closed Treatment of Common Fractures - J.Chamley
 Practical Fracture Treatment – McRae (5th Edition)

UNIT 8 - THE SURGERY OF SEPSIS - ADVANCED**Learning Outcomes**

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

SSA1	Ano-rectal sepsis
SSA2	Appendicitis
SSA3	Infections of the biliary tree and cholecystitis
SSA4	Septic arthritis of the hip and ankle
SSA5	Empyema
SSA6	PID
SSA7	Puerperal sepsis

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SSSA1	Diagnosing perianal sepsis
SSSA2	Doing an appendicectomy
SSSA3	Diagnosing cholecystitis and cholangitis and managing appropriately
SSSA4	Obtaining surgical access to the hip and ankle and performing irrigation.
SSSA5	Draining an empyema
SSSA6	Perform a culdoscopy and drain a pelvic abscess PV

DETAILED LEARNING CONTENT**Unit 8**

Topic	Learning Outcomes	Method
Ano-rectal sepsis	<ul style="list-style-type: none"> • Anatomy of the anus and perirectal muscles • Types of abscess in the ano-rectal area • Dealing with the acute abscess • Dealing with fistulae 	
Appendicitis	<ul style="list-style-type: none"> • Anatomy of the appendix including blood supply • Clinical features 	

	<ul style="list-style-type: none"> • Incision method and simple appendectomy • Dealing with perforated appendix • Difficult appendicectomy 	
Infections of the biliary tree and cholecystitis	<ul style="list-style-type: none"> • Anatomy of the biliary tree and variations. • Differentiating cholecystitis and cholangitis • Options for medical management • If and when to operate • Technique for cholecystectomy • Pitfalls 	
Septic arthritis of the hip and ankle	<ul style="list-style-type: none"> • Clinical features • Techniques for aspiration • Timing of surgery • Opening the hip • Opening an ankle • Post-operative management 	
Empyema	<ul style="list-style-type: none"> • Anatomy of the pleura • Clinical features • Radiographic features • Inserting a chest drain • If the tube does not drain. 	
PID	<ul style="list-style-type: none"> • Presenting signs and symptoms • Typical organisms • Non-surgical management • When to operate • Types of operations 	
Puerperal sepsis and Septic abortion	<ul style="list-style-type: none"> • Clinical signs and symptoms • When to operate • Common operative findings • Operative technique • Antibiotic guidelines 	

Resources: Primary Surgery Volume 1 – Non Trauma, Chapter 5

UNIT 9 - THE ACUTE ABDOMEN

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

AA1	History and examination of the patient with acute abdomen
AA2	Planning for surgery and care of the patient pre-operatively
AA3	Anatomy, Incisions and entering the abdomen.

AA4	General techniques for working with gut
AA5	Anastomosing gut
AA6	Obstruction of gut
AA7	Basic ostomies
AA8	Appendicectomy
AA9	Perforated peptic ulcer
AA10	Draining and closing the abdomen
AA11	Care of the post-operative patient
AA12	Possible complications after abdominal surgery

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SAA1	Planning an abdominal incision
SAA2	Entering the abdomen safely
SAA3	Basic purse string suture
SAA4	Basic Connell suture
SAA5	Basic appendicectomy procedure
SAA6	Basic transverse loop colostomy
SAA7	Repairing perforations in stomach and gut
SAA8	Performing a basic end to end anastomosis of small gut
SAA9	Draining and Closing the abdomen
SAA10	Culdoscentesis
SAA11	Inserting a nasogastric tube

DETAILED LEARNING CONTENT

Unit 9

Topic	Learning Outcomes	Method
History and examination of the patient with Acute Abdomen	<ul style="list-style-type: none"> Questions to ask in a good history for the patient with acute abdomen Examination technique for acute abdomen 	
Planning for surgery and care of the patient pre-operatively	<ul style="list-style-type: none"> Should I be operating on this patient? The risk -benefit equation “First of all do no harm” Options for conservative management Culdoscentesis Pre-operative resuscitation What type of anaesthesia? 	
Anatomy, Incisions and entering the abdomen	<ul style="list-style-type: none"> Anatomy of the abdominal wall Types of abdominal incisions When to use the various types of incisions Technique for entering the abdomen safely What will I find? – recognizing peritonitis, obstruction, damaged and ischaemic gut. Finding the cause - A method for routine inspection of the abdomen 	

General techniques for working with gut	<ul style="list-style-type: none"> • Anatomy of the gut including mesentery and blood supply. • Common instruments in gut surgery • Handling gut safely • Types of suture to use • Techniques for suturing gut • What do I do about adhesions? • Using omentum to patch perforations. 	
Anastomosing gut	<ul style="list-style-type: none"> • Basic closed technique for end to end anastomosis • Open technique for end to end anastomosis • Do's and don'ts in anastomosing gut • Checking the repair • Do I need a defunctioning colostomy? 	
Obstruction of gut	<ul style="list-style-type: none"> • Differentiating obstruction and ileus clinically and radiologically • Decompressing gut • Adhesions • Volvulus • Cancer • Herniae 	
Basic Ostomies	<ul style="list-style-type: none"> • When does the patient need a stoma? • Possible sites for a stoma • Simple transverse loop colostomy technique • When to close the stoma • Technique for closing loop colostomy 	
Appendectomy	<ul style="list-style-type: none"> • Anatomy of the appendix and blood supply • Variations • History and examination • Non-operative management • Draining and appendix abscess • Incision and entry • Standard appendectomy • Retrograde appendectomy. 	
Perforated peptic ulcer	<ul style="list-style-type: none"> • History and clinical examination • Locations of perforated ulcers • Gaining access to the posterior stomach • Using an omental patch 	
Draining and closing the abdomen	<ul style="list-style-type: none"> • Washout and suction techniques • Closing the abdominal wound • Do I insert a drain? • Suture type 	

	<ul style="list-style-type: none"> • When to leave the skin open and do delayed primary closure 	
Care of the post-operative patient	<ul style="list-style-type: none"> • Intravenous fluids – types and rates • Management of ileus • How to insert a nasogastric tube • Free drainage or suction? • Posture of the patient • Options for pain relief • How to do a fluid balance. • Observations • Skin and mouth care • When to introduce oral feeding. • Care of the wound • Care of a stoma – with and without normal stoma supplies • Removal of sutures/staples 	
Possible complications after abdominal surgery	<ul style="list-style-type: none"> • Respiratory complications • Postural drainage and chest physio • Vomiting • Wound infection • Wound breakdown • Fistulae 	

Resources:

Primary Surgery Volume 1 – Non Trauma, Chapters 9 and 10
 Bailey and Love – Short Practice of Surgery (Chapter 63,73,74,78)

UNIT 10 - TRACTION, CASTING AND SPLINTS**Learning Outcomes**

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

TCS1	Working with Plaster of Paris
TCS2	Principles of cast application
TCS3	Complications of casts
TCS4	Functional positioning
TCS5	Intrinsic splint of the forearm/wrist/hand
TCS6	Thomas Splint
TCS7	Skin traction
TCS8	Skeletal traction
TCS9	Complications of traction

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

STCS1	Basic volar slab for forearm
STCS2	Basic dorsal slab for forearm
STCS3	Applying a triangular sling
STCS4	Applying a collar and cuff
STCS5	Applying a below elbow forearm cast
STCS6	Applying an above elbow cast
STCS7	Applying a slab to the lower leg
STCS8	Applying a below knee cast
STCS9	Applying an above knee cast
STCS10	Inserting a tibial Steinmann pin for traction and applying traction
STCS11	Applying skin traction to the lower leg
STCS12	Using a plaster saw appropriately and splitting a cast

DETAILED LEARNING CONTENT

Unit 10

Topic	Learning Outcomes	Method
Working with Plaster of Paris	<ul style="list-style-type: none"> The materials – plaster, paddings, stockinette The instruments – types of saws and splitters What if my POP material is not very good? Can I make my own POP bandages? Alternatives when there is no POP 	
Principles of cast application	<ul style="list-style-type: none"> Slabs vs casts – pros and cons Stocking or no stocking? How much thickness of padding and where to put extra. Thickness of cast Speed of application and avoiding lamination. Which areas need immobilizing and which should be kept free? Moulding the cast Smoothing the cast Windowing a cast Splitting a cast to improve circulation Wedging a cast for malalignment Care of casts and instructions for patients. 	
Complications of casts	<ul style="list-style-type: none"> Compromise of circulation Pressure sores Joint stiffness 	

	<ul style="list-style-type: none"> • Nerve injury 	
Functional positioning	<ul style="list-style-type: none"> • What does functional positioning mean? • The shortening of connective tissue over time. • “When you don’t move it, you lose it!” 	
Intrinsic splint of the forearm/wrist/hand	<ul style="list-style-type: none"> • Anatomy of collateral ligaments of the MCP’s, PIP’s and DIP’s • The intrinsic position • A suggested way to make a volar slab for achieving intrinsic position of the hand with POP. 	
Thomas splint	<ul style="list-style-type: none"> • Types of Thomas splints • Applying the splint • Caring for pressure points • Supporting slings • Applying traction using the splint only. 	
Skin traction	<ul style="list-style-type: none"> • Principles of skin traction – which fractures and how much traction? • Adhesive or non-adhesive traction? • Care of skin traction 	
Skeletal traction	<ul style="list-style-type: none"> • Types of instruments and pins used in traction • Insertion of a tibial Steinmann pin • Insertion of a calcaneal pin • Insertion of an olecranon pin • Insertion of a distal femoral pin • Types and mechanics of skeletal traction • What should I use for weights? • Pin site care 	
Complications of traction	<ul style="list-style-type: none"> • Thermal bone injury • Pin site infection • Joint stiffness 	

Resources:

Primary Surgery Volume 2 – Trauma, Chapter 70,
The Closed Treatment of Common Fractures (Charnley)
Practical Fracture Treatment – McRae (5th Edition)

UNIT 11 - CONTROL OF BLEEDING/OPEN LIMB INJURIES

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

BOL1	Blood volumes in adults and children
BOL2	Estimating blood loss in surgery
BOL3	Principles of minimizing blood loss in surgery.
BOL4	When to transfuse
BOL5	Applying pressure and the use of tourniquets
BOL6	Handling blood vessels
BOL7	Tying blood vessels - general
BOL8	Preoperative and intraoperative autotransfusion
BOL9	Post-operative bleeding and secondary haemorrhage.
BOL10	Assessing vascular injury in the injured limb
BOL11	Principles of vascular repair
BOL12	Principles of nerve repair

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SBOL1	Estimating blood loss
SBOL2	Applying an Esmarch bandage
SBOL3	Applying upper limb (including finger) and lower limb tourniquets
SBOL4	Identifying instruments for safely handling vessels
SBOL5	Demonstrate how to tie vessels including large vessels
SBOL6	Assess the vascular supply of the injured limb
SBOL7	Describe the principles in tying the internal iliac artery
SBOL8	Be able to perform autotransfusion in selected candidates with severe intra-abdominal bleeding.
SBOL9	Perform a simple end to end vascular repair
SBOL10	Perform a simple nerve repair

DETAILED LEARNING CONTENT

Unit 11

Topic	Learning Outcomes	Method
Blood volumes in adults and children	<ul style="list-style-type: none"> • Blood volume by age • Natural mechanisms in the body for controlling bleeding • High risk procedures in children • Special sites – scalp and pelvis • Arterial vs venous bleeding. 	
Estimating blood loss in surgery	<ul style="list-style-type: none"> • Suction containers • Weighing gauze and combine • Soaked gauze and combine • What is our accuracy at estimating loss? 	

Principles of minimizing blood loss in surgery.	<ul style="list-style-type: none"> • Esmarch bandage in limb surgery • The use of pressure • Diathermy • Post-operative elevation of limb 	
When do I transfuse?	<ul style="list-style-type: none"> • Risks of transfusion vs non-transfusion • Dilutional coagulopathy • How much blood can be lost before I transfuse? 	
Applying pressure and the use of tourniquets	<ul style="list-style-type: none"> • How long must I apply pressure? • When to leave in a pack. • Sites for applying tourniquets • Complications of tourniquets – nerve injury and ischaemic injury • Tourniquet times • Types of tourniquets 	
Handling blood vessels	<ul style="list-style-type: none"> • Types of instruments for handling blood vessels – clamps and forceps including when vessel repair is being attempted. 	
Tying blood vessels - general	<ul style="list-style-type: none"> • Where to tie a vessel • When to transfix a vessel • Passing a ligature. 	
Pre-operative and intra-operative auto-transfusion	<ul style="list-style-type: none"> • Pre-operative collection of blood for auto transfusion – eg. for a planned sequestrectomy. • Saving blood during laparotomy for intra-abdominal bleeding – principles. 	
Post-operative bleeding and secondary haemorrhage.	<ul style="list-style-type: none"> • Options for post op wound bleeding • Secondary haemorrhage – time frames 	
Assessing vascular injury in the injured limb	<ul style="list-style-type: none"> • The 5 P's of vascular injury • Time frames for decision making. When is it too late to consider repair? 	
Principles of vascular repair	<ul style="list-style-type: none"> • How to handle blood vessels • End to end anastomosis • Avoiding tension • Vein grafts • Suture material and suture techniques • Confirming success and aftercare 	
Principles of nerve repair	<ul style="list-style-type: none"> • Anatomy of nerves • Instruments and magnification • How to suture the damaged nerve • Protecting the nerve damaged area. • Timeframes for healing. 	

Resources:

Primary Surgery Volume 1 – Non Trauma, Chapter 3,
 Primary Surgery Volume 2 – Trauma, Chapter 55.

UNIT 12 – OTHER COMMON SURGICAL PROCEDURES**Learning Outcomes**

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

CSP1	The examination features of uncomplicated and complicated abdominal herniae.
CSP2	Repair of Epigastric herniae
CSP3	Repair of Umbilical herniae
CSP4	Anatomy of the inguinal canal in males and females
CSP5	Anatomy of the femoral canal
CSP6	Repair of inguinal herniae
CSP7	Examination of the scrotum and testes
CSP8	Clinical features of and operations for hydrocoele
CSP9	Lipomata and their surgical excision
CSP10	Epidermal (sebaceous) cysts and treatment

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SCSP1	The examination of herniae
SCSP2	The examination of the scrotum and testicles
SCSP3	Repair of epigastric hernia
SCSP4	Repair of umbilical hernia
SCSP5	Repair of inguinal hernia
SCSP7	Excision of lipoma
SCSP8	Excision of epidermal cyst
SCSP9	The insertion of a suprapubic catheter
SCSP10	Operation for hydrocoele

DETAILED LEARNING CONTENT**Unit 12**

Topic	Learning Outcomes	Method
The examination features of uncomplicated and complicated abdominal herniae.	<ul style="list-style-type: none"> • Examination features of the uncomplicated epigastric hernia • Examination features of the uncomplicated umbilical hernia • Examination features of the uncomplicated inguinal hernia – direct and indirect • Examination features of the femoral hernia • Strangulated and incarcerated herniae 	

Repair of Epigastric herniae	<ul style="list-style-type: none"> • Incisions • Identifying the hernia and reduction • Repair of the defect • Closure and post op care 	
Repair of Umbilical herniae	<ul style="list-style-type: none"> • Incisions • Identifying the hernia and reduction • Repair of the defect • Closure and post-op care 	
Anatomy of the inguinal canal in males and females	<ul style="list-style-type: none"> • Embryology of the inguinal canal and descent of the testes in males. • Common anatomy • Anatomy in males • Anatomy in females 	
Anatomy of the femoral canal	<ul style="list-style-type: none"> • Embryology of the femoral canal • Anatomy of the adult femoral canal 	
Repair of inguinal herniae	<ul style="list-style-type: none"> • Anatomical landmarks • Incisions • Identifying and opening layers and identifying nerves • Safely identifying the hernia and tying the sac • Direct or indirect? • Bassini repair +/- Tanner slides • Other repairs without mesh • Mesh repairs • Closure • Post-op care 	
Examination of the scrotum and testes	<ul style="list-style-type: none"> • Embryology of the testes and scrotum • Examination of the testes and scrotum 	
Clinical features of and operations for hydrocoele	<ul style="list-style-type: none"> • Incision • Opening and fixing the hydrocoele • Closure and post-op care 	
Lipomata and their surgical excision	<ul style="list-style-type: none"> • Superficial vs deep lipomata • Anaesthesia • Removal of the lipoma – techniques • Closure • Post-op care 	
Epidermal (sebaceous) cysts and treatment	<ul style="list-style-type: none"> • When to operate (and when not to) • Anaesthetic • Techniques for excision • Closure and post-op care 	

Resources:

Primary Surgery Volume 1 – Non Trauma, Chapter 14,18, 27
 Bailey and Love – Short Practice of Surgery (Chapter 64)

UNIT 13 - THE HEAD INJURED PATIENT AND CERVICAL SPINE INJURY**Learning Outcomes**

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

HIP1	Mechanisms of primary brain injury
HIP2	Mechanisms of secondary brain injury
HIP3	Anatomy of the scalp, skull layers, dura and sinuses
HIP4	The Glasgow Coma Scale and AVPU scoring
HIP5	First aid for the patient with head injury and/or suspected Cx spine injury
HIP6	Protocols for the patient with acute head injury and raised ICP
HIP7	Surgical management of the patient with raised intracranial pressure
HIP8	Equipment for neurosurgery
HIP9	Management of bleeding in surgery
HIP10	Open head wounds
HIP11	Depressed skull fractures
HIP12	Cervical spine radiology
HIP13	Common causes and patterns of cervical spine injury and management

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SHIP1	Performing a AVPU assessment on a head injured patient
SHIP2	Performing Glasgow Coma Scale on a head injured patient
SHIP3	Examining pupils in the head injured patient
SHIP4	Performing cranial burr holes on a patient with raised intracranial pressure
SHIP5	Fitting a cervical spine collar
SHIP7	Interpreting a standard series of Cervical spine films – lateral, AP and odontoid view
SHIP8	Performing first aid for the person with head injury including using the coma position.
SHIP9	Identifying common neurosurgical instruments

DETAILED LEARNING CONTENT**Unit 13**

Topic	Learning Outcomes	Method
Mechanisms of primary brain injury	<ul style="list-style-type: none"> • Acceleration injuries • Direct disruption/open injuries • Contusions • Contre-coup injuries • Compressive injuries 	

Mechanisms of secondary brain injury	<ul style="list-style-type: none"> • Haematoma – extradural • Haematoma – subdural • Intra-axial bleeding • Oedema/swelling • Hypo and hypercarbia • Hypoxia • Hypotension • Hyperthermia • Infection 	
Anatomy of the scalp, skull layers, dura and sinuses	<ul style="list-style-type: none"> • Anatomy of scalp blood supply • Anatomy of the skull bones and venous sinus location • Layers of the scalp 	
The Glasgow Coma Scale and AVPU scoring	<ul style="list-style-type: none"> • AVPU scoring • Outline of Glasgow Coma Score • Scoring eye opening • Best verbal response • Best motor response • Common mistakes in doing a GCS • How to record a GCS • Examining the pupils • Normal response of pupils to light – pathways • Abnormal response of pupils to light in head injury – patterns and causes • Other important observations to be recorded • When to notify and when to act on changes in GCS. 	
First aid for the patient with head injury and/or suspected Cervical Spine injury	<ul style="list-style-type: none"> • DRABCDE • Getting help • Maintaining an airway • Protecting the cervical spine • Application of cervical collars • The coma position • Dealing with wounds to the head • Screening neuro exam for cervical spine injury • Protecting the patient with neurological deficit 	
Protocols for the patient with acute head injury and raised intracranial pressure.	<ul style="list-style-type: none"> • Concussion protocols • When to admit • When to do skull X-ray • Positioning the patient • Oxygen • Temperature control 	

	<ul style="list-style-type: none"> • Maintaining CO₂ levels • How often should you do observations? • When does the patient need antibiotics and/or tetanus toxoid? • Should the patient be given prophylactic anticonvulsants? • Is there a role for steroids? • Does a depressed skull fracture need to be elevated? 	
Surgical management of the patient with raised intracranial pressure	<ul style="list-style-type: none"> • Identifying locations for burr holes • Where to do incisions • Which burr hole first? • Techniques for burr holes • Extension of the burr hole • Evacuating the clot • Closing the dura • Closing the wound 	
Equipment for neurosurgery	<ul style="list-style-type: none"> • Braces • Perforators • Burrs • Types of suckers • Rongeurs and other bone nibblers • Dural elevators 	
Management of bleeding in surgery	<ul style="list-style-type: none"> • Bleeding from the scalp • Bleeding from the skull diploe • Bleeding from intracranial arteries • Bleeding from the dura • Bleeding from the brain surface • Bleeding from venous sinuses 	
Open head wounds	<ul style="list-style-type: none"> • Anaesthesia • Wound toilet • Exploring the wound • Loose bony fragments • Getting coverage of dura • Fascia lata grafts • Getting skin coverage • Prophylactic antibiotics and tet tox. 	
Depressed skull fractures	<ul style="list-style-type: none"> • When to consider elevating and when to leave alone or refer • Techniques for elevation 	
Cervical spine radiology	<ul style="list-style-type: none"> • What is a good Cervical spine series? • How to get a better lateral • Reading Cervical spine X-rays • Soft tissue clues to serious injury 	

Common causes and patterns of cervical spine injury and management	<ul style="list-style-type: none"> • Car rollover. • High speed MVA or ejection from moving vehicle. • Rugby injury • Diving accidents • Other • Non-operative management of the patient with Cx-spine injury without neurology 	
Other spinal cord injury issues	<ul style="list-style-type: none"> • Early care of the patient with spinal cord injury. • Spinal shock • Skin care and common sites of skin break down • Options for bladder management • Normal patterns of bowel behaviour post spinal cord injury 	

Resources:

Primary Surgery Volume 1 – Trauma, Chapter 63
 An Aid to Clinical Surgery – Scott, Chapter 13
 Bailey and Love – Short Practice of Surgery (Chapter 48)
 Accident and Emergency Radiology – Chapter 2 and Chapter 8

UNIT 14 - THE MANAGEMENT OF BURNS

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

MOB1	Anatomy of the skin
MOB2	First aid for burns
MOB3	Assessment of burns
MOB4	High risk burns
MOB5	Resuscitation of burn patients and initial management
MOB6	Initial surgery
MOB7	Nursing and splinting
MOB8	Skin grafting
MOB9	Complications of burns
MOB10	Electrical burns
MOB11	Revision of burn scars - principles

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SMOB1	Assessing the extent and depth of a burn
SMOB2	Splinting burns correctly
SMOB3	Perform initial surgery including debridement, escharotomy and fasciotomy

SMOB4	Performing a split skin graft
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DETAILED LEARNING CONTENT**Unit 14**

Topic	Learning Outcomes	Method
Anatomy of the skin	<ul style="list-style-type: none"> • Anatomy of layers of the skin • Surface area differences from adults to children 	
First aid of burns	<ul style="list-style-type: none"> • Cooling the burns • Covering the burns 	
Assessment of burns	<ul style="list-style-type: none"> • History of the burn • Calculating the area of skin affected • Depth of burns • Sites affected • High risk features • Assessing circulation 	
High risk burns	<ul style="list-style-type: none"> • Airway burns • Circumferential burns • Burns across joints • Eye burns • Hand burns • Genital burns • Burns in children 	
Resuscitation of burn patients and initial management	<ul style="list-style-type: none"> • Pain relief • Fluid and electrolyte resuscitation • Prevention of infection 	
Initial surgery	<ul style="list-style-type: none"> • Debridement and cleaning • Escharotomy • Fasciotomy 	
Nursing and splinting	<ul style="list-style-type: none"> • Types of dressings – occlusive method • Exposure methods • Splinting for burns across joints including neck burns • Nutrition needs • Assessment of urine output • The problems of recurrent anaesthetics – planning your theatre program for the person having daily dressings in O.T. 	
Skin grafting	<ul style="list-style-type: none"> • When to graft • Techniques for Split skin grafting 	

	<ul style="list-style-type: none"> • Post-op care of the SSG and how to do the first change of dressing. • Full thickness skin grafts 	
Complications of burns	<ul style="list-style-type: none"> • Infection • Scarring with contractures • Extreme weight loss and inadequate nutrition • Airway complications • Eyesight complications • Stress ulceration 	
Electrical burns	<ul style="list-style-type: none"> • Assessing the electrical burn • Complications 	
Revision of burn scars - principles	<ul style="list-style-type: none"> • Prevention of scarring • Excision and SSG • Z plasty 	

Primary Surgery Volume 1 – Trauma, Chapter 58:
 An Aid to Clinical Surgery: Scott – Chapter 17
 Bailey and Love – Short Practice of Surgery (Chapter 46)

For Surgery Log Book, see page 162



Module 2 – Anaesthesia

1. Aims and Objectives of the Anaesthetic Module

- At the completion of the rotation the trainee should be able to effectively resuscitate patients and safely deliver appropriate sedation and anaesthetics unsupervised in a rural setting for emergency cases, including obstetric emergencies, and for low-risk patients having low-risk surgery, optimising patient care and safety.
- They will be able to provide safe anaesthesia in terms of pre-operative assessment and preparation of patients, intra-operative anaesthesia and immediate post-operative care.
- They will have basic grounding in resuscitation and pain management.
- The trainee should be able to effectively work in a team to deliver safe and appropriate anaesthetic and surgical care.
- They should be able to recognize critically ill patients, institute appropriate management, including referral and transport of patients.

2. Clinical Duties

To work as a registrar in the Anaesthetic Department and under the specialist's guidance.

- Do pre-anaesthetic assessment rounds and review with supervisors
- Carry out peri-operative management of patients
- Administer ketamine and neuroleptic anaesthesia
- Administer regional anaesthesia and local anaesthesia where indicated
- Be involved in the checking of anaesthetic machines and equipment and preparation appropriate to the type of patient
- Be involved in the preparation of the operating theatre before a surgical case is brought in.
- Provide post-operative care including pain management where indicated.
- Be involved in training of junior staff.

3. Teaching methods

Learning will be by clinical immersion supported by:

- Teaching ward rounds (pain) anaesthetic operating theatre times and Intensive Care Unit ward rounds.
- Department tutorials and case-based learning
- Attendance and participation in other Continuing Medical Education programs – both in person and online.
- On-line case-based learning and other digital and video teaching materials

4. Content

Module 2: Anaesthesia Units
1. Resuscitation and Airway Management
2. Pre-operative Management
3. Ketamine and Neurolept Anaesthesia
4. Regional Anaesthesia
5. Critical Incidents
6. Post-operative Management including Pain Management

5. Assessment

Formative Assessment

- Log Book completed
- 7 case reports
- Written assignment – 1500-2500 words
- Satisfactory Registrar assessment form

Summative Assessment

- Components in the Part 2 exam will include Short Answer Questions (SAQ) and Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Viva exam - 40 minutes (component of Part 2 exam)
- Practical station questions (Part 2 exam)
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exam.

6. Case Reports and Written Assignment.

1. Six case reports need to be completed on the following case types where anaesthesia was required:

1. A case requiring general anaesthesia with paralysis

- 2. A case of regional anaesthesia**
- 3. A case of sepsis with haemodynamic instability**
- 4. A complicated pregnancy that went to surgery**
- 5. A major head injury.**
- 6. A patient with pre-existing diabetes requiring management of blood sugar levels peri-operatively**

Case reports are to be in the form of summaries ***indicating presentations, pre-operative assessment, intra-operative and post-operative management, complications encountered and outcome.*** Case reports should be no longer than 3 A4 pages.

2. In addition ONE case report will be written on “**A patient requiring management of acute peri-operative or chronic pain**”.
3. There is one written assignment on the topic “**Surgical procedures with the surgeon as anaesthetist. Problems and solutions**”. This should be between 1500 and 2500 words in length.

7. Tutorial and Case-Based Presentation (CBP) program during Anaesthetic Training rotation.

A twice weekly tutorial/CBP program will be undertaken during the 4 month anaesthesia training block.

Tutorials - may be delivered by the supervisor OR presented by the trainee.

Case-Based Presentations (8) – Starting with the case scenarios mentioned below, the student will present his/her assessment of the likely issues involved and how they would approach each case. This can become a platform for deeper discussion and teaching of the issues involved in each scenario. ***In all case-based presentations, a rural scenario is assumed. Therefore transfer may or may not be possible or practical and the doctor must therefore be encouraged to discuss how they would manage the scenario in the setting where referral is NOT an option as well as when it is.***

Week 1 - Tutorial: Gas supplies, the anaesthetic machine and machine check

Week 1 - Tutorial: Anaesthetic instruments and equipment

Week 2 - Tutorial: Ketamine – History, pharmacology and kinetics, dosaging, advantages and contraindications

Week 2 - Case-Based Presentation - “*Using ketamine at the rural hospital*” *A 3 y.o child is brought in with a closed fracture of the forearm this morning. Discuss anaesthesia options for this*

case at your rural hospital. How would you manage the anaesthesia if this patient was a 75 y.o man with known hypertension and ischaemic heart disease?"

Week 3 – Tutorial: Propofol, Sodium Thiopentone, Benzodiazepines and other Neurolept agents

Week 4 – Tutorial: Neuromuscular blocking agents and Neostigmine

Week 4 – Tutorial: Pre-operative assessment of the patient

Week 4 – Case-Based Presentation – “*Anaesthesia for the person with diabetes and hypertension*” A 55 y.o woman who is heavily overweight presents with a foot ulcer which has been present for 2 weeks. She has been previously diagnosed with Type 2 diabetes but has poor access to medications and has not been able to take her metformin for 3 weeks. She has a BSL of 25mmol/L. She has a BP of 170/110. Her peripheries are warm. She has a temp of 37.8 degrees. You wonder if she may be slightly confused. Discuss your approach to managing her if the surgeon is keen to take her to theatre to debride her ulcer.

Week 5 – Tutorial: When to defer non urgent surgery in PNG? (ie. examples where it is safest to wait)

Week 5 – Tutorial: Opiates/Opioids

Week 5 – Tutorial: Post-operative pain management

Week 6 – Tutorial: Management of Chronic pain

Week 6 – Case-Based Presentation - “*Chronic pain in palliative care*” A woman of about 40 presents to you complaining of chronic low back pain and foul smelling, bloody vaginal discharge. On examination she has a large cervical cancer that is clearly inoperable. She is not able to sleep at nights and has only been receiving occasional paracetamol because of lack of health services where she lives. She is clearly distressed. How would you manage her pain relief?

Week 7 – Tutorial: Spinal anaesthesia

Week 7 – Tutorial: Anaesthesia for LUSCS

Week 8 – Case-Based Presentation – “*The Obstetric Anaesthetic.*” A primipara woman with no surgical history has a fit while in early labour. She had been watched for suspected pre-eclampsia. She ruptured her membranes 2 hours ago and there were signs of significant meconium staining. She is only 2 cm dilated. How would you manage this situation at the rural hospital given that you cannot refer her?

Week 8 – Tutorial: Brachial plexus blocks

Week 9 – Tutorial: Wrist, ankle and digital blocks

Week 9 – Tutorial: Anaesthesia in children

Week 10 – Tutorial: Neonatal resuscitation

Week 10 – Tutorial: Pharmacology of local anaesthetics

Week 11 – Tutorial: Can't intubate, can't ventilate

Week 11 – Tutorial: Management of Shock and Anaphylaxis

Week 12 – Case-Based Presentation - “*Blood loss and shock.*” A 20 y.o. male is brought in having sustained multiple bush knife wounds to his leg (near amputation through the mid lower leg), arm and head 2 hours ago. He is conscious but his peripheries are very cool. The patient is anxious but conscious. His pulse is 130 bpm and BP 95/50. Bleeding has stopped from his arm but continues from the scalp and lower leg. Discuss how you would manage this situation. What types of

blood transfusion services are available at your district hospital? What are the signs of haemolytic transfusion reactions and how would you manage them?

Week 12 – Tutorial: Intravenous access. Peripheral and Central lines

Week 13 – Tutorial: Cardiac Arrest: managing the patient and leading a critical incident team.

Week 13 – Case-Based Presentation – “*A 70 y.o. diabetic man who underwent an inguinal hernia repair in the morning suffers a cardiac arrest on the surgical ward at 4pm. You are in the ward at the time. Discuss your management*”

Week 14 – Case-Based Presentation “*When things go wrong. Handling negative outcomes*” *A middle aged woman unexpectedly dies during induction of general anaesthesia for a hysterectomy. The family is demanding a full explanation. Discuss how we tend to face negative outcomes as clinicians. How should a department handle the situation when things go unexpectedly wrong?*”

Week 14 – Case-Based Presentation “*Choosing the right type of anaesthesia in rural medicine.*” *A 20 y.o woman with 7 weeks amenorrhoea presents to Telefomin Hospital with sudden onset of abdominal pain 12 hours ago. She is pale, anxious, and sweaty and has a distended abdomen. You are unable to refer her due to lack of aircraft. How would you manage this situation given that although you are an MMED (Rural) registrar with anaesthetic training, you are the only doctor and there is no trained ATO at the hospital?*

Detailed Curriculum – Anaesthesia Module

UNIT 1 RESUSCITATION AND AIRWAY MANAGEMENT

Learning Outcomes

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

RAM1	Anatomy and physiology of the respiratory tract with reference to anaesthesia
RAM2	Equipment used in upper airways management Laryngoscope, different laryngoscope blades, endotracheal tubes, Laryngeal mask airway (LMA), Guedel airway, nasopharyngeal airway, self-inflating resuscitation bag, Oxygen masks, nasogastric tube, suction tubes, stylet, bougie.
RAM3	Introduction to the anaesthetic machine and the machine check.
RAM4	Laryngeal intubation of adult, child and neonate.
RAM5	Ventilation using bag and mask, LMA, endotracheal tube
RAM6	“Can’t intubate, can’t ventilate” scenario management protocol
RAM7	IV access, anatomy of venous system and peripheral vein access
RAM8	Fluid resuscitation and blood transfusion peri-operatively
RAM9	Cardiopulmonary resuscitation
RAM10	Pharmacology of drugs used in resuscitation

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SRAM1	Intravenous cannulation
SRAM3	Selection of fluids and calculation of fluid resuscitation
SRAM4	Management of hypovolemic, hypoxic and cardiogenic shock
SRAM5	Endotracheal intubation of adult
SRAM6	Airways management
SRAM7	Ventilation using Bag and Mask
SRAM8	Ventilation using LMA
SRAM9	Ventilation using endotracheal tube

DETAILED LEARNING CONTENT

Unit 1

Topic	Learning Outcomes	Method
Anatomy and physiology of respiratory tract with reference to anaesthesia	<ul style="list-style-type: none"> • Anatomy of the upper airways, lower airways, pleural spaces, diaphragm, pulmonary and bronchial circulations • Anatomy of the oropharyngeal space and larynx with reference to intubation and ventilation • Physiology of the respiratory system and gaseous exchange • Physiological consequences of anaesthetic agents on cardiovascular and respiratory physiology and cognitive/neurological functioning • Effect of patient positioning on the respiratory physiology 	
Equipment used in upper airway management	<ul style="list-style-type: none"> • Laryngoscope and different laryngoscope blades • Endotracheal tubes • Laryngeal masks • Guedel/nasopharyngeal airways • Stylets/gum elastic bougies • Self-inflating resuscitation bag • Oxygen masks • Nasogastric tube • Suction tube • Pulse oximetry • Cleaning and storage 	
Introduction to an anaesthetic machine	Components of a basic anaesthetic machine: <ul style="list-style-type: none"> • Compressed gas source/backups • Pressure reducing valve/regulators • Oxygen concentrators • Flow meter • Vaporiser 	

	<ul style="list-style-type: none"> • Pressure relief valve • CO₂ absorption/sodalime • Ventilator • Circle system/T piece • Filtration devices • Scavenge systems • Suction <p>Function of a basic anaesthetic machine:</p> <ul style="list-style-type: none"> • Anaesthetic machine checklist • Monitoring equipment - ECG, Pulse oximetry, blood pressure monitor • Maintenance 	
Laryngeal intubation of adult, child and neonate	<ul style="list-style-type: none"> • Oropharyngeal and laryngeal anatomy • Choice and use of endotracheal tube • Intubation in adults • Intubation in children, infants and neonates • Intubation in pregnancy • Difficult airways equipment, bougies, alternative laryngoscopes or any other suitable equipment for unexpected difficult intubations • Cricoid pressure • Failed intubation drill, particularly for obstetric anaesthesia 	
Ventilation using bag and mask, LMA, endotracheal tube	<ul style="list-style-type: none"> • Advantages and disadvantages of each airway type • Insertion of laryngeal mask • Ventilation using bag and mask, LMA, endotracheal tube 	
Can't intubate, Can't ventilate	<ul style="list-style-type: none"> • Causes and diagnosis of airway obstruction • Algorithm for managing “Can't intubate, Can't ventilate” scenario • Front of neck access incl. emergency cricothyroidotomy 	
IV access, anatomy of venous system, peripheral vein access	<ul style="list-style-type: none"> • Anatomy of venous system required for venous access • Central line • Cut down • Intraosseous access 	
Fluid resuscitation and blood transfusion peri-operatively	<ul style="list-style-type: none"> • IV fluid used in the peri-operative phases • Management of haemorrhage • Fluid resuscitation in shock • Blood crossmatch and transfusion 	

	<ul style="list-style-type: none"> • Massive blood transfusion 	
Cardiopulmonary resuscitation	<ul style="list-style-type: none"> • Revision of Adult Life Support (ALS) course 	
Pharmacology of drugs used in resuscitation	<p>Pharmacology of:</p> <ul style="list-style-type: none"> • Adrenaline • Ephedrine/Metaraminol • Atropine/Glycopyrrolate 	

Resources:

Clinical Anaesthesiology – Morgan and Mikhail (6th Ed)

Essentials of Equipment in Anaesthesia, Critical Care and Perioperative Medicine – Al-Shaikh and Stacy (5th Edition)

UNIT 2 PRE-OPERATIVE ASSESSMENT AND STABILISATION**Learning Outcomes**

By the completion of training the candidates should have the clinical knowledge to assess patients pre-operatively, identifying risks, anticipating problems that may arise during anaesthesia, and treating the patient to reduce the risk of these problems.

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

POA1	Pre-operative assessment including ASA classification
POA2	Pre-operative stabilisation
POA3	Pre-operative airways assessment
POA4	Pre-operative medication
POA5	Antibiotic guidelines
POA6	Co-morbid conditions and their impact on anaesthesia – cardiovascular disease, respiratory disease, renal disease and diabetes
POA7	Management of medications pre and post-operatively
POA8	Physiology and clinical signs of shock

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SPOA1	Pre-operative assessment and management
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DETAILED LEARNING CONTENT**Unit 2**

Topic	Learning Outcomes	Method
Pre-operative assessment	<ul style="list-style-type: none"> • Pre-operative history including history of presenting case, past history of medical illness, surgery and anaesthetics, family history, medication history, allergy 	

	<ul style="list-style-type: none"> • Systems history identifying any potential anaesthetic problems • Focused examination (may include cardiovascular, respiratory, neurological, abdominal, musculoskeletal and airway) • Identify common risk factors for peri-operative adverse events in different age groups • Features of history and examinations that may identify a potentially difficult airway • History of last oral intake which may increase the risk of aspiration • Relevant investigations • Patient education and consent 	
Pre-operative stabilisation	<ul style="list-style-type: none"> • Relevant issues that may impact upon patient care including patient's health status, procedure, pathology, positioning, and identifying any risks and alternative methods that can be used • When is it safest to defer the non-urgent surgery? • How abnormalities of common peri-operative investigations (CXR, ECG, haematology, biochemistry) will affect peri-operative management • Stabilisation in emergency surgery • Stabilisation in elective surgery 	
Pre-operative airways assessment	<p>Factors in patient history and examination that increase anaesthetic risk and potential airway management difficulties:</p> <ul style="list-style-type: none"> • Comorbid conditions • Anatomical issues leading to problems with intubation and ventilation • Anaesthetic history 	
Pre-operative medication	<ul style="list-style-type: none"> • Pre-anaesthetic medication 	
Antibiotic guidelines	<ul style="list-style-type: none"> • The role of antibiotic prophylaxis in preventing infection • Identification of patients with conditions requiring antibiotic prophylaxis 	
Comorbid conditions and their impact on anaesthesia	<p>The implications for anaesthetic management and peri-operative risk of a range of medical conditions, including but not limited to:</p> <ul style="list-style-type: none"> • Obesity • Sleep apnoea • Cardiac failure 	

	<ul style="list-style-type: none"> • COPD • Asthma • Valvular heart disease • Ischemic vascular disease • Diabetes • Hepatic disease • Renal disease • Neurological disorders 	
Management of medications pre- and post-operatively	<p>Management of patient's regular medications pre- and post- operatively in:</p> <ul style="list-style-type: none"> • Cardiac failure • COPD • Asthma • Valvular heart disease • Ischemic vascular disease • Diabetes • Hepatic disease • Renal disease 	
Physiology and clinical signs of shock	<p>Diagnosis and management of shock:</p> <ul style="list-style-type: none"> • Cardiogenic • Hypovolemic • Septic • Hypoxic 	

Resources:

Clinical Anaesthesiology – Morgan and Mikhail (6th Ed)

UNIT 3 KETAMINE AND OTHER FORMS OF ANAESTHESIA**Learning Outcomes**

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

KA1	The pharmacology of ketamine
KA2	Ketamine effects on CNS, cardiovascular and respiratory systems
KA3	Clinical indications for ketamine
KA4	Contraindications to ketamine
KA5	Use of ketamine in induction and maintenance of anaesthesia, sedation and analgesia
KA6	Complications of ketamine including emergent reactions
KA7	The pharmacology of Propofol, Sodium Thiopentone, and Benzodiazepines.
KA8	Opiates/Opioids – Pharmacology, kinetics, uses, problems

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SKA1	Performing an appropriate pre-operative patient assessment when Ketamine is indicated
SKA2	Use of ketamine in anaesthesia

DETAILED LEARNING CONTENT**Unit 3**

Topic	Learning Outcomes	Method
The pharmacology of Ketamine	<p>The pharmacology of Ketamine:</p> <ul style="list-style-type: none"> Mechanisms of action 	
Ketamine effects on CNS, cardiovascular and respiratory systems	<p>Physiological effects of Ketamine on</p> <ul style="list-style-type: none"> CNS, cardiovascular and respiratory systems 	
Clinical indications for Ketamine	<ul style="list-style-type: none"> Clinical indications for Ketamine 	
Contraindications to Ketamine	<p>Relative Contraindications to Ketamine:</p> <ul style="list-style-type: none"> Cerebral oedema Glaucoma Intracranial lesions 	
Use of Ketamine in induction and maintenance of anaesthesia, sedation and analgesia	<ul style="list-style-type: none"> Use of Ketamine in induction and maintenance of anaesthesia, sedation and analgesia 	
Complications of Ketamine including emergent reactions	<ul style="list-style-type: none"> Emergent reactions Increase in BP Possible increase in intracranial pressure 	
The Use of Propofol and Thiopentone as induction agents	<ul style="list-style-type: none"> Effects on airway reflexes and respiration Effects on haemodynamics 	
Uses of Morphine, Pethidine and Fentanyl	<ul style="list-style-type: none"> Pharmacokinetics and Dynamics Common side effects Dosaging Intrathecal use Tachyphylaxis and addiction 	

Resources:

The Pharmacological Basis of Therapeutics - Goodman and Gilman (13th Edition)
Clinical Anaesthesiology – Morgan and Mikhail (6th Ed)

UNIT 4 REGIONAL ANAESTHESIA**Learning Outcomes**

By the end of the rotation candidates will be competent to demonstrate knowledge and understanding of:

RA1	General principles of regional anaesthesia
RA2	Pharmacology of local anaesthetic agents

RA3	Central neuraxial block
RA4	Anaesthesia in pregnancy
RA5	Axillary block, supraclavicular and interscalene blocks
RA6	Ankle block, Wrist block, Digital blocks and other blocks

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SRA1	Assessing a patient for spinal anaesthesia
SRA2	Use of spinal anaesthesia in an obstetric patient
SRA3	Use of spinal anaesthesia in a non-obstetric patient
SRA4	Use of ankle, wrist and digital blocks,
SRA5	Performing an axillary block, supraclavicular block, interscalene block, supraorbital block.
SRA6	Performing caudal anaesthesia

DETAILED LEARNING CONTENT

Unit 4

Topic	Learning Outcomes	Method
General principles of regional anaesthesia	Benefits of regional anaesthesia Agents used in regional anaesthesia Methods of regional anaesthesia: <ul style="list-style-type: none"> • Local infiltration • Intravenous anaesthesia • Peripheral nerve block • Neuraxial block 	
The pharmacology of local anaesthetic agents	The pharmacology of local anaesthetic agents: <ul style="list-style-type: none"> • Mechanisms of action • Comparative pharmacology of different agents • Toxicity • Use of adjuvant agents to enhance the quality or extend duration of block 	
Central neuraxial block	<ul style="list-style-type: none"> • The anatomy of the vertebral column, spinal cord and meninges relevant to the performance of central neuraxial block • Appropriate surface markings • The absolute and relative contraindications to a central neuraxial block • The minor and major complications of a central neuraxial block • The prevention and management of headache, nausea, hypotension and bradycardia associated with a central neuraxial block 	
Anaesthesia in pregnancy	<ul style="list-style-type: none"> • Physiological changes in pregnancy 	

	<ul style="list-style-type: none"> • Use of spinal anaesthetic in LSCS 	
Axillary block and other blocks of the shoulder and arm	<ul style="list-style-type: none"> • Anatomy of the brachial plexus • Clinical indications for arm blocks • Contraindications • Complications of the different types of blocks • Techniques for axillary block – anatomical, nerve stimulator and USS guided 	
Ankle blocks, wrist blocks and digital ring blocks	<ul style="list-style-type: none"> • Anatomy of nerves of the ankle • Indications/contraindications for an ankle block • Technique for an ankle block • The anatomy and surface anatomy of nerves of the wrist • Contraindications to a wrist block • Technique for wrist block • Anatomy of nerves of the digits • Indications/contraindications for digital nerve blocks • Technique for digital nerve blocks. 	

Resources:

Clinical Anaesthesiology – Morgan and Mikhail (6th Ed)

UNIT 5 CRITICAL INCIDENTS**Learning Outcomes**

By the end of training, the trainee should be able to recognize, assess and manage pain appropriately with the analgesics available.

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

CI1	Management of haemorrhage and haemorrhagic shock
CI2	Management of hypotension including anaesthetic related hypotension
CI3	Management of cardiac arrhythmias
CI4	Management of cardiac arrest
CI5	Management of hypoxia
CI6	Management of anaphylaxis
CI7	Management of electrolyte abnormalities

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SCI1	Management of haemorrhage and haemorrhagic shock
SCI2	Management of hypotension

SCI3	Management of cardiac arrest in a simulated environment
SCI4	Management of hypoxia
SCI5	Management of anaphylaxis in a simulated environment

DETAILED LEARNING CONTENT**Unit 5**

Topic	Learning Outcomes	Method
Management of haemorrhage and haemorrhagic shock	<ul style="list-style-type: none"> • Physiology of haemorrhagic shock • Clinical diagnosis of haemorrhagic shock • Management of haemorrhagic shock • Blood transfusion • Massive blood transfusion 	
Management of hypotension	<ul style="list-style-type: none"> • Causes of hypotension during anaesthesia • Management of hypotension during anaesthesia 	
Management of cardiac arrhythmias	<ul style="list-style-type: none"> • Recognition of cardiac arrhythmias on ECG • Management of heart block, SVT, AF, VT and VF 	
Management of cardiac arrest	<ul style="list-style-type: none"> • Revision of ALS 	
Management of hypoxia	<ul style="list-style-type: none"> • Physiology of hypoxia • Causes of hypoxia during anaesthesia • Management of hypoxia during anaesthesia 	
Management of anaphylaxis	<ul style="list-style-type: none"> • Clinical diagnosis of anaphylaxis • Management of anaphylaxis 	
Management of electrolyte abnormalities	<ul style="list-style-type: none"> • Clinical diagnosis of electrolyte abnormalities • Management of electrolyte abnormalities 	

Resources:

Clinical Anaesthesiology – Morgan and Mikhail (6th Ed)

UNIT 6 PAIN MANAGEMENT AND POST-OPERATIVE MANAGEMENT**Learning Outcomes**

By the end of training, the trainee should be able to recognize, assess and manage pain appropriately with the analgesics available.

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PM1	Management of post-operative problems
PM2	Classification of pain types
PM3	Assessment of acute pain

PM4	WHO Pain Ladder and use of pain scales
PM5	Principles of analgesia
PM6	Pharmacology and use of opioids
PM7	Pharmacology and use of NSAIDS
PM8	Pharmacology and use of anticonvulsants relevant to pain management including carbamazepine and sodium valproate
PM9	An approach to the management of chronic pain including palliative care and knowledge of the PNG Pain Management Guidelines

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SPM1	Management of post-operative complications
SPM2	Management of pre-operative pain
SPM3	Management of post-operative pain

DETAILED LEARNING CONTENT

Unit 6

Topic	Learning Outcomes	Method
Management of post-operative problems	<p>Management of common post-operative problems including:</p> <ul style="list-style-type: none"> • Pain • Nausea and vomiting • Hypertension or hypotension • Tachycardia • Damage to oropharynx or trachea <p>Management of life threatening post-operative conditions including:</p> <ul style="list-style-type: none"> • Airway compromise • Hypoxia • Shock • Anaphylaxis • Altered mental state • Oliguria • Pulmonary embolus 	
Classification of pain types	<ul style="list-style-type: none"> • The basic physiological mechanisms of nociceptive pain-somatic and visceral pain • The basic physiological mechanisms of neuropathic pain • Phantom pain, psychogenic pain, breakthrough and incident pain • Physiological consequences of poor pain control 	

Assessment of acute pain	<ul style="list-style-type: none"> The principles of the assessment of acute pain including the relevance of functional assessment 	
WHO Pain Ladder and use of pain scales	<ul style="list-style-type: none"> Use of WHO Pain Ladder Use of pain scales and relevance to analgesia 	
Principles of analgesia	<ul style="list-style-type: none"> Agents and dosages for managing pain according to severity, including cautions and adverse effects 	
Pharmacology and use of opioids	<p>Opioid receptors including:</p> <ul style="list-style-type: none"> The mechanisms of action The oral, subcutaneous, intramuscular and intravenous routes Side effects of opioid use and their management including nausea and vomiting and sedation The dose conversion between commonly used opioids 	
Pharmacology and use of NSAIDS	<ul style="list-style-type: none"> Pharmacology, side effects and cautions in use of NSAIDS 	
Pharmacology and use of anticonvulsants relevant to pain management including carbamazepine and sodium valproate	<ul style="list-style-type: none"> Pharmacology, side effects and cautions in the use of anticonvulsants relevant to pain medicine, including carbamazepine and sodium valproate 	
An approach to the management of chronic pain including palliative care and knowledge of the PNG Pain Management Guidelines	<ul style="list-style-type: none"> Problems associated with chronic pain Central pain and neuropathic pain Addiction and tachyphylaxis “By the ladder, by the mouth and by the clock” Side effects PNG Pain Management Guidelines 	

Resources:

Clinical Anaesthesiology – Morgan and Mikhail (6th Ed)
 Bailey and Love – A Short Practice of Surgery (Chapter 23 and 24)

Other web based anaesthesia resources.

<https://resources.wfsahq.org/anaesthesia-tutorial-of-the-week/>
<https://wfsahq.org/>

Other options for training.

From time to time the Department of Anaesthesia will run the following workshops and candidates are encouraged to take the opportunity to do these where time allows.

1. SAFE Obstetrics Anaesthesia
2. SAFE Paediatric Anaesthesia
3. Essential Pain Medicine - BASIC course
4. Airway workshops
5. Capnography Training workshop



Module 3 – Child Health

1. Aims and Objectives of the Child Health Module

At the completion of the module the trainee will:

- Be able to safely manage the child who presents with common infectious illnesses to a rural hospital
- Have acquired a good knowledge of how to identify the child with failure to thrive, stunting, moderate and severe acute malnutrition. The trainee will have a good knowledge of the protocols of management for acute malnutrition in PNG
- Have a broad basic knowledge of normal developmental milestones in the first 5 years of life.
- Have a knowledge of the principles involved in the management of the low birthweight infant
- Have a sound knowledge of the immunization schedule and some understanding of the difficulties of the implementation of immunization programs in PNG.
- Have exposure to the diagnosis and management of children with Tuberculosis and HIV/AIDS
- Be able to do a competent newborn examination and identify common congenital abnormalities. In particular, he/she will be acquainted with the principles of Ponsetti management of TalipesEquinoVarus (TEV)
- Have a knowledge of the differences in management of trauma, including burns and blood loss in children

2. Clinical Duties

To work as a registrar in the Paediatric/Child Health Department and under the specialist's guidance.

- Do ward rounds
- Be responsible for the admission of paediatric emergencies to the hospital
- Attend to neonatal resuscitation in the labour ward and operating theatre as required
- Attend paediatric outpatient clinics
- Be exposed to well child clinics both at the hospital and if possible, in rural and/or remote settings

3. Teaching methods

Learning will be by clinical immersion supported by:

- Teaching ward rounds
- Department tutorials and case-based learning

- On-line case-based learning and other digital and video teaching materials

4. Content

Module 3: Child Health Units
1. The newborn baby, development and nutrition
2. Common congenital problems affecting children in PNG
3. Measuring growth and malnutrition
4. Infectious Diseases affecting children (non TB/HIV)
5. Tuberculosis and HIV in children
6. Immunizing children in PNG
7. Other medical problems in children
8. Trauma, burns, fluid replacement and pain in children

5. Assessment

Formative Assessment

- Log Book completed
- 7 case reports
- Written assignments – Three x 1000-1500 words each
- Satisfactory Registrar assessment form

Summative Assessment

- Components in the Part 2 exam will include Short Answer Questions (SAQ) and Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Viva exam - 40 minutes (component of Part 2 exam)
- Practical station questions (Part 2 exam)
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exam.

6. Case Reports and Written Assignment.

Written Assignments.

Three assignments will be chosen from the list below. These should be between **1000 and 1500 words in length** and should include appropriate references. They should be saved in pdf format and emailed to the training supervisor (MMED Rural Health Program) as per instructions on page 24.

Choose and Answer **ONLY THREE** questions for your Written Assignments from the following six below –

1. Discuss the current WHO recommendations for the management of children with severe malnutrition in relation to the practicalities of implementation in your district hospital setting.
2. Discuss the rationale for the current standard treatment for meningitis in children.
3. Discuss the management of children with asthma at the District Hospital level in terms of:
 - Ideal management
 - Practicalities in a rural setting
4. Discuss the current programs for:
 - Prevention of Mother (Parent) to Child Transmission of HIV
 - Treatment of HIV positive and HIV infected children with ART.
 What are the problems likely to be faced in managing children with HIV/AIDS at the District Hospital, and indicate possible solutions?
5. What are the indications for oxygen in the management of children with pneumonia? Discuss the problems in providing oxygen for children with pneumonia at your hospital and suggest ways in which these problems might be overcome.
6. Neonatal deaths account for between one third and one half of infant mortality in Papua New Guinea. Outline ways in which neonatal mortality can be reduced, focusing on district and community levels.
7. According to the last data available from the NHIS, the level of coverage of 1st dose of MR vaccine is around 32% and has declined over the last 10 years. Discuss the reasons for falling immunization coverage in PNG and list at least three strategies that can be implemented in your district to improve immunization coverage.

Case Reports.

Seven case reports need to be completed on the following case types:

1. A case of a child with tuberculosis
2. A case of meningitis
3. A case of Severe Acute Malnutrition
4. A case of severe diarrhoea with dehydration.
5. A case of low birth weight neonate <2000gm
6. A child presenting with HIV infection and AIDS
7. A child with severe anaemia requiring transfusion

Case reports are to be in the form of summaries indicating presentations, investigations (as far as possible), management, complications encountered and outcome. Case reports should be no longer than 3 A4 pages.

7. Tutorial and Case-Based Presentation (CBP) Program during Child Health Training Rotation.

A twice weekly tutorial/CBP program will be undertaken during the 6 week child health training block.

Tutorials - may be delivered by the supervisor OR presented by the trainee.

Case-Based Presentations – Starting with the case scenarios mentioned below, the student will present his/her assessment of the likely issues involved and how they would approach each case. This can become a platform for deeper discussion and teaching of the issues involved in each scenario.

Week 1 – Tutorial: Developmental milestones – 0-5 years

Week 1 – Tutorial: Moderate and Severe Malnutrition – Diagnosis and management protocols

Week 2 – Tutorial: Pneumonia in children and oxygen therapy in a rural setting.

Week 2 – Case-Based Presentation – “*The child in pain.*” *A child is brought in with severe burns to both arms after falling into the hot ashes in the cook house. What are the options for analgesia in this child and how does the fact that both arms are burned up to the elbows change your approach?*”

Week 3 – Tutorial: Cardiac diseases in Children – congenital and acquired

Week 3 – Tutorial: Kidney diseases in children.

Week 4 – Tutorial: The examination of the newborn baby

Week 4 – Case-Based Presentation – “*The child with cancer.*” *A boy of around 13 years of age presents with a mass in his thigh which has been expanding rapidly over the past 3 months. What are the common types of cancer in children in PNG? Give a brief overview of management options. Discuss broadly the difficulties of managing cancer in children compared to adults? Discuss*

the importance of early diagnosis and referral of “treatable” paediatric cancers (Retinoblastomas, Wilm’s tumour, Burkitt’s Lymphoma, neuroblastoma, rhabdomyosarcoma)

Week 5 – Tutorial: Talipes equinovarus and the Ponsetti technique

Week 5 – Tutorial: Management of diarrhoea and electrolyte imbalance.

Week 6 – Tutorial: The immunization schedule and common practical problems in its implementation in a rural setting.

Week 6 – Case-Based Presentation - *“Malaria and transfusion.” A child of 3 years of age presents from a remote area with severe pallor, generalized oedema, and splenomegaly. On investigation, the RDT is positive for Plasmodium falciparum and the Hb is 3.5g/dl. Discuss how you would manage this child who weighs only 9kg despite the oedema. Would you transfuse him/her? What are the difficulties of transfusion in children?*

UNIT 1 THE NEWBORN BABY, DEVELOPMENT AND NUTRITION

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

NDN1	Normal newborn examination
NDN2	Normal Developmental milestones – birth to 5 years
NDN3	Breast feeding
NDN4	Supplemental feeding in the newborn

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SNDN1	Perform a normal newborn examination.
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DETAILED LEARNING CONTENT

Unit 1

Topic	Learning Outcomes	Method
Normal newborn examination	<ul style="list-style-type: none"> Technique for examining the newborn 	
Normal Development Milestones 0-5 years	<ul style="list-style-type: none"> Normal developmental milestones 	
Breastfeeding	<ul style="list-style-type: none"> Nutritional and immunological advantages of breastfeeding compared with bottle feeding Good breastfeeding technique Common breastfeeding problems 	
Supplemental feeding in the newborn	<ul style="list-style-type: none"> Common child milk formula preparations and their components 	

	<ul style="list-style-type: none"> • Common situations where supplemental feeding may be required. • Principles of supplementary feeding in the child not gaining weight on the breast. Support for cup and spoon feeding and discouraging bottle feeding. • Care of bottles and other equipment used in supplemental feeding. 	
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UNIT 2 COMMON CONGENITAL PROBLEMS AFFECTING CHILDREN IN PNG

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

CCP1	Talipes EquinoVarus and the Ponsetti technique of management
CCP2	Congenital Heart Defects
CCP3	Cleft lip and Palate
CCP4	Congenital Hip Dislocation
CCP5	Herniae and undescended testis

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SCCP1	Perform a Ponsetti cast on a newborn with TEV
SCCP2	Perform proper examination of the hips on a newborn child

DETAILED LEARNING CONTENT

Unit 2

Topic	Learning Outcomes	Method
Talipes EquinoVarus and Ponsetti Technique of management	<ul style="list-style-type: none"> • The basic theory behind the deformity. • Comparing surgical vs non-surgical management • Basic theory of the Ponsetti technique of management of TEV 	
Congenital Heart Defects	<ul style="list-style-type: none"> • What are the common congenital heart defects in PNG? • Clinical differences in presentation 	

	<ul style="list-style-type: none"> • Understanding the referral chain for CHD in PNG. 	
Cleft Lip and Palate	<ul style="list-style-type: none"> • Embryology of the lip and palate • Differentiating cleft lip and palate • Complications to the child with cleft lip – feeding difficulties, aspiration • Surgical options for cleft lip and palate 	
Congenital Hip Dislocation	<ul style="list-style-type: none"> • Review of the proper technique for examining hips in the newborn and detection of CHD • Splinting options for CHD and timeframes for review 	
Herniae and undescended testis	<ul style="list-style-type: none"> • Embryology of the umbilicus • Umbilical hernia and when they need surgery and when they can be watched. • Checking for signs of hypothyroidism. Checking bone age. • Embryology of the inguinal canal and descent of the testis • Inguinal hernia in children - management • Hydrocoele in children - management • Undescended testis - management 	

Resources:

Paediatric Surgery – Foreman and Freeman (now out of print but available in .pdf format from Dr Mills)

Club foot – Ponsetti Management ; Lynn Staheli MD Global Help Press (available in .pdf format from Dr Mills)

UNIT 3 MEASURING GROWTH AND MALNUTRITION

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

MGM1	Methods and pitfalls in measuring growth.
MGM2	Important food groups. Nutritional components of common PNG garden and store bought foods
MGM3	Failure to thrive, stunting, acute malnutrition, marasmus, kwashiorkor
MGM4	Causes of undernutrition
MGM5	Protocols for management of Moderate and Severe Acute Malnutrition
MGM6	Childhood obesity

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SMGM1	Perform an accurate weight of a child under 10kg using hanging scales
SMGM2	Correctly fill out child weight in a child health record book.
SMGM3	Using standard charts to assess malnutrition referring to accurately recorded weight for age and weight for height measurements.
SMGM4	Correctly using and interpreting a MUAC tape

DETAILED LEARNING CONTENT

Unit 3

Topic	Learning Outcomes	Method
Methods and Pitfalls in measuring growth	<ul style="list-style-type: none"> • Types of scales • Methods of weighing children • Potential errors in measuring weights • How to correctly record weight in the child health record book. • Measuring the height of a child. • Using weight for age and weight for height charts • Diagnosing malnutrition 	
Important food groups. Nutritional components of common PNG garden and store bought foods	<ul style="list-style-type: none"> • Carbohydrates, Fats and Oils, Protein and Vitamins and Minerals • Assessing common children's diet in the region in which you work – protein content, carbohydrate and fat content. Are there common types of nutritional deficiencies in your area? • The fortifying of common foods with essential elements. • In what ways can villagers in your area improve their diet with items they can grow for themselves? • Common unhealthy foods consumed in PNG • The six important nutritional messages. <ul style="list-style-type: none"> • Breast feed 2 years • Complementary feeding from 6 months or when they can roll • Feed infants 4-6x daily • Giving a variety of foods • Feed during sickness and extra after sickness • Women need to eat more when pregnant and breastfeeding 	

Failure to thrive, stunting, acute malnutrition, marasmus and kwashiorkor.	<ul style="list-style-type: none"> Important definitions – failure to thrive; stunting; acute malnutrition – mild, moderate and severe Clinical features of the above conditions Prevalence of undernutrition in PNG and region by region – sector performance review. 	
Causes of undernutrition	<ul style="list-style-type: none"> Poverty – poor access Lack of knowledge of diet Community conflict Child neglect and trauma Commercial pressures 	
Protocols for management of moderate and severe acute malnutrition	<ul style="list-style-type: none"> Use of Z score charts for diagnosis and tracking Components of Resomal, F75, F100 and RUTF for treatment of malnutrition FSS and Milk Oil Forumla Protocols for treatment of MAM and SAM Concomitant illness in malnutrition – malaria, pneumonia, diarrhoea, TB, HIV 	
Childhood obesity	<ul style="list-style-type: none"> The increasing problem of obesity in affluent PNG Defining obesity Complications of obesity 	

Resources:

Hospital Care for Children (WHO) – Chapter 7

UNIT 4 INFECTIOUS DISEASES AFFECTING CHILDREN (NON TB/HIV)**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

ID1	Community Acquired Pneumonia and Oxygen Therapy
ID2	Bronchiolitis, Pertussis
ID3	Acute diarrhoea and electrolyte disturbance
ID4	Meningitis
ID5	Measles, Polio
ID6	Malaria in children
ID7	Care of the critically ill child

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SID1	Assemble the components of an oxygen delivery source from an oxygen bottle, including regulator, flowmeter, humidifier and oxygen tubing. Be able to name components and describe their function. Be able to state the approximate delivered FiO ₂ of different oxygen delivery devices.
SID2	Correctly applying nasal specs, nasal catheter and nasopharyngeal catheters for delivery of oxygen.

DETAILED LEARNING CONTENT**Unit 4**

Topic	Learning Outcomes	Method
Community acquired pneumonia and oxygen therapy	<ul style="list-style-type: none"> • Clinical features of CAP • Common organisms • Antibiotic protocols • Components of oxygen delivery systems – cylinders, regulators, flowmeters and flow splitters, humidifiers, nasal cannulae, nasal specs, masks • Oxygen concentrators and their maintenance • Pulse oximeters – use and problems • Complications of pneumonia – pneumothorax, abscesses, empyema disseminated sepsis. 	
Bronchiolitis and pertussis	<ul style="list-style-type: none"> • Features of bronchiolitis • Treatment of bronchiolitis • Complications of bronchiolitis • Infection control • Immunization protocols for pertussis • Clinical features of pertussis • Treatment of pertussis • Complications 	
Acute diarrhoea and electrolyte disturbance	<ul style="list-style-type: none"> • Acute watery diarrhoea – different types of diarrhoea: secretory vs osmotic. • Dysentery • Intussusception • Persistent diarrhoea • Diarrhoea with malnutrition • Antibiotic associated diarrhoea • Assessing dehydration • Treatment 	
Meningitis	<ul style="list-style-type: none"> • Clinical history and signs of meningitis • Laboratory investigations • Treatment • Complications • Meningococcal meningitis 	

	<ul style="list-style-type: none"> • Tuberculous meningitis 	
Measles and Polio	<ul style="list-style-type: none"> • Acute Fever and Rash Surveillance • Clinical presentation of measles. • Severe complicated measles • The role of Vitamin A • Other treatment for measles • Immunization rationale • Complications of measles • Public health measures • Clinical features of polio and Acute Flaccid Paralysis • Notifying and sending stool for diagnosis • Types of polio vaccine and current immunization regimes. 	
Malaria in children	<ul style="list-style-type: none"> • Severe malaria in children • Treatment protocols • Management of convulsions • Respiratory distress • Hypoglycaemia • Managing anaemia and transfusing a child 	
Care of the critically ill child	<ul style="list-style-type: none"> • Triageing the sick child • Emergency signs • Priority signs • Management of emergencies in children – Obstructed or absent breathing, respiratory distress, cyanosis, shock, convulsions, severe dehydration • Management of the choking child • Management of the airway in a child • Management of the unconscious child • How to position the unconscious child • IV fluid protocols in shock without malnutrition • Giving diazepam rectally for convulsions • Dosage of glucose IV • Managing severe dehydration • Common poisoning (kerosene, insecticides) • Drowning 	

Resources:

Hospital Care for Children (WHO) – Chapter 1,2,4,5,6

UNIT 5 TUBERCULOSIS AND HIV/AIDS IN CHILDREN

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

THV1	Diagnosing Tuberculosis
THV2	Common forms of tuberculosis in children
THV3	Bacillus Calmette-Guérin (BCG) Vaccine
THV4	Standard treatment guidelines for TB
THV5	Presentations of HIV/AIDS in children
THV6	Diagnosing HIV infection and AIDS in children
THV7	ART management including PMTCT

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

STHV1	Giving intradermal BCG vaccine to a newborn child.
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DETAILED LEARNING CONTENT

Unit 5

Topic	Learning Outcomes	Method
Diagnosing Tuberculosis	<ul style="list-style-type: none"> • TB scoring • Clinical features of TB • Collecting sputum for diagnosis • Lymph node biopsy • TB staining and Gene Xpert 	
Common forms of Tuberculosis in children	<ul style="list-style-type: none"> • Pulmonary TB • TB Meningitis • TB pleural and pericardial effusions • Lymph node TB • Abdominal TB • Potts disease 	
Bacillus Calmette-Guérin (BCG) vaccine	<ul style="list-style-type: none"> • History of the vaccine • Who should receive it? • What are the benefits? • Mantoux testing 	
Standard treatment guidelines for TB	<ul style="list-style-type: none"> • The principles of treatment • Drug combinations and preparations • Possible and probable side effects • Drug resistant TB. 	
Presentation of HIV/AIDS in children	<ul style="list-style-type: none"> • Clinical presentation 	

Diagnosing HIV infection and AIDS in children	<ul style="list-style-type: none"> • Clinical staging using WHO criteria • Serological tests and viral loads 	
ART management and PMTCT	<ul style="list-style-type: none"> • Anti retroviral drugs • When to start therapy • Side effects and monitoring • Prevention of parent to child transmission • Infant feeding in the context of HIV 	

Resources:

Hospital Care for Children (WHO) – Chapter 7,8

UNIT 6 IMMUNIZING CHILDREN IN PNG**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

ICP1	Standard immunization protocols in PNG
ICP2	Maintaining a cold chain – the technology of delivering vaccines
ICP3	The well child clinic – running an outreach patrol
ICP4	Administering vaccines properly
ICP5	Catch up immunization protocols – immunization in real world PNG.

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SICP1	Preparing and giving oral, intradermal, subcutaneous and intramuscular vaccines properly.
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DETAILED LEARNING CONTENT**Unit 6**

Topic	Learning Outcomes	Method
Standard Immunization protocols in PNG	<ul style="list-style-type: none"> • The different types and preparations of the various vaccines • Current vaccine schedule 	
Maintaining a cold chain – the technology of delivering vaccines	<ul style="list-style-type: none"> • What is a cold chain? • How do vaccines arrive at your facility? • Is there a way to measure if the cold chain has been preserved? • Equipment for patrols. How to store vaccines for patrols. • When should vaccines be thrown out and not used? 	

	<ul style="list-style-type: none"> • Types of refrigeration 	
The well child clinic – running an outreach patrol	<ul style="list-style-type: none"> • Organizing a team. • Well child checks • Immunizations – actually getting it done. • Disposal of waste • Public health and teaching 	
Administering vaccines properly	<ul style="list-style-type: none"> • Techniques for oral, intradermal, subcutaneous, and intramuscular vaccine delivery. 	
Catch up immunization protocols – immunization in real world PNG	<ul style="list-style-type: none"> • What about when the child has missed vaccines for months and years? • The grown child who has never been vaccinated. 	

Resources:

Standard Treatment Manual for Common Illnesses of Children in PNG (12th Edition)

UNIT 7 OTHER MEDICAL ISSUES IN CHILDREN**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

OM1	Acute Rheumatic Fever and Rheumatic Heart Disease
OM2	Common kidney problems
OM3	Anaemia and Heart failure
OM4	Asthma and bronchiectasis
OM5	The child with seizures

DETAILED LEARNING CONTENT**Unit 7**

Topic	Learning Outcomes	Method
Acute Rheumatic Fever and Rheumatic Heart Disease	<ul style="list-style-type: none"> • Diagnosis • Investigations • Management • Follow up • Complications 	
Common kidney problems	<ul style="list-style-type: none"> • Urinary tract infection – simple and recurrent • Nephrotic syndrome 	

	<ul style="list-style-type: none"> • Nephritis and the nephritic syndrome 	
Anaemia and Heart Failure	<ul style="list-style-type: none"> • Common causes of severe anaemia • Transfusion issues in children • Clinical signs of heart failure • Causes of heart failure in children • Treatment of heart failure 	
Asthma and bronchiectasis	<ul style="list-style-type: none"> • Clinical features of asthma • Mild, moderate, severe life threatening asthma • Treatment of mild, moderate and severe asthma • Oral vs inhaled medications • The delivery of aerosol medications • Making spacers • Using an asthma management plan • Adjuncts to treatment in severe asthma – steroids, adrenaline, magnesium • Complications of asthma – atelectasis, pneumothorax, pneumonia 	
The child with seizures	<ul style="list-style-type: none"> • Febrile seizures • Meningitis • Other infective causes of seizures • Primary and secondary epilepsy • Focal vs generalized seizures • When to commence treatment • Principles of therapy 	

Resources:

Hospital Care for Children (WHO) – Chapter 3,4

UNIT 8 TRAUMA, BURNS, FLUID REPLACEMENT AND PAIN IN CHILDREN**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

TBF1	Fundamentals of trauma management in children
TBF2	Burns in children - management
TBF3	IV access, fluid replacement and transfusion in children
TBF4	The management of acute pain in children

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

STBF1	Insert and properly secure an intravenous access in a child under 10kg.
STBF2	Calculate maintenance fluid requirements for children of various weights accurately.
STBF3	Assembling and filling a burette, ready to be joined to an IV. Describe the components and how to use a burette.

DETAILED LEARNING CONTENT**Unit 8**

Topic	Learning Outcomes	Method
Fundamentals of trauma management in children	<ul style="list-style-type: none"> Blood volume in children and managing blood loss. Important physiological differences in children Temperature control Managing the airway in a child Primary and secondary survey Treatment of shock 	
Burns in children – management (note burns are covered in more detail in the surgical blocks)	<ul style="list-style-type: none"> Calculating percentage burns in children Rehydrating the burned child Anaesthetic options for managing burns Types of dressings and splinting Infection control High risk burns 	
IV access, fluid management and transfusion in children	<ul style="list-style-type: none"> Techniques for gaining IV access in children I/O infusion Splinting Preparing and using a burette. Calculating flows using drops per minute Calculating maintenance fluid rates Types of fluid for use in children – components and when to use them Emergency IV access in children 	
Pain management in children	<ul style="list-style-type: none"> Acute management of severe pain in children Types of preparations that can be used – oral, rectal, IM, IV and SC Intranasal preparations Principle of pain relief in children. 	

Resources:

Hospital Care for Children (WHO) – Chapter 9



Module 4 – Obstetrics and Gynaecology

1. Overview of the two streams of Obstetrics and Gynaecology teaching in MMED(Rural Health)

As previously described, the MMED(Rural Health) program allows for two streams during the first three years of training. Students may elect to do their Part 1 in Surgery, OR in Obstetrics and Gynaecology.

For students choosing to do their Part 1 in Obstetrics and Gynaecology (O&G) there will be 3 separate blocks of training, each of THREE months duration. They will take their Part 1 exams in O&G (as well as doing the Common Core exam along with all other Part 1 post graduate students). The Aims and Objectives, O&G Teaching Units, Tutorials and Assignments for these students will therefore entail the **FULL** program as outlined below.

For students doing their Part 1 in Surgery, there will be ONE training block of three months duration. The Aims and Objectives, Surgery Teaching Units, Tutorials and Assignments will be the **ABBREVIATED** program as outlined below.

2. Aims and Objectives of the O&G Module

- Aims and Objectives are listed in two groups below – the **ABBREVIATED** program (Surgery Part 1 students), highlighted **in green**, and the **FULL** program which includes all of the Aims and Objectives of the abbreviated program PLUS the extra Aims and Objectives, highlighted **in brown**.

Abbreviated program trainees:

- Will have a sound knowledge of female reproductive physiology and be able to manage common problems associated with the menstrual cycle.
- Will have knowledge of common contraceptive methods and be able to safely prescribe and educate patients on their use, including community advocacy on the benefits of family planning
- Will know the causes and management of loss of pregnancy, especially in the first trimester.
- Will be able to diagnose and manage ectopic pregnancy.
- Will have knowledge of the management of a normal labour in both primigravida and multigravida.
- Will have a basic understanding of the diagnosis and management of common problems of pregnancy and labour, including twins, breech presentation, PIH/Toxaemia of pregnancy (including eclampsia), APH, PPH, Failure to Progress and retained placenta.
- Will have a basic knowledge of the management of puerperal sepsis

- Will be able to describe the technique and safely perform an uncomplicated Caesarean Section, vacuum extraction, and tubal ligation (both interval and post-partum).
- Will have knowledge of resuscitation of the newborn (also covered in child health module)

Full program trainees – in addition to the above:

- Will have more advanced knowledge in the understanding and management of:
 - PIH, APH and PPH
 - Puerperal sepsis and the surgery for pelvic sepsis
 - Complications of Caesarean Section
- Will have knowledge of the causes and management of infertility.
- Will learn about diagnosis and management of endometriosis
- Will have a basic understanding of the common gynaecological tumours in PNG
- Will be taught in the technique of total abdominal hysterectomy
- Will know something of the common congenital abnormalities that may cause difficulties in labour and will understand the techniques of destructive delivery
- Will know the principles of resuscitation of the newborn (Note: this is also covered in the child health module but its principles are repeated here.)

3. Clinical Duties

To work as a registrar in the O&G Department and under the specialist's guidance.

- Do ward rounds
- Conduct O&G outpatient clinics
- Attend to O&G emergencies on the wards and in the emergency department
- Provide O&G consultative services to other departments as required
- Assist in deliveries and in surgery with the consultant
- Perform surgeries independently or with assistance as directed
- Provide post-operative care
- Be involved in training of junior staff.

4. Teaching methods

Learning will be by clinical immersion supported by:

- Teaching ward rounds
- Teaching during surgery
- Department tutorials and case-based learning
- On-line case-based learning and other digital and video teaching materials

5. Content

Module 1: O&G Units (Abbreviated program) (Full program)
1. The menstrual cycle and problems of menstruation
2. Contraception and family planning
3. The normal pregnancy and antenatal care
4. Loss of pregnancy – miscarriage and ectopic pregnancy
5. Normal labour and delivery
6. Antepartum haemorrhage (basic)
7. Pregnancy induced hypertension and pre-eclampsia (basic)
8. Failure to progress – the abnormal labour.
9. Post-partum haemorrhage (basic)
10. Puerperal sepsis (basic)
11. Caesarean Section and vacuum extraction
12. Multiple pregnancy
13. Medical problems during pregnancy
14. Infertility
15. Endometriosis
16. Gynaecological tumours
17. Hysterectomy
18. Pelvic sepsis
19. Pre-eclampsia (advanced)
20. Induction and Augmentation of labour
21. Post-partum haemorrhage (advanced) and complications of Caesarean Section.
22. Pre-term labour
23. Management of congenital abnormalities and destructive deliveries

24. Resuscitation of the newborn.

25. The puerperium

26. Assessment

Formative Assessment

- Log Book completed
- Case reports – 3 for **basic** program and 7 for **advanced** program.
- Written assignments – One x 1500 words (both programs)
- Satisfactory Registrar assessment form

Summative Assessment

- Components in the Part 2 exam will include Short Answer Questions (SAQ) and Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Viva exam - 20 minutes (component of Part 2 exam)
- Practical station questions (Part 2 exam)
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exam.

27. Case Reports and Written Assignment.

Written Assignments.

One assignment will be chosen from the list below. This should be between **1500 and 2000 words in length** and should include appropriate references. It should be saved in pdf format and emailed to the training supervisor (MMED Rural Health program) as per instructions on page 24.

Choose and Answer **ONLY ONE** question for your Written Assignment from the following six below –

1. Discuss options that are normally available for family planning in the rural area in which you work, the community attitudes towards the family planning methods and the practical difficulties in maintaining effective

family planning. Discuss any steps you have taken to increase the effectiveness, accessibility and coverage of family planning in your area.

2. Supervised birthing rates in PNG remain chronically low. Discuss the reasons behind the low rate of supervised birth and ways in which health systems can be improved to help lift this rate. Has there been an improvement in this rate in your area in the last decade and why?
3. Discuss the types and causes of cervical cancer, along with a brief discussion about staging and treatment modalities.
4. Prevention strategies for cervical cancer remain the biggest hope for change in this serious disease. Discuss the types of prevention strategies that have been, and are now being employed in PNG. How effective have they been and why? What are the possibilities for improving cervical cancer prevention in the future?
5. How is ultrasound being employed in rural areas of PNG? Discuss the types of new technology available, how it is useful in the clinical practice of obstetric and gynaecological practice in rural and remote areas.
6. What are the types and causes of infertility? Are there significant differences in the causes of infertility in PNG? Present data if you have it, as to the frequency of presentations of infertility to clinic services? What are the attitudes and beliefs of men and women to infertility in your area?

Case Reports.

Six case reports need to be completed on each of the following case types:

1. A case of a woman with failure to progress in labour
2. A case of abnormal menstruation
3. A case of Puerperal Sepsis
4. A case of antepartum haemorrhage OR ectopic pregnancy
5. A case of postpartum haemorrhage
6. A case of gynaecological malignancy.

Case reports to be in the form of summaries indicating presentations, investigations (as far as possible), management, complications encountered and outcome. Case reports should be no longer than 3 (THREE) A4 pages.

28. Tutorial and Case-Based Presentation (CBP) program during Child Health Training rotation.

A twice weekly tutorial/CBP program will be undertaken during the 12 week (basic) and 36 week (advanced) O&G training block.

Tutorials - may be delivered by the supervisor OR presented by the trainee.

Case-Based Presentations – Starting with the case scenarios mentioned below, the student will present his/her assessment of the likely issues involved and how they would approach each case. This can become a platform for deeper discussion and teaching of the issues involved in each scenario.

Week 1 – Tutorial: The normal menstrual cycle – physiology and taking a menstrual history.

Week 1 – Tutorial: Menorrhagia and Dysmenorrhoea

Week 2 - Tutorial: Contraceptive methods – Barriers, IUD's and tubal ligation

Week 2 - Tutorial: Contraceptive methods – Hormonal methods: COC, POP, implants and others. How to prescribe and what advice to give the patient.

Week 3 - Tutorial: Routine antenatal care – outlining a program of care.

Week 4 - Tutorial: Basic USS in antenatal care – understanding your machine.

Identifying presentation, lie, fetal viability and placental position.

Week 4 – Case-Based Presentation – “*A 25 year old woman who has had two unwanted pregnancies comes to talk to you about family planning. Outline the sorts of questions you might ask her in this situation as you think about family planning options for her. With respect to the combined oral contraceptive (COC), discuss the basic instructions you might give someone who is using this method for the first time. Do similarly for the Progesterone Only Pill (POP)*”

Week 5 - Tutorial: Miscarriage and ERPC

Week 5 - Tutorial: Ectopic pregnancy

Week 6 - Tutorial: Normal labour – stages of labour

Week 6 – Case-Based Presentation - “*A 23 year old woman comes to you with a vague history of abdominal pain for a week. She has no menstrual bleeding. She is somewhat pale and at times feels dizzy. Discuss how you would approach this case.*”

Week 7 - Tutorial: Partograms and examination in labour

Week 7 - Tutorial: Episiotomy – should it be used and if so, how?

Week 8 – Case-Based Presentation – “*A primigravid has now been in Stage 2 for 2 hours. The head is at +2 and is OA. Liquor has mild meconium staining. The fetal heart rate is steady at 140bpm with no obvious decelerations with contractions. How would you manage this scenario.*”

Week 8 - Tutorial: Caesarean Section – basic technique – video.

Week 9 - Tutorial: Antepartum haemorrhage

Week 9 - Tutorial: Pre-eclampsia

Week 10 – Case-Based Presentation - “*A G2P1 mother at 32 weeks presents to A&E with abdominal pain of 3 hours duration and some vaginal blood loss. The fundus is tender. How would you approach this situation?*”

Week 10 – Tutorial Failure to progress – the abnormal labour

Week 11 - Tutorial: Post-partum haemorrhage

Week 12 – Case-Based Presentation – “A G5P5 mother has just delivered a healthy baby girl. You are examining the child with the help of the nurse and as you turn around you are shocked to see the floor covered in blood. The patient is grey, her breathing is shallow and rapid and she is not responding sensibly to you. Could this situation have been avoided? What are you going to do now?”

Week 12 - Tutorial: Puerperal sepsis

Week 12 - Tutorial: Caesarean Section – problems

Week 13 - Tutorial: Infertility – causes in PNG

Week 13 – Case-Based Presentation – “A 22 y.o. woman has been married for 3 years but has not had her first baby yet. She did have a miscarriage during their first year of marriage. She has not had any other children prior to her being married. Discuss this case and your approach.”

Week 14 - Tutorial: Treatments in infertility

Week 14 - Tutorial: Endometriosis

Week 15 - Tutorial: Assisted delivery

Week 15 - Tutorial: Ovarian malignancies – benign

Week 16 - Tutorial: Ovarian cystectomy – the methods and potential problems

Week 16 - Tutorial: Ovarian cancer – diagnosis, staging and treatment.

Week 17 – Case-Based Presentation - “A middle aged woman comes to you with a large abdominal mass that is causing her some pain. She says that it has been growing over the past 1-2 years but can’t say exactly when it started. She feels full when she eats. She has not had any periods for 5 years. She finds it hard to do her normal garden work these days. The mass palps at about 3 finger breadths above the umbilicus. How would you approach this situation?”

Week 17 - Tutorial: Endometrial cancer

Week 18 - Tutorial: Uterine fibroids

Week 18 - Tutorial: Cervical erosions and cervical polyps

Week 19 - Tutorial: Cervical cancer – pathophysiology and treatment

Week 19 - Case Based Presentation - “You are the district medical officer in Balimo. A woman of about 35 from the local town presents to you complaining of irregular PV bleeding which is somewhat offensive. What other questions would you be wanting to ask this woman? When you examine her, she appears pale and perhaps slightly less strong than you have known her in the past. Her abdominal examination is unremarkable but when you do a speculum, there is a significant amount of blood in the upper vagina. When you clear this away, it’s clear she has a tumour involving most of her cervix. What are you looking for during this examination? Would you operate on her? Would you refer her to the local provincial hospital at Daru (by aircraft) for further opinion? Explain your thinking during this process.”

Week 20 - Tutorial: Types of cervical screening programs.

Week 20 - Tutorial: Doing a D&C – describing the technique

Week 21 - Tutorial: Total abdominal hysterectomy

Week 21 - Tutorial: Caesarean hysterectomy and other variations on Caesarean section – extensions of LUSCS and classical section.

Week 22 - Tutorial: Pelvic sepsis – treatment of PID

Week 22 – Case-Based Presentation - “A 30 year old woman presents with acute abdominal pain of 1 week’s duration and some offensive vaginal discharge. She has a low grade fever,

pulse of 90bpm and BP of 120/85. She is very tender across the suprapubic area generally, perhaps more-so on the left. It's not easy to identify if there is a mass present or not. How would you manage this situation at your district hospital?"

Week 22 - Tutorial: Pelvic sepsis – complications of unsterile attempts at abortion.

Week 23 - Tutorial: Pre-eclampsia – theories of causation. The HELLP syndrome.

Week 23 - Tutorial: Eclampsia

Week 24 – Case-Based Presentation – “*You are the district medical office at the new district hospital in Koroba, Hela Province. A 20 y.o. primipara who is well known to you presents at 32/40 gestation. You notice she is quite puffy around the face compared with normal. She says she feels OK. The baby is moving normally. She has noticed her ankles are quite swollen. Her pre-pregnancy weight was 55kg which is fairly normal for young women in this population. Her height is 160cm. She is now 70kg. Her BP is 137/85. Is this abnormal? (keeping in mind the population in which you are working). How would you manage this situation?"*

Week 24 - Tutorial: Induction of labour - techniques

Week 25 – Case-Based Presentation – “*You are district medical officer at Kerevat Hospital, ENB. A G4P3 mother is now at 39 weeks gestation in the current pregnancy which you know to be singleton. Her last child was 4.5kg and this baby also palps as large – the SF height is 43cm. Would you induce this woman's labour? Explain your reasons. What features on history or examination would influence your decision? How would you proceed?"*

Week 25 - Tutorial: Augmentation of labour

Week 26 - Tutorial: Post-partum haemorrhage – causes reviewed and incidence.

Week 26 - Tutorial: Estimating blood loss – practical exercise.

Week 27 - Tutorial: Post-partum haemorrhage – what to do?

Week 27 - Tutorial: Congenital abnormalities 1

Week 28 - Tutorial: The HIV positive woman who is pregnant.

Week 28 – Case-Based Presentation – “*A woman presents to you for her first antenatal visit at 32/40. You check her blood and find that the test is positive for HIV antibodies. She looks well and shows no signs of immunocompromise. How would you proceed?"*

Week 29 - Tutorial: The destructive delivery

Week 29 - Tutorial: Resuscitation of the newborn.

Week 30 - Tutorial: Breast feeding problems.

Week 30 – Case-Based Presentation – “*A multigravida woman is flown in to you from a remote village. She has been in labour at term for nearly 4 days now. The arm of the baby is now hanging out of the introitus nearly all the way to the shoulder. It is dull in colour and the skin is peeling off. There is no foetal heart heard. How would you approach this? Would your management be different if she was a primipara?"*

Week 31 - Tutorial: The puerperium

Week 31 - Tutorial: Post-partum depression

Week 32 – Case-Based Presentation – “*A woman presents 2 weeks after having delivered her first baby complaining of nipple soreness and pain in the upper outer quadrant of one breast. There is evidence of swelling and tenderness in that area but no fluctuation. You also notice that her nipples are grazed and they are somewhat inverted. How would you manage this situation?"*

Week 32 - “*The first law of medicine - Primum non nocere.*” Discuss what this ancient principle means and discuss at least TWO practical surgical scenarios where this principle may help to guide our decision making.

The last 4 weeks of rotation 3 will be set aside for catching up on unfinished topics and preparation for the Part 1 exam.

UNIT 1 - THE MENSTRUAL CYCLE AND PROBLEMS OF MENSTRUATION

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

MC1	The normal menstrual cycle
MC2	Taking a menstrual history
MC3	Irregular periods and amenorrhoea
MC4	Menorrhagia
MC5	Dysmenorrhoea

DETAILED LEARNING CONTENT

Unit 1

Topic	Learning Outcomes	Method
The normal menstrual cycle	<ul style="list-style-type: none"> • Physiology of ovulation • Physiology of endometrial changes • Normal variability of menstrual cycle • Normal symptoms – Mittleschmertz, what are “normal” levels of pain and bleeding? 	
Taking a menstrual history	<ul style="list-style-type: none"> • Length of cycle • Regularity • Length of bleeding • Amount of bleeding • Pain • Pre-menstrual symptoms 	
Irregular periods and amenorrhoea	<ul style="list-style-type: none"> • Causes of anovulation • PCOS and weight gain • Other causes of amenorrhoea 	
Menorrhagia	<ul style="list-style-type: none"> • Causes • Medical treatments • Surgical treatments 	
Dysmenorrhoea	<ul style="list-style-type: none"> • Common causes of dysmenorrhoea • Treatments for dysmenorrhea. 	

Resources: Primary Mother Care and Population, 3rd Edition 2023

UNIT 2 - CONTRACEPTION AND FAMILY PLANNING

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

CFP1	“Natural Family Planning”
CFP2	Barrier methods of contraception
CFP3	The combined oral contraceptive pill
CFP4	The progesterone only pill
CFP5	Implants
CFP6	Intrauterine devices
CFP7	Sterilization – Tubal ligation and vasectomy

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SCFP1	Inserting a subdermal implant
SCFP2	Know the principles of inserting an IUD
SCFP3	Know the principles of doing a vasectomy and tubal ligation

DETAILED LEARNING CONTENT

Unit 2

Topic	Learning Outcomes	Method
“Natural Family Planning”	<ul style="list-style-type: none"> The Calendar method The symptom method 	
Barrier methods of contraception	<ul style="list-style-type: none"> Condoms – male and female 	
The combined oral contraceptive pill	<ul style="list-style-type: none"> Composition Method of efficacy Contraindications Prescribing advice Common side effects Missed pill rules 	
The progesterone only pill	<ul style="list-style-type: none"> Composition Methods of efficacy Prescribing rules Common side effects 	
Implants	<ul style="list-style-type: none"> Composition 	

	<ul style="list-style-type: none"> • Methods of insertion • Methods for removal • Side effects and effects on menstrual patterns • Spurious side effects 	
Intrauterine devices	<ul style="list-style-type: none"> • With and without progesterone • Side effects • Contraindications • Insertion methods • Advice to patients • Removal 	
Sterilization – Tubal ligation and vasectomy	<ul style="list-style-type: none"> • Efficacy of Tubal ligation • Risks • Technique • Post op care and advice • Efficacy of vasectomy • Risks • Technique • Post op care and advice 	

Resources:Primary Mother Care and Population, 3rd Edition 2023Caring for PNG Women and their NewbornsContraception – Your questions answered John Guillebaud (7th Edition)**UNIT 3 – THE NORMAL PREGNANCY AND ANTENATAL CARE****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

NPAC 1	The first antenatal visit and examination of the pregnant mother
NPAC 2	Subsequent visits
NPAC 3	Common symptoms of pregnancy
NPAC 4	Common questions and beliefs in pregnancy

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

NPAC 1	Examining the pregnant patient
NPAC 2	Use of Pinnard's stethoscope and doppler ultrasound

DETAILED LEARNING CONTENT**Unit 3**

Topic	Learning Outcomes	Method
The first antenatal visit and examination of the pregnant mother	<ul style="list-style-type: none"> • What are we screening for? • Making the mother feel comfortable. • Routine steps in the visit • Identifying the high risk pregnancy • Vaccinations • The examination • Screening pathology tests • Record keeping 	
Subsequent visits	<ul style="list-style-type: none"> • Further examination • Pathology • Planning for delivery 	
Common symptoms of pregnancy	<ul style="list-style-type: none"> • Pains • Nausea • Types of fetal movements felt • Bleeding 	
Common questions and beliefs in pregnancy	<ul style="list-style-type: none"> • Allowable foods • Sex in pregnancy • Medications in pregnancy • Place of delivery • Others? 	

Resources:Primary Mother Care and Population, 3rd Edition 2023**UNIT 4 – LOSS OF PREGNANCY – MISCARRIAGE AND ECTOPIC PREGNANCY****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

LOP1	Miscarriage – types, causes, incidence
LOP 2	Medical management of miscarriage
LOP 3	Mid trimester abortion
LOP 4	Surgical management of miscarriage
LOP 5	Ectopic pregnancy - types
LOP 6	Approach to the surgery of ectopic pregnancy

Medical and Surgical Skills

By the end of learning the trainee should have demonstrated competency in:

SLOP1	Performing an evacuation of retained products of conception
SLOP2	Performing surgery for ectopic pregnancy
SLOP3	Culdoscentesis

DETAILED LEARNING CONTENT

Unit 4

Topic	Learning Outcomes	Method
Miscarriage – types, causes, incidence	<ul style="list-style-type: none"> • Threatened miscarriage • Blighted ovum • Missed abortion • Incomplete miscarriage • Complete miscarriage • Incidence of miscarriage • Possible causes and mythology about miscarriage. 	
Medical management of miscarriage	<ul style="list-style-type: none"> • Protocols for use of misoprostol 	
Surgical management of miscarriage	<ul style="list-style-type: none"> • Techniques for evacuation of retained products of conception. 	
Mid Trimester abortion	<ul style="list-style-type: none"> • Peculiar problems of mid trimester miscarriage • Retained underdeveloped placenta • Risks of surgery 	
Ectopic pregnancy - types	<ul style="list-style-type: none"> • Clinical history of ectopic pregnancy • Examination findings • Investigations • The various types of ectopic pregnancy 	
Approach to the surgery of ectopic pregnancy	<ul style="list-style-type: none"> • Surgery for tubal, fimbrial and ovarian ectopic pregnancy • Abdominal ectopic 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

UNIT 5 – NORMAL LABOUR AND DELIVERY

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

NLD1	Diagnosing labour
NLD2	Stages of labour
NLD3	Use of the partogram
NLD4	The vaginal examination
NLD5	Care of the mother in labour
NLD6	Delivery of the baby
NLD7	The third stage
NLD8	The early post-partum period

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SNLD1	Vaginal examination during labour
SNLD2	Normal delivery of the baby and the placenta
SNLD3	Essential newborn care

DETAILED LEARNING CONTENT

Unit 5

Topic	Learning Outcomes	Method
Diagnosing labour	<ul style="list-style-type: none"> • False labour • Contraction history • Rupture of membranes 	
Stages of labour	<ul style="list-style-type: none"> • Latent phase • Active phase of the first stage • Second stage • Third stage 	
Use of the partogram	<ul style="list-style-type: none"> • Why use a partogram? • How to record examination findings • The alert line • The action line • Protocols for action 	
The vaginal examination	<ul style="list-style-type: none"> • Approach to the patient. Asking the patient and explaining the exam. • Introitus and discharge • Dilation of cervix • Consistency of cervix • Position of cervix • Cervical effacement 	

	<ul style="list-style-type: none"> • Application of presenting part • Station and bimanual check for the level of the head • Assessing rotation of the presenting part and the significance of sacral pain • Membranes and liquor assessment • Unexpected findings – cord, limbs, placenta 	
Care of the mother in labour	<ul style="list-style-type: none"> • Psychological • Pain relief • Mobility • Hydration and nutrition • Support persons in labour 	
Delivery of the baby	<ul style="list-style-type: none"> • Preparing for the delivery – for the mother • Preparing for delivery – for the baby • Positions for delivery • Cephalic delivery • Breech delivery • Assessing Apgars • Skin to skin care of the baby with the mother or does it need resuscitation? 	
The Third Stage	<ul style="list-style-type: none"> • When to cut the cord • Active management of the third stage. • When the placenta does not separate quickly 	
The early post-partum period	<ul style="list-style-type: none"> • Observations • Timing of breastfeeding • Vaginal loss • Pain relief • Washing and hygiene. 	

Resources:Primary Mother Care and Population, 3rd Edition 2023A Guide to Effective Care in Pregnancy and Childbirth – Murray Enkin (2nd Edition)**UNIT 6 – ANTEPARTUM HAEMORRHAGE (BASIC)****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

APH1	Placental abruption
APH2	Placenta praevia and vasa praevia

APH3	Foetal death in utero
APH4	Other causes of antepartum bleeding

DETAILED LEARNING CONTENT**Unit 6**

Topic	Learning Outcomes	Method
Placental abruption	<ul style="list-style-type: none"> • Types • Causes • Clinical presentation • Management 	
Placenta praevia and vasa praevia	<ul style="list-style-type: none"> • Types • Clinical presentation and natural history • Management 	
Fetal death in utero	<ul style="list-style-type: none"> • Clinical features • Management • Complications 	
Other causes of antepartum bleeding	<ul style="list-style-type: none"> • Cervical erosions and cervical lesions • Trauma • Others 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

UNIT 7 – PREGNANCY INDUCED HYPERTENSION AND PRE-ECLAMPSIA (BASIC)

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PIH1	Types of hypertension in pregnancy
PIH2	Pre-eclampsia - causes
PIH3	Examination and investigations in pre-eclampsia
PIH4	Mild, moderate and severe pre-eclampsia
PIH5	Management of pre-eclampsia

DETAILED LEARNING CONTENT**Unit 7**

Topic	Learning Outcomes	Method
Types of hypertension in pregnancy	<ul style="list-style-type: none"> • Pre-existing “essential” hypertension 	

	<ul style="list-style-type: none"> • Gestational hypertension • Pre-eclampsia 	
Pre-eclampsia - causes	<ul style="list-style-type: none"> • Theories of causation 	
Examination and investigations in pre-eclampsia	<ul style="list-style-type: none"> • Symptoms of severe pre-eclampsia • Clinical examination features • Recording blood pressure accurately • The importance of relative increases in BP vs absolute levels of BP. • Investigations for the pregnant woman with high blood pressure. 	
Mild, moderate and severe pre-eclampsia	<ul style="list-style-type: none"> • Diagnostic criteria • Features of severe pre-eclampsia 	
Management of pre-eclampsia	<ul style="list-style-type: none"> • Planning for timely delivery • Facilitating fetal lung maturity • When to use antihypertensives • The place of Magnesium 	

Resources:Primary Mother Care and Population, 3rd Edition 2023A Guide to Effective Care in Pregnancy and Childbirth – Murray Enkin (2nd Edition)**UNIT 8 – FAILURE TO PROGRESS: THE ABNORMAL LABOUR****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

FTP1	Recognizing failure to progress
FTP2	Powers, passage or passenger?
FTP3	Management of Failure to Progress

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

STBF1	Examining the woman with failure to progress.
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DETAILED LEARNING CONTENT**Unit 8**

Topic	Learning Outcomes	Method
Recognizing failure to progress	<ul style="list-style-type: none"> • Review of using the partogram • Is this false labour or FTP? 	

Powers, passage or passenger?	<ul style="list-style-type: none"> Examination features of obstruction vs incoordinate labour 	
Management of Failure to Progress	<ul style="list-style-type: none"> Assessing maternal and foetal wellbeing The decision to augment labour – when is it safe? Options for facilitating delivery 	

Resources:Primary Mother Care and Population, 3rd Edition 2023A Guide to Effective Care in Pregnancy and Childbirth – Murray Enkin (2nd Edition)**UNIT 9 – POST-PARTUM HAEMORRHAGE (BASIC)****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PPH1	Anticipating PPH. What is it, what causes it and how can I prevent it?
PPH2	Estimating blood loss
PPH3	Emergency management of PPH
PPH4	At the village – training women in how to prevent PPH

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SPPH1	Rubbing up the fundus
STBF2	Managing the third stage of labour actively.
STBF3	Estimating blood loss in the woman with PPH and estimating appropriate fluid replacement volumes.

DETAILED LEARNING CONTENT**Unit 9**

Topic	Learning Outcomes	Method
Anticipating PPH. What is it, what causes it and how can I prevent it?	<ul style="list-style-type: none"> Diagnosis of PPH Causes of PPH Risk factors for PPH. 	
Estimating blood loss	<ul style="list-style-type: none"> How good are we at estimation Practical exercises in estimating PPH 	
Emergency management of PPH	<ul style="list-style-type: none"> Rubbing the fundus after placenta delivered Emptying the uterus Oxytocics including misoprostol Resuscitation 	

	<ul style="list-style-type: none"> • Examining the birth canal. • Other emergency manoeuvres 	
At the village – training women in how to prevent PPH	<ul style="list-style-type: none"> • Teaching about PPH • Identifying high risk mothers • Delivering the placenta • Early breastfeeding • Rubbing the fundus after placenta delivered • Possible use of misoprostol. 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

UNIT 10 – PUERPERAL SEPSIS**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PS1	Causes of puerperal sepsis
PS2	Treatment of puerperal sepsis
PS3	At the village - training women in how to decrease puerperal sepsis

DETAILED LEARNING CONTENT**Unit 10**

Topic	Learning Outcomes	Method
Causes of puerperal sepsis	<ul style="list-style-type: none"> • Environment factors • Hand washing • Disinfection during labour 	
Treatment of puerperal sepsis	<ul style="list-style-type: none"> • Antibiotic therapy • Signs that surgery may be needed 	
At the village - training women in how to decrease puerperal sepsis	<ul style="list-style-type: none"> • Birthing kits • Teaching basic hygiene • Cord cutting 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

UNIT 11 – CAESAREAN SECTION

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

CS1	The anatomy for LUSCS
CS2	Pre-operative considerations for LUSCS
CS3	Pfannenstiel and midline approaches to the abdomen
CS4	Technique for lower uterine segment caesarean section
CS5	Post-operative care of the LUSCS patient

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SCS1	Performing a caesarean section for singleton pregnancy of cephalic presentation
SCS2	Performing a caesarean section for singleton pregnancy of abnormal lie – breech and transverse
SCS3	Performing a caesarean section for multiple pregnancy

DETAILED LEARNING CONTENT

Unit 11

Topic	Learning Outcomes	Method
The anatomy for LUSCS	<ul style="list-style-type: none"> Abdominal layers Lower segment of the uterus and relation to the bladder The broad ligament and associated structures including vessels and ureter 	
Pre-operative considerations for LUSCS	<ul style="list-style-type: none"> Showering What type of anaesthetic IDC Cannulation Hair removal 	
Pfannenstiel and midline approaches to the abdomen	<ul style="list-style-type: none"> Contrasting the two techniques Advantages and disadvantages Variations on Pfannenstiel incision – eg. Maylard, Cherney incisions 	
Technique for lower uterine segment caesarean section	<ul style="list-style-type: none"> Opening of layers Protecting the bladder Opening the lower segment and widening the space Delivery of the baby and placenta Confirmation of the empty uterus Closure of the uterus Consideration of Tubal ligation when family completion has been consented. 	

	<ul style="list-style-type: none"> • Closure of other layers • Closure of the skin 	
Post-operative care of the LUSCS patient	<ul style="list-style-type: none"> • Pain relief • Observations • When to remove the catheter • Allowing normal diet • Dressing changes and removal of sutures. 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023
Caesarean Section – de Costa, Howat - 2006

UNIT 12 – MULTIPLE PREGNANCY**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

TBF1	Diagnosing multiple pregnancy
TBF2	Antenatal care
TBF3	Delivering multiple pregnancy
TBF4	Post-partum care

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

STBF1	Vaginal delivery of multiple pregnancy including breech delivery and internal podalic version and breech extraction for transverse lie of 2 nd twin.
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DETAILED LEARNING CONTENT**Unit 12**

Topic	Learning Outcomes	Method
Diagnosing multiple pregnancy	<ul style="list-style-type: none"> • Examination features of multiple pregnancy • Use of USS • Pitfalls • Types of multiple pregnancy 	
Antenatal care	<ul style="list-style-type: none"> • Differences to the singleton pregnancy • Nutrition iron/folate replacements • Blood pressure • Premature labour 	
Delivering multiple pregnancy	<ul style="list-style-type: none"> • Can this be delivered vaginally safely? • Vaginal delivery of twins 	

	<ul style="list-style-type: none"> • Caesarean delivery of multiple pregnancies 	
Post-partum care	<ul style="list-style-type: none"> • Risk of PPH • Breastfeeding and the risk of failure to thrive • Maternal exhaustion and augmentation of labour with oxytocic infusions 	

Resources:Primary Mother Care and Population, 3rd Edition 2023A Guide to Effective Care in Pregnancy and Childbirth – Murray Enkin (2nd Edition)**UNIT 13 – MEDICAL PROBLEMS IN PREGNANCY****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of the management of:

MPP1	Diabetes in pregnancy
MPP2	The pregnant woman with congenital heart disease or rheumatic heart disease
MPP3	The pregnant woman with chronic lung disease
MPP4	HIV in pregnancy
MPP5	Severe anaemia in pregnancy

DETAILED LEARNING CONTENT**Unit 13**

Topic	Learning Outcomes	Method
Diabetes in pregnancy	<ul style="list-style-type: none"> • Pre-existing diabetes • Gestational diabetes and impaired glucose tolerance • Effects on the pregnancy and labour • Effects on the developing baby and newborn. • Use of the Glucose Profile Test to determine management in pregnancy and monitoring response to treatment. 	
The pregnant woman with congenital heart disease or rheumatic heart disease	<ul style="list-style-type: none"> • Changes in circulation during pregnancy • Deteriorating cardiovascular function • Planning the type of delivery • The immediate post-partum period risks 	
The pregnant woman with chronic lung disease	<ul style="list-style-type: none"> • Changes in physiology in pregnancy that affect respiratory performance 	

	<ul style="list-style-type: none"> Planning type of delivery for the woman with chronic lung disease 	
HIV in pregnancy	<ul style="list-style-type: none"> Antiviral therapy for the mother Peri-partum antivirals Antivirals for the neonate Breastfeeding advice Partner testing 	
Severe anaemia in pregnancy	<ul style="list-style-type: none"> What are the probable causes? Effects on developing baby. Risks in labour Risks of PPH Transfuse or not? Other therapies. 	

Resources:Primary Mother Care and Population, 3rd Edition 2023A Guide to Effective Care in Pregnancy and Childbirth – Murray Enkin (2nd Edition)**UNIT 14 – INFERTILITY****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

IF1	Primary infertility
IF2	Secondary infertility
IF3	Counselling couples

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SIF1	Looking at semen under the microscope and doing a sperm count
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DETAILED LEARNING CONTENT**Unit 14**

Topic	Learning Outcomes	Method
Primary infertility	<ul style="list-style-type: none"> Causes – paternal Causes – maternal Counselling 	
Secondary infertility	<ul style="list-style-type: none"> Pelvic inflammatory disease Endometriosis 	

Counselling couples	<ul style="list-style-type: none"> • Best timing to conceive • Valuing the marriage relationship first and children second. 	
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Resources:

Primary Mother Care and Population, 3rd Edition 2023

UNIT 15 – ENDOMETRIOSIS**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

EN1	Causes of endometriosis
EN2	Symptoms and signs and sequelae
EN3	Treatments

DETAILED LEARNING CONTENT**Unit 15**

Topic	Learning Outcomes	Method
Causes of endometriosis	<ul style="list-style-type: none"> • Theories of causation 	
Symptoms and signs and sequelae	<ul style="list-style-type: none"> • History taking • Symptoms • Physical examination findings • Sequelae of endometriosis 	
Treatments	<ul style="list-style-type: none"> • Medical • Surgical 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

UNIT 16 – GYNAECOLOGICAL TUMOURS**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

GT1	Uterine and endometrial tumours
GT2	Cervical tumours and cervical cancer
GT3	Prevention programs for cervical cancer

GT4	Ovarian tumours
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Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SGT1	Recognizing the abnormal cervix on examination
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DETAILED LEARNING CONTENT

Unit 16

Topic	Learning Outcomes	Method
Uterine/Endometrial tumours	<ul style="list-style-type: none"> Benign tumours of the uterus – fibroids, endometrial polyps Malignant tumours of the uterus Concerning features on history taking Examination findings USS appearances 	
Cervical tumours and cervical cancer	<ul style="list-style-type: none"> Cervical polyps Carcinoma of the cervix – types, causes, clinical features, staging, Treatments for CA Cervix in PNG. When NOT to operate – palliative care. 	
Prevention programs for cervical cancer	<ul style="list-style-type: none"> Papanicolaou smears (PAP smears) Visual acetic acid HPV – Gene Xpert testing Immunization 	
Ovarian tumours	<ul style="list-style-type: none"> Benign ovarian tumours Ovarian cystectomy Ovarian cancer 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

Primary Surgery – Non Trauma (Chapter 23) - Ed. Maurice King (TALC press)

UNIT 17 – HYSTERECTOMY

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

HYS1	Anatomy for total abdominal hysterectomy
HYS2	Indications and contraindications for surgery
HYS3	Pre-operative considerations

HYS4	Basic technique for TAH
HYS5	Post-operative care

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SHYS1	Simple total abdominal hysterectomy
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DETAILED LEARNING CONTENT

Unit 17

Topic	Learning Outcomes	Method
Anatomy for total abdominal hysterectomy	<ul style="list-style-type: none"> • Anatomy of the lower abdominal wall. • Blood supply of the uterus and ovaries. • Relation of the ureter and bladder to the uterus and pelvic wall. 	
Indications and contraindications for surgery	<ul style="list-style-type: none"> • Factors to consider in operating vs not operating or referral 	
Pre-operative considerations	<ul style="list-style-type: none"> • General condition of the patient • Fasting state • Prophylactic pre-op antibiotics • Type of anaesthesia • Anaemia • Hygiene 	
Basic technique for TAH	<ul style="list-style-type: none"> • Entry to abdomen • Hysterectomy with ovary conservation • Hysterectomy with the ovaries removed • Ensuring care of the ureters • Closure • Consideration of subtotal hysterectomy 	
Post-operative care	<ul style="list-style-type: none"> • Pain relief • When to resume normal oral diet • When to remove IDC • Changing dressings and removal of sutures. 	

Resources:

Primary Surgery (Chapter 23) – Ed. Maurice King (TALC press)

UNIT 18 – PELVIC SEPSIS, TRAUMA AND RAPE

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PS 1	Causes of pelvic sepsis
PS 2	PID
PS 3	Septic abortion
PS 4	Other causes of pelvic sepsis
PS 5	Genital and vaginal trauma and rape

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SPS1	Inserting a drain through the posterior fornix for drainage of POD abscess
SPS2	Laparotomy for pelvic sepsis
SPS3	Management of the victim of sexual assault and violence by standard PNG protocols.

DETAILED LEARNING CONTENT

Unit 18

Topic	Learning Outcomes	Method
Causes of pelvic sepsis	<ul style="list-style-type: none"> Puerperal sepsis (already discussed) PID Septic abortion Others – trauma, general surgical 	
PID	<ul style="list-style-type: none"> Differentiating PID from other causes of pelvic pain When does PID need surgical management? Medical management of PID Screening for other STI's – syndromic management of STI's Complications of STI's and PID 	
Septic abortion	<ul style="list-style-type: none"> Traditional methods of induced miscarriage in the bush Methods of induced miscarriage in town Classic patterns of injury Types of organisms involved Sequelae of septic abortion Antibiotic management Surgical management Post-abortal family planning 	
Other causes of pelvic sepsis	<ul style="list-style-type: none"> Appendicitis Diverticulitis 	
Genital and vaginal trauma and rape	<ul style="list-style-type: none"> Patterns of trauma in rape Creating a supportive environment Obtaining a history Examination Treatments 	

	<ul style="list-style-type: none"> • Women's support services • Legal avenues available 	
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Resources:

Primary Mothercare and Population for PNG, 3rd edition 2023

WHO Guidelines for care of victims of sexual violence,

<https://apps.who.int/iris/bitstream/handle/10665/42788/924154628X.pdf?sequ>

UNIT 19 – PRE-ECLAMPSIA (ADVANCED)**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PEA1	HELLP syndrome
PEA2	Severe pre-eclampsia in the pre-term pregnancy
PEA3	Eclampsia

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SPEA1	Management of eclamptic seizures
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DETAILED LEARNING CONTENT**Unit 19**

Topic	Learning Outcomes	Method
HELLP syndrome	<ul style="list-style-type: none"> • Haemolysis • Elevated liver enzymes • Low platelets 	
Severe pre-eclampsia in the pre term pregnancy	<ul style="list-style-type: none"> • Balancing the risks to the mother and baby • Counselling the parents • Improving the chances for the premature baby with pre-partum steroids 	
Eclampsia	<ul style="list-style-type: none"> • First aid and emergency management • Terminating the seizures and preventing further seizures with MgSO4 regimen • Planning for delivery • Observing the patient 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

UNIT 20 – INDUCTION AND AUGMENTATION OF LABOUR

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

IAL1	Assessing the need for induction or augmentation
IAL2	Assessing favourability of the cervix
IAL3	Methods for induction of labour
IAL4	Indications and methods of augmenting labour

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SIAL1	Calculating a Bishops score
SIAL2	Amniotomy

DETAILED LEARNING CONTENT

Unit 20

Topic	Learning Outcomes	Method
Assessing the clinical need for induction or augmentation	<ul style="list-style-type: none"> • Risks of going early vs risks of waiting • Risks introduced specifically by induction 	
Assessing favourability of the cervix	<ul style="list-style-type: none"> • Position of cervix • Dilation of cervix • Consistency of cervix • Effacement • Station • Scoring 	
Methods for induction of labour	<ul style="list-style-type: none"> • Do physical manoeuvres help? • Medical induction of labour • Intracervical balloon catheters • Rupturing membranes for induction of labour 	
Indications and methods of augmenting labour	<ul style="list-style-type: none"> • When is it safe to augment labour? • Risks of using oxytocin in labour • Preparing the flask • Calculating the drop rates • Observation of mother and baby 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

A Guide to Effective Care in Pregnancy and Childbirth – Murray Enkin (2nd Edition)

UNIT 21– POST-PARTUM HAEMORRHAGE (ADVANCED) AND COMPLICATIONS OF CAESAREAN SECTION

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PPHA1	Emergency manoeuvres for managing PPH
PPHA2	Ruptured uterus and surgical repair of uterine tears
PPHA3	Retained placenta
PPHA4	Caesarean hysterectomy
PHHA5	Classical caesarean
PPHA6	Caesarean for placenta praevia and abnormal placentation
PPHA7	Repair of vulvovaginal tears (including OASIS injuries) and repair of episiotomy

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SPPHA1	Be able to demonstrate manoeuvres to control PHH caused by atonic uterus
SPPHA2	Demonstrate ability to repair lower segment tears at LUSCS
SPPHA3	Performing manual removal of retained placenta
SPPHA4	Repairing of vulvovaginal tears and episiotomy

DETAILED LEARNING CONTENT

Unit 21

Topic	Learning Outcomes	Method
Emergency manoeuvres for managing PPH	<ul style="list-style-type: none"> • Aortic compressive manoeuvres • Bi-manual compression • Others 	
Ruptured uterus and surgical repair of uterine tears	<ul style="list-style-type: none"> • The ruptured uterus • Complicated tears of lower segment in LUSCS 	
Retained placenta	<ul style="list-style-type: none"> • Technique for manual removal for the non-adhered placenta • Types of placental adherence – accreta, increta, percreta • Prolonged retained placenta - options 	
Caesarean hysterectomy	<ul style="list-style-type: none"> • Subtotal hysterectomy - procedures 	
Classical caesarean and modifications on LUSCS	<ul style="list-style-type: none"> • Classical caesarean • J extension of Lower uterine incision • T extension of Lower uterine incision 	
Caesarean for placenta praevia and abnormal placentation	<ul style="list-style-type: none"> • LUSCS with posterior placenta praevia • LUSCS with anterior placenta praevia 	

	<ul style="list-style-type: none"> • LUSCS with placental adherence 	
Repair of vulvovaginal tears and repair of episiotomy	<ul style="list-style-type: none"> • Technique for repair of 1st and 2nd degree tears and episiotomy • 3rd and 4th degree tears - principles 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

Primary Surgery – Non Trauma (Chap 21) Ed. Maurice King (TALC press)

UNIT 22 – MANAGEMENT OF CONGENITAL ABNORMALITIES AND DESTRUCTIVE DELIVERIES

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

DD1	Congenital abnormalities that lead to abnormal labour
DD2	The severely obstructed labour with FDIU
DD3	Destructive deliveries

DETAILED LEARNING CONTENT

Unit 22

Topic	Learning Outcomes	Method
Congenital abnormalities that lead to abnormal labour	<ul style="list-style-type: none"> • Congenital Hydrocephalus 	
The severely obstructed labour with FDIU	<ul style="list-style-type: none"> • Resuscitating the mother • Which is the right way to deliver the dead baby? • Risks to the mother. 	
Destructive deliveries	<ul style="list-style-type: none"> • Techniques 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023

Primary Surgery (Chapter 20) – Ed. Maurice King (TALC press)

UNIT 23 – PRETERM LABOUR

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PTL1	Causes of preterm labour
PTL2	Management of preterm labour
PTL3	Basic principle on care of the LBW neonate (also covered in Child Health module)

DETAILED LEARNING CONTENT**Unit 23**

Topic	Learning Outcomes	Method
Causes of preterm labour	<ul style="list-style-type: none"> • Past history of same • Common infections • Cervical incompetence • Others 	
Management of threatened and actual preterm labour	<ul style="list-style-type: none"> • Preparing to manage a low birth weight infant • Antibiotics • Can we stop this labour? • Steroids • Can and should I refer? 	
Basic principle on care of the LBW neonate (also covered in Child Health module)	<ul style="list-style-type: none"> • Maintaining temperature • Kangaroo care • Feeding • IV fluids where necessary • Antibiotics 	

Resources:

Primary Mother Care and Population, 3rd Edition 2023
 Hospital Care for Children (WHO) – Chapter 3

UNIT 24 – RESUSCITATION OF THE NEWBORN**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

RN1	Principles in newborn resuscitation
RN2	Equipment for infant resuscitation
RN3	Umbilical catheterization

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SRN1	Bag and mask of the newborn infant
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SRN2	Inserting an umbilical catheter
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DETAILED LEARNING CONTENT**Unit 24**

Topic	Learning Outcomes	Method
Principles in newborn resuscitation	<ul style="list-style-type: none"> • Neonatal airway differences • The newborn lungs • Circulatory changes • Temperature regulation 	
Equipment for infant resuscitation	<ul style="list-style-type: none"> • Masks and bags • Suction • Warming • Drugs 	
Umbilical catheterization	<ul style="list-style-type: none"> • Technique 	

Resources:

Caring for PNG Women and their newborns, 3rd edition 2020

UNIT 25 – THE Puerperium**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

PP1	The normal stages of the puerperium
PP2	Good breastfeeding technique
PP3	Common problems of breastfeeding
PP4	Post-partum depression and post-partum psychosis

DETAILED LEARNING CONTENT**Unit 25**

Topic	Learning Outcomes	Method
The normal stages of the puerperium	<ul style="list-style-type: none"> • Involution of the uterus • Normal PV loss – the Lochia • Breast changes • Lactation • Mood changes 	
Good breast feeding technique	<ul style="list-style-type: none"> • Principles of good attachment 	

Common problems of breastfeeding	<ul style="list-style-type: none"> • Nipple soreness • Inverted nipples • Mastitis • Inadequate supply • Stress 	
Post-partum depression and post-partum psychosis	<ul style="list-style-type: none"> • Hormonal changes in the post-partum period • Other contributing factors to depressed mood – sleep, relationship issues • Cultural factors that are relevant in PNG to frequency of PND. • Post-partum psychosis 	

Resources:

Caring for PNG Women and their newborns, 3rd edition 2020

Basic Ultrasonography. Candidates are expected to complete a course of basic Obstetric and Gynaecological Ultrasonography .



Module 5 – Internal Medicine

1. Aims and Objectives of the Internal Medicine Module

At the completion of the module the trainee will:

- Be able to manage common diabetic emergencies
- Understand the principles of prescribing for the diabetic.
- Have a good understanding of the different classes of drugs used in the control of hypertension and cardiovascular disease and be able to prescribe for the same.
- Have a framework for prescribing common antibiotics and understand the principles of management of septicaemia
- Understand protocols for treatment of malaria
- Understand the types of Tuberculosis and know the protocols for TB treatment
- Understand how to manage snake bite envenomation
- Know the principles of treating asthma and COAD
- Know the features of meningitis and how to manage patients with this illness.
- Understand the principles of HIV and AIDS diagnosis in the adult and have a basic understanding of the antiviral and other drugs used to manage patients with HIV.

2. Clinical Duties

To work as a registrar in the Internal Medicine Department and under the specialist's guidance.

- Do ward rounds
- Be responsible for the admission of Internal Medicine emergencies to the hospital
- Attend Medical outpatient clinics

3. Teaching methods

Learning will be by clinical immersion supported by:

- Teaching ward rounds
- Department tutorials and case-based learning
- On-line case-based learning and other digital and video teaching materials

4. Content

Module 5: Internal Medicine Units
1. Diabetes Mellitus
2. Common cardiovascular disease in PNG
3. Principles of antibiotic prescribing and management of Septicaemia

4. Tuberculosis
5. HIV and AIDS
6. Snake bite in PNG and envenomation
7. Malaria
8. Community acquired pneumonia
9. Chronic Lung disease
10. Meningitis
11. Chronic Renal Failure

5. Assessment

Formative Assessment

- Log Book completed
- Written assignments – Part A and Part B
- Satisfactory Registrar assessment form

Summative Assessment

- Components in the Part 2 exam will include Short Answer Questions (SAQ) and Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Viva exam - 15 minutes (component of Part 2 exam)
- Practical station questions (Part 2 exam)
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exam.

6. Written Assignments and Case reports.

Assignment Topics.

Students must complete both Part A and Part B requirements outlined below:

Part A.

Two assignments can be chosen from the list below. These should be between **1000 and 1500 words** in length and should include appropriate references.

Choose and Answer **ONLY 2** questions from the following list.

1. Discuss the management of Chronic Respiratory Diseases at district hospital level outlining at the same time your perspectives on prevalence and local factors influencing this.
2. Briefly describe the issues involved in conducting a DOTS Program in a rural location as compared with urban localities.
3. Type 2 Diabetes – discuss the prevalence in your community, and local factors influencing this. How does management of the Type 2 diabetic patient differ in a rural location.
4. Typhoid Fever – discuss the peculiar issues of presentation, diagnosis and treatment in your area.
5. Hypertension & Stroke - discuss it's Prevention and Management
6. Coronary Artery Disease - discuss its prevalence in your area, your ideas as to what is more or less common, and the challenges of Prevention, Diagnosis and Management in your area
7. HIV/AIDS management at district hospital level – outline your experience with ART prescribing programs, community attitudes to HIV and AIDS, and the challenges of managing AIDS patients in your hospital.
8. Discuss these aspects of chronic liver disease as they appear at your district hospital – prevalence, ability to diagnose, any relevant community beliefs or attitudes, treatment, including management of end stages
9. Discuss the challenges involved in the diagnosis and management of a disorder of haemopoiesis or coagulation at district hospital level

AND

Part B.

This assignment should be between **1500-2500 words**

1. **Cancer in PNG** – discuss the patterns of neoplasia that you have seen in your district (both benign and malignant). Discuss the following areas as they relate to Malignant Neoplasia in your area – community attitudes, presentations, diagnostic and treatment challenges, including access to relevant treatment options such as advanced surgery, chemotherapy and radiotherapy. Spend time also talking about palliative care of cancer patients at your hospital.

Assignments should be sent by email to the MMED (Rural Health) Training Co-ordinator All assignments must be completed and marked as satisfactory before the candidate is eligible to sit the final examination.

Supervised Cases and Case Reports.

The list below is for case reports that must be completed. A log of supervised cases (separate to case reports) required is included at the end of the training manual.

Case reports should focus on presentation, diagnosis, management, complications and outcome and be no longer than 1-1.5 pages

Case reports on the following topics:

- **Severe malaria**
- **Severe Asthma or COAD**
- **Epilepsy**
- **Inflammatory polyarthritis (eg Rheumatoid)**
- **Myocardial Infarction**
- **Tuberculosis**

7. Tutorial and Case-Based Presentation (CBP) program during the Internal Medicine Training rotation.

A twice weekly tutorial/CBP program will be undertaken during the 6 week internal medicine training block.

Tutorials - may be delivered by the supervisor OR presented by the trainee.

Case-Based Presentations – Starting with the case scenarios mentioned below, the student will present his/her assessment of the likely issues involved and how they would approach each case. This can become a platform for deeper discussion and teaching of the issues involved in each scenario.

Week 1 – Tutorial: Diabetic hyperosmolar coma and other diabetic emergencies

Week 1 – Tutorial: Treatment in the new type 2 diabetic

Week 2 – Tutorial: Antibiotic categories and use

Week 2 – Case-Based Presentation – “Septicaemic shock.” *A 30 y.o. paraplegic man who has been unwell for 3 days at home is brought into A&E with confusion, rapid respirations, rapid weak pulse and BP of 65/-. Discuss possible causes of this scenario and how you might manage it.*

Week 3 – Tutorial: Tuberculosis – pathophysiology and diagnosis

Week 3 – Tutorial: Treatment of TB

Week 4 – Tutorial: Interpretation of the ECG

Week 4 – Case-Based Presentation – “Snake bite in rural PNG.” A 16 y.o. male is brought into the hospital at Kapuna (Gulf) after having been bitten 24 hrs ago by an unknown snake as he was hunting at night. He is having difficulty breathing and is clearly unwell. Discuss the signs of envenomation, the first aid and management of this scenario.

Week 5 – Tutorial: Antihypertensives and other cardiovascular drugs commonly used in PNG

Week 5 – Tutorial: Human Immunodeficiency Virus – pathophysiology and classification of AIDS.

Week 6 – Tutorial: Treatments in Asthma and COAD

Week 6 – Case-Based Presentation - “Severe malaria.” A 25 y.o. woman who is 27 weeks pregnant is brought into the hospital at Aitape from Nuku HC in the Sepik Hinterland. She has been having fevers for several days and is now unconscious. Her RDT is positive for P. Falciparum. How would you manage this situation?

UNIT 1 - DIABETES MELLITUS

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

DM1	The types and causes of Diabetes Mellitus (DM)
DM2	Complications of DM
DM3	Common presentations to doctors caused by DM
DM4	Treatment of Diabetic emergencies
DM5	Common medications used in DM

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SDM1	Taking a blood sugar level from a hand held device
SDM2	Interpreting urine dipstick tests.

DETAILED LEARNING CONTENT

Unit 1

Topic	Learning Outcomes	Method
The types and causes of Diabetes Mellitus (DM)	<ul style="list-style-type: none"> Type 1 Diabetes Type 2 Diabetes 	
Complications of DM	<ul style="list-style-type: none"> Vasculopathy – macrovascular Vasculopathy – microvascular (including eye disease) Peripheral neuropathy 	

	<ul style="list-style-type: none"> • Cataracts 	
Common presentations to doctors caused by DM	<ul style="list-style-type: none"> • Clinical presentation of Type 1 DM • Diabetic Ketoacidosis • Symptoms of the Type 2 Diabetic • Deteriorating vision • Neuropathy and neuropathic ulcers 	
Treatment of Diabetic emergencies	<ul style="list-style-type: none"> • Management of diabetic Ketoacidosis • Management of Hyperosmolar Coma 	
Common medications used in DM in PNG	<ul style="list-style-type: none"> • Sulphonylureas • Metformin • Insulins • Others 	

Resources:

Australian Medicines Handbook – Chapter 10: Endocrine drugs)

Standard Treatment Guidelines for Adults (PNG) – Chapter 5

UNIT 2 - COMMON CARDIOVASCULAR DISEASE IN PNG**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

CVD1	Causes of Ischaemic Heart Disease
CVD2	Prescribing for angina
CVD3	Prescribing for hypertension
CVD4	Principles of cardiac electrophysiology and interpretation of ECG
CVD5	Cerebrovascular accident
CVD6	Manifestations of chronic rheumatic heart disease

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SCVD1	Performing an ECG
SCVD2	Explaining principles in reading an ECG

DETAILED LEARNING CONTENT**Unit 2**

Topic	Learning Outcomes	Method
Causes of Ischaemic Heart Disease	<ul style="list-style-type: none"> • Pathogenesis of atherosclerosis • Risk factors of IHD 	

	<ul style="list-style-type: none"> • Valvular lesions that exacerbate IHD 	
Prescribing for angina	<ul style="list-style-type: none"> • Rate control • Decreasing preload • Decreasing afterload 	
Prescribing for hypertension	<ul style="list-style-type: none"> • Beta blockers • Calcium channel antagonists • ACE inhibitors and Angiotensin 2 inhibitors • Diuretics • Others (eg. Hydralazine) 	
Principles of cardiac electrophysiology and interpretation of ECG	<ul style="list-style-type: none"> • Review of electrical pathways of the heart • The normal ECG • A pattern for reading ECG's • Common abnormalities of ECG 	
Cerebrovascular accident	<ul style="list-style-type: none"> • Infarction • Cerebrovascular haemorrhage • Management 	
Manifestations of chronic rheumatic heart disease	<ul style="list-style-type: none"> • VSD and Eisenmenger's syndrome • Valvular lesions leading to angina and heart failure 	

Resources:

Australian Medicines Handbook – Chapter 6 Cardiovascular Drugs

UNIT 3 – ANTIBIOTIC PRESCRIBING AND SEPTICAEMIA**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

AB1	Classification of antibiotics
AB2	Antibiotic resistance
AB3	Management of Septicaemic shock.

DETAILED LEARNING CONTENT**Unit 3**

Topic	Learning Outcomes	Method
Classification of antibiotics	<ul style="list-style-type: none"> • On the basis of chemical structure <ul style="list-style-type: none"> • Beta lactams including cephalosporins • Aminoglycosides 	

	<ul style="list-style-type: none"> • Chloramphenicol • Macrolides • Tetracyclines • Quinolones • Others • On the basis of function • Cell wall synthesis inhibitors • Protein synthesis inhibitors • Nucleic acid synthesis inhibitors • On the basis of effect • Bacteriostatic • Bacteriocidal 	
Antibiotic resistance	<ul style="list-style-type: none"> • What causes resistance? • Appropriate prescribing 	
Management of Septicaemic shock.	<ul style="list-style-type: none"> • Resuscitation - DRABCDE • Antibiotics • Vasopressors • Monitoring 	

Resources:

Australian Medicines Handbook – Chapter 6 Cardiovascular Drugs

Standard Treatment Guidelines for Adults (PNG) – Chapter 5

Therapeutic Guidelines – Antibiotic (16th Edition - 2019)**UNIT 4 - TUBERCULOSIS****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

TB1	Common forms of tuberculosis
TB 2	Diagnosing TB
TB 3	Standard treatment guidelines for TB
TB 4	TB with HIV/AIDS
TB 5	Drug resistant TB

DETAILED LEARNING CONTENT**Unit 5**

Topic	Learning Outcomes	Method
Common forms of tuberculosis	<ul style="list-style-type: none"> • Pulmonary TB • TB Meningitis • TB pleural and pericardial effusions • Lymph node TB 	

	<ul style="list-style-type: none"> • Abdominal TB • Potts disease 	
Diagnosing TB	<ul style="list-style-type: none"> • TB scoring • Clinical features of TB • Collecting sputum for diagnosis • Lymph node biopsy • TB staining and Gene Xpert 	
Standard treatment guidelines for TB	<ul style="list-style-type: none"> • The principles of treatment • Drug combinations and preparations • Possible and probable side effects • Drug resistant TB. 	
TB with HIV/AIDS	<ul style="list-style-type: none"> • The different presentation of TB in the presence of AIDS • Which to treat first? • Drug interactions and side effects. 	
Drug resistant TB	<ul style="list-style-type: none"> • Diagnosing drug resistance • Protocols for management of MDR and XDR TB 	

Resources:

Australian Medicines Handbook – Chapter 5 Anti Infective Drugs

Standard Treatment Guidelines for Adults (PNG) – Chapter 10

Therapeutic Guidelines – Antibiotic (16th Edition - 2019)

TB/HIV- A Clinical Manual (WHO)

UNIT 5 – HIV AND AIDS**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

HIV1	Human Immunodeficiency Virus – history, pathophysiology
HIV2	HIV – diagnosing infection
HIV3	Manifestations of AIDS
HIV4	ART management and PMTCT
HIV5	Managing opportunistic infections

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SHIV1	Giving pre and post counselling for HIV testing
SHIV2	Doing a rapid test for HIV.

DETAILED LEARNING CONTENT**Unit 5**

Topic	Learning Outcomes	Method
Human Immunodeficiency Virus – history, pathogenesis	<ul style="list-style-type: none"> History of discovery of HIV Nature of the virus and pathogenesis of HIV infection 	
HIV – diagnosing infection	<ul style="list-style-type: none"> Clinical staging using WHO criteria Serological tests and viral loads 	
Manifestations of AIDS	<ul style="list-style-type: none"> TB Wasting Kaposi's sarcoma Oral thrush PCP pneumonia Diarrhoea Cryptococcal meningitis Others 	
ART management	<ul style="list-style-type: none"> Anti-retroviral drugs When to start therapy Side effects and monitoring 	
Managing opportunistic infections	<ul style="list-style-type: none"> Treatment of PCP Treatment of cryptococcus Prophylaxis of opportunistic infections while on ART. 	

Resources:

Standard Treatment Guidelines for Adults (PNG) – Chapter 10

Therapeutic Guidelines – Antibiotic (16th Edition - 2019)

TB/HIV- A Clinical Manual (WHO)

UNIT 6 - SNAKE BITE AND ENVENOMATION**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

SB1	Types of venomous snakes common to PNG
SB2	Death adder bites
SB3	Papuan Black bites
SB4	First aid for snake bite
SB5	Medical management of snake bite

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SSB1	Be able to properly apply an immobilization bandage and splint to a limb for snake bite
SSB2	Doing a whole blood clotting time

DETAILED LEARNING CONTENT

Unit 6

Topic	Learning Outcomes	Method
Types of venomous snakes common to PNG	<ul style="list-style-type: none"> Papua Black (taipan) Death Adders Others 	
Death adder bites	<ul style="list-style-type: none"> Symptoms and signs 	
Papuan Black bites	<ul style="list-style-type: none"> Symptoms and signs 	
First aid for snake bite	<ul style="list-style-type: none"> What not to do Compression bandages Immobilization What to look for 	
Medical management of snake bite	<ul style="list-style-type: none"> Criteria for giving anti-venom Risks of anti-venom Protocols for anti-venom Monitoring vital organ function 	

Resources:

Clinical Management of Snakebite in Papua New Guinea – 2004 Coursebook: David Williams.

Venomous Bites and Stings in Papua New Guinea – A guide to treatment for health workers and doctors. David Williams Ed. (2005)

UNIT 7 - MALARIA

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

MA1	The types of malaria common in PNG
MA2	The tools for diagnosing malaria
MA3	Identifying severe malaria
MA4	Managing simple malaria - protocols
MA5	Managing severe malaria

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SMA1	Be able to properly perform an RDT for malaria and interpret its result.
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DETAILED LEARNING CONTENT

Unit 7

Topic	Learning Outcomes	Method
The types of malaria common in PNG	<ul style="list-style-type: none"> • Vivax • Falciparum • Mixed infections • The life cycles of malaria 	
The tools for diagnosing malaria	<ul style="list-style-type: none"> • Clinical history and exam • Malaria staining • Rapid tests 	
Identifying severe malaria	<ul style="list-style-type: none"> • High risk patients – unexposed, children, pregnant mothers • Cerebral malaria • Severe Haemolysis and jaundice • Acidosis • Severe anaemia • Pulmonary oedema • Hypoglycaemia 	
Managing simple malaria - protocols	<ul style="list-style-type: none"> • Standard treatment protocols 	
Managing severe malaria	<ul style="list-style-type: none"> • Maintaining airway • Maintaining BSL • IV access and fluid management • Parenteral therapy for malaria • Treating seizures • Nursing care 	

Resources:

Management of Severe Malaria – A Practical Handbook (WHO)
 Standard Treatment Guidelines for Adults (PNG) – Chapter 10

UNIT 8 - COMMUNITY ACQUIRED PNEUMONIA

Learning Outcomes

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

CAP1	Common causes of CAP
CAP2	Treatment protocols of CAP

DETAILED LEARNING CONTENT**Unit 8**

Topic	Learning Outcomes	Method
Common causes of CAP	<ul style="list-style-type: none"> • Common organisms • Atypical pneumonia • Staphylococcal pneumonia 	
Treatment protocols of CAP	<ul style="list-style-type: none"> • First line antibiotics • Treatment in the setting of penicillin allergies • Treatment of atypical pneumonia • Complications 	

Resources:

Standard Treatment Guidelines for Adults (PNG) – Chapter 12
Therapeutic Guidelines – Antibiotic (16th Edition - 2019)

UNIT 9 - ASTHMA AND COAD**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

AS1	Asthma – clinical features and diagnosis
AS2	Medical management of asthma
AS3	COAD - types
AS4	Medical management of COAD

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SAS1	Constructing a spacer for use with Metered dose inhalers
SAS2	Correctly using a metered dose inhaler

DETAILED LEARNING CONTENT**Unit 9**

Topic	Learning Outcomes	Method
Asthma – clinical features and diagnosis	<ul style="list-style-type: none"> • Differentiating asthma and COAD • Identifying triggers 	

Medical management of asthma	<ul style="list-style-type: none"> • Relieving agents • Preventative agents • When does the patient need preventatives • Treating severe acute asthma 	
COAD - types	<ul style="list-style-type: none"> • Emphysema – Chronic Bronchitis spectrum • Causes of COAD • The role of housing in causation • Cor pulmonale • Polycythaemia 	
Medical management of COAD	<ul style="list-style-type: none"> • Treatment for the acute exacerbation • Long term management • Teaching the patient how to use inhaled medications • Oral treatments vs inhaled treatments for COAD and asthma • The advantages and problems with oral steroids. 	

Resources:

Standard Treatment Guidelines for Adults (PNG) – Chapter 12

Therapeutic Guidelines – Respiratory (16th Edition - 2019)

Australian Medicines Handbook – Chapter 19 Respiratory Drugs

UNIT 10 - MENINGITIS**Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

MEN1	Common causes of meningitis
MEN2	The special case of meningococcal meningitis
MEN3	Treatment of meningitis

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SMEN1	Performing a lumbar puncture
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DETAILED LEARNING CONTENT**Unit 10**

Topic	Learning Outcomes	Method
Common causes of meningitis	<ul style="list-style-type: none"> • H. Influenzae 	

	<ul style="list-style-type: none"> • E. Coli • Klebsiella • Streptococcus • Viral • TB • Clinical features of acute bacterial meningitis • Lab features of meningitis 	
The special case of meningococcal meningitis	<ul style="list-style-type: none"> • Clinical features of meningococcal meningitis • Treatment 	
Treatment of meningitis	<ul style="list-style-type: none"> • Standard treatment protocols for non-meningococcal meningitis. 	

Resources:

Australian Medicines Handbook – Chapter 5 Anti Infective Drugs

Standard Treatment Guidelines for Adults (PNG) – Chapter 10

Therapeutic Guidelines – Antibiotic (16th Edition - 2019)**UNIT 11 - KIDNEY DISEASE****Learning Outcomes**

By the end of the rotation Trainees will be competent to demonstrate knowledge and understanding of:

KID1	UTI's and pyelonephritis
KID2	Acute glomerulonephritis
KID3	Renal calculi
KID4	Chronic Renal Failure - causes
KID5	Managing chronic renal insufficiency

Medical Skills

By the end of learning the trainee should have demonstrated competency in:

SKID1	Perform and interpret a urine dipstick test.
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DETAILED LEARNING CONTENT**Unit 11**

Topic	Learning Outcomes	Method
UTI's and pyelonephritis	<ul style="list-style-type: none"> • Symptoms and signs of simple UTI • Pyelonephritis • Treatments 	

Acute glomerulonephritis	<ul style="list-style-type: none"> • Types • Clinical presentation • Lab findings • Sequelae 	
Renal Calculi	<ul style="list-style-type: none"> • Clinical presentation • Lab findings • Imaging • Treatment 	
Chronic Renal Failure - causes	<ul style="list-style-type: none"> • Syndrome X • Glomerulonephritis • Vascular disease • Reflux • Others 	
Managing chronic renal insufficiency	<ul style="list-style-type: none"> • Managing BP, weight, exercise, lipids, diabetes • Treating symptoms of CRF 	

Resources:

Oxford Handbook of Internal Medicine

Standard Treatment Guidelines for Adults (PNG) – Chapter 8



Module 6 – Psychiatry

1. Aims and Objectives of the Psychiatry Module

At the completion of the module the trainee will:

- Be able to prescribe for the patient suffering from acute psychosis
- Have an understanding of the types of treatments offered to the patient with schizophrenia
- Have an understanding of post-partum psychosis
- Have an understanding of somatoform disorders and other manifestations of anxiety

2. Clinical Duties

There are no clinical duties specifically for the Psychiatry Module although it is expected that the registrar will encounter many psychiatric cases during the course of clinical duties both at the district hospital and during rotations, (for example during internal medicine rotation).

3. Teaching methods

Learning will be ***self-directed***, supported by:

- On-line case-based learning, books and other digital and video teaching materials

4. Content

Module 6: Psychiatry Units
1. The patient with acute psychosis
2. Post-partum psychosis
3. Schizophrenia
4. Delirium
5. Somatoform disorders

5. Assessment

Formative Assessment

- 2 case reports – Acute Psychosis, Somatoform disorder

Summative Assessment

- Components in the Part 2 exam will include Short Answer Questions (SAQ) and possibly Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative task
- Overall 50% in summative exam.

6. Case Reports

Case reports should focus on presentation, diagnosis, management, complications and outcome and be no longer than 2-2.5 pages

Case Reports.

- **Acute psychosis (including post-partum psychosis)**
- **Somatoform disorder**

Resources:

“Pharmacological Treatment of Mental Disorders in Primary Health Care” (WHO 2009)

“Mental Health in PNG” (WHO – 2013)

“Where There is no Psychiatrist”

Downloaded from <https://www.cambridge.org/core>. James Cook University Library, on 23 Apr 2019 at 02:29:57, subject to the Cambridge Core terms of use, available at <https://www.cambridge.org/core/terms>. <https://www.cambridge.org/core/product/727EAAD99248D1B15F3B22C8BAEEDDAC>



Module 7 – Public Health

1. Aims and Objectives of the Public Health Module

At the completion of the module the trainee will:

- Have considered most of the major public health issues confronting PNG at this time and have considered those that are of particular importance in his/her district including possible strategies for improving public health in that area
- Will have a basic knowledge of the types of medical research
- Will have basic knowledge on basic research methodology
- Will have basic knowledge of collecting data and of basic statistical tests used in research.

2. Clinical Duties

This is a non-clinical module

3. Teaching methods

Learning will be ***self-directed*** supported by:

- On-line case-based learning and other digital and video teaching materials

4. Assessment

Formative Assessment

- District Health Report – 3500 words
- Written assignments – Two x 1000-2000 words each

Summative Assessment

One component in the Part 2 exam is a 3 hour Public Health and Management exam. There are a series of long answer questions on Public Health.

These will cover the learning goals of the module.

- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exam.

5. Public Health Written Assignments

Part A

1. Write a District Health Report for your district.

This should be about 3500 words. It should include: Geography, History, Communications, Administration and Politics, Health Administration and Records, Law and Order Problems, Water Supply, Sanitation, Nutrition, Education, Religion, Monetary Economy, Finance, Capital, Supplies, Morbidity and Mortality, TB and Leprosy, MCH Services, Dental Health Services, Laboratory Services, Primary Health Care, Health Staff, Health Committee Meetings, Traditional Medicine and the Local Public View of Health Services.

Part B

Candidates may choose to answer EITHER Question 2 only, OR choose two of any of the remaining questions (2,3,4,5,6)

2. How would you deal with an outbreak of food poisoning at a residential institution (boarding school, barracks, correctional service facility) in your district?

What is disease surveillance? What does it depend on? Illustrate your answer with reference to Measles and Polio surveillance

Several people from a remote part of your district are reported to have died from an unknown illness in the last few months. How would you investigate this report? (2000-3000 words)

3. Discuss the epidemiology of domestic violence in PNG. What factors contribute to Domestic Violence in PNG? Discuss the costs of Domestic Violence, with particular reference to the incidence and prevalence of Domestic violence in your district. (1000-2000 words)

4. What is the current immunisation coverage for your district?
What can you do to improve immunisation coverage in your District and Province? (1000-2000 words)

5. What is meant by the term ‘Reproductive Health Services’? Discuss such services in your district and outline plans for their improvement. (1000-2000 words)

6. Discuss occupational and environmental health in relation to industries in your district. (these may vary from mining to small scale agricultural industries) (1000-2000 words)

Resources:

Basic Epidemiology (2nd Edition) – World Health Organization

Teaching series on Basic Research Principles – Prof Vince: Zoom format. Available upon request from Dr Mills

Module 8 – Ophthalmology and Otorhinolaryngology

1. Aims and Objectives of Ophthalmology and Otorhinolaryngology module

At the completion of the module the trainee will:

- Be able to perform basic testing of vision and eye examination with basic eye instruments
- Be able to recognize and manage common eye problems and have a framework for managing the red eye and eye trauma
- Be able to recognize and manage common ear nose and throat problems that are likely to present in general practice



2. Clinical Duties

This is a non-clinical module

3. Teaching methods

Learning will be self-directed supported by:

- On-line case-based learning and other digital and video teaching materials
- Books provided
- Journals provided – especially CHECK modules (RACGP)

4. Content

Module 8: Eye/ENT Units
1. Testing vision
2. The red eye including foreign bodies
3. Cataracts
4. Eye Trauma
5. Nasal polyps

6. Otitis media
7. Otitis externa
8. Mouth cancer
9. Hoarse voice
10. Dental sepsis

5. Assessment

Formative Assessment

- Log Book completed (see page 181)
- 4 case reports

Summative Assessment

- Components in the Part 2 exam will include Short Answer Questions (SAQ) and Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exam.

6. Case Reports

Case reports should focus on presentation, diagnosis, management, complications and outcome and be no longer than 1-1.5 pages

Case Reports.

Ophthalmology

- **Perforating eye injury**
- **Acute red eye**

Otorhinolaryngology

- **Epistaxis**
- **Chronic Suppurative otitis media**

7. Practical skills

Students are expected to show practical knowledge in the following areas:

1. Testing a patient's vision
2. Removing foreign bodies from the eye

8. Resources

“Eye Care in Developing Nations” by Larry Schwab 4th Edition (Manson Press) – distributed by Health Books International UK.

Ophthalmology - teaching DVD.

CHECK program – Ophthalmology May 2021 issue

Diseases of the ear, nose and throat – lecture notes (Ray Clarke)

Otolaryngology (Stephanie Madison Ed)

General Practice – John Murtagh

Module 9 – Laboratory Medicine

1. Aims and Objectives of the Laboratory Medicine Module

At the completion of the module the trainee will:

- Be able to perform common basic laboratory procedures that are used in everyday practice at a district hospital.
- Be especially competent in performing blood typing and cross-matching of blood prior to transfusion, including necessary screening tests.



2. Clinical Duties

This is a non-rostered module. Teaching will be done alongside laboratory staff at the district hospital or with laboratory staff during training rotations for other modules.

3. Teaching methods

Learning will be by clinical immersion supported by:

- Formal teaching by lab staff
- On-line case-based learning and other digital and video teaching materials

4. Content

Module 9: Laboratory Medicine Units
1. Blood typing and cross-matching
2. Measuring blood sugars
3. Testing urine – pregnancy and others. Dipsticks testing and microscopy
4. Rapid testing for HIV, malaria, syphilis, Hep B
5. Giemsa staining and microscopy for malaria
6. Faeces microscopy

5. Assessment

Formative Assessment

- There is no formative assessment for this module

Summative Assessment

- Components in the Part 2 exam may include Short Answer Questions (SAQ) and Visual Aided Questions (VAQ). These will cover the learning goals of the module.
- Practical station questions (Part 2 exam)
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Overall 50% in summative exam.

6. Laboratory Investigations

Students should be able to perform the following tests:

Blood group and cross-matching

Screening tests on blood prior to cross-matching

Rapid tests for HIV

Rapid tests for malaria

Giemsa staining for malaria

Rapid tests for Syphilis

Rapid tests for Hep B

Pregnancy test

Urine dipsticks

Fingerprick blood glucose

Urine and stool microscopy

(Refer to Log Book on page 182)

7. Resources

“Laboratory Practice in Developing Countries” (HBI)

“Manual of Basic Techniques for a Health laboratory” (WHO)

“Tropical Medicine Point of Care Testing – Supporting the UN 2030 Agenda (2022)” –
Monical Cheesbrough. Printed by Tropical Health Technology

Module 10 – Management and Leadership

1. Aims and Objectives of the Management and Leadership Module

The training of young doctors in administration skills is an essential component of any program that seeks to equip them for rural service. The testimony of many doctors who have served in the districts of PNG is that in most cases the administrative and management issues are the single biggest burden they face, and the area for which they feel the least prepared. Sadly many a committed young doctor has come fresh to the district setting only to leave disillusioned and unwilling to return, often because of pressures they have encountered in these areas.

A strong case can therefore be made for the argument that such skills are even more important than the clinical skills required to practise in district settings although the latter certainly receives the majority of the attention of trainers.



Training Outline.

1. **Major Written Assignment:** A 3500 word assignment due by the time candidates sit the Pt. 2 exam. The assignment is to research the Management systems and styles currently in operation at 3 fully functioning district hospitals in P.N.G., and could be undertaken concurrently with other training, such as surgery, anaesthetics and obstetrics, being done in these hospitals. Specifically the assignment is to discuss the differences between the three hospitals paying particular attention to:
 - a. Structure of the authority chain. Is this formal or informal? If necessary draw a flowchart to describe.
 - b. Legal basis for the running of the hospital (should include a sample constitution as an appendix – not included in the 3500 words)
 - c. Process of critical decision making especially (but not exclusively) relating to:
 - i. Employment

- ii. Disputation and staff discipline. Is there a formal disciplinary process?
- iii. Financial decision making and procurement

Other important issues to be covered include:

- a. Handbooks or other guidelines of behaviour. If these exist, who puts them together and are they well accepted?
- b. Process of appeal.
- c. Staff contracts – do these exist? Is employment formalized in this way? How do staff feel about this? If necessary attach a sample.
- d. Relationships to the local community and whether this is formalized - ie. what input does the community have to the running of the hospital and what is the general relationship like between hospital and community? Is the community generally seen as helpful or a hindrance to hospital operations?
- e. Financial systems. Briefly describe the nature of financial record keeping, software or other bookkeeping systems, payroll systems, and the process by which financial records are reviewed by Management.

A major part of this Assignment should be a lengthy discussion section evaluating the strengths and weaknesses of the administration systems in each hospital *as seen by the candidate*. Give reasons for your opinions, and also possible lessons you may have learned about administration. Make comparisons with the situation faced by you in the hospital in which you are sponsored (your home hospital).

2. Management and Leadership Training Course: Candidates must attend a 3 week Management and Leadership Training course covering such topics as:

- a. Leadership Values**
- b. Basic Communication Skills**
- c. People Management**
- d. Board and Management Member Roles**
- e. Running Meetings**
- f. Understanding Reports (including practical work)**
- g. Mediation and Conflict Resolution**
- h. Preparing Budgets (including practical work)**
- i. Improvement of Community Services**
- j. Job Descriptions, Staff Selection and Performance Review**
- k. Gender Equity**
- l. Writing Proposals**
- m. Public speaking**
- n. Introduction to spreadsheets.**

2. Assessment

Formative Assessment

- Major written assignment – 3500 words
- Satisfactory Registrar assessment form

Summative Assessment

- There is a 3hr exam on Public Health and Management
- Components of the Management and Leadership training course may appear in the stations of the Practical Exam
- Trainee should achieve a score of 50% or above overall

Pass Criteria

- Documented completion of the formative tasks
- Overall 50% in summative exam



Log Books

Generic Procedures

Procedures	Requirement	Date	Signature
Pleural tap (thoracoscentesis)	3
	
	
Abdominal tap (parascentesis)	2
Pericardial tap (pericardioscentesis)	1

Surgery

Assignments

Completion date

- 1. Cancer**
- 2. Cancer screening**
- 3. Blood/haemopoiesis**
- 4. Blood transfusion**
- 5. Cytokines**
- 6. Wound healing and inflammation**
- 7. Haemoglobin, oxygen transport**
- 8. Genetics and molecular biology**
- 9. Nerve conduction, neurotransmitters**
- 10. Pain**
- 11. Urodynamics and micturition**
- 12. CSF, intracranial pressure and cerebral blood flow.**
- 13. Calcium homeostasis**
- 14. Liver function**
- 15. Biliary system**
- 16. Oedema and microcirculation**
- 17. Thrombosis**
- 18. Gastric secretion**
- 19. Surgical infections**
- 20. Antibiotics in surgery**

Refer to page **36** for detailed information on the surgical assignments.

Procedures

<u>Procedures</u>	<u>Requirement</u>	<u>Date</u>	<u>Signature</u>
Emergency IV access including I/O needle placement	3
Needle thoracotomy for tension pneumothorax	2
Insertion of a chest drain	5
Demonstrating stabilization of cervical spine and log rolling.	1		
Setting up an IV drip and the use of rapid infusion sets	2
Irrigating, decontamination, disinfecting, and immobilizing an injured limb	3
Debriding a wound	3
Manage a case of facial injury	3
Manage a case of gun-shot wound	2
Simple nerve repair	2
Vascular injury (either managed or observed)	2
Performing simple amputations.	3
A proper surgical scrub	1		
Learning to gown and glove	1		
Surgical management of furuncle and carbuncle	2
Draining a pyomyositis	3
Drilling a tibia in acute osteomyelitis	1		
Draining pus and irrigation of knee joint	2
Incising a pulp space infection	1		
Enlocating a dislocated finger	1		
Managing a dislocated elbow	1		

Procedures	Requirement	Date	Signature
Managing a dislocated shoulder	3
Managing a dislocated hip	2
Managing a distal radius fracture (Colle's type)	3
Managing a forearm fracture	3
Managing a fractured humerus	3
Managing a fractured tibia	3
Managing a fractured femur	3
Doing an appendicectomy	3
Obtaining surgical access to the hip and performing irrigation.	1		
Obtaining surgical access to the ankle and performing irrigation.	1		
Draining an empyema	1		
Perform a culdoscentesis and drain a pelvic abscess PV	1		
Entering the abdomen safely	5
Case of intestinal obstruction (either managed or observed)	2
Basic transverse loop colostomy	1		
Repairing perforations in stomach and gut	3
Performing a basic end to end anastomosis of small gut	2
Irrigating and closing the abdomen	5

Procedures	Requirement	Date	Signature
Inserting a nasogastric tube	3
Basic volar slab for forearm	3
Basic dorsal slab for forearm	
Applying a below elbow forearm cast	3
Applying an above elbow cast	3
Applying a slab to the lower leg	3
Applying a below knee cast	3
Applying an above knee cast	3
Inserting a tibial Steinmann pin for traction and applying traction	2
Applying skin traction to the lower leg	1		
Repair of epigastric hernia	3
Repair of umbilical hernia	3
Repair of inguinal hernia	2
Excision of lipoma	3
Excision of epidermal cyst (sebaceous cysts)	2
The insertion of a suprapubic catheter	3
Operation for hydrocoele	1		
Managing a case of head injury	3

Procedures	Requirement	Date	Signature
Performing cranial burr holes on a patient with raised ICP	1		
Managing a case of spinal injury	3
Fitting a cervical spine collar	1		
Interpreting a standard series of Cervical spine films – lateral, AP and odontoid view	1		
Performing first aid for the person with head injury including using the coma position.	1		
Identifying common neurosurgical instruments	1		
Assessing the extent and depth of a burn	3
Splinting burns correctly	2
Perform initial burns surgery including debridement, escharotomy and fasciotomy	3
Performing a split skin graft	3

Notes:

These are the minimum requirements. It is recognized that it may not be possible to perform some of these procedures under direct supervision.

Candidates should keep a separate record of all the surgical procedures they undertake over the course of their training.

It is recognized and accepted that several procedures may be required on a single patient at a single time. (eg a patient with a gunshot injury or other forms of severe trauma may present with penetrating wounds of both thorax and abdomen, and possibly facial injuries).

Anaesthesia

Assignments

Completion date

1. A case requiring general anaesthesia with paralysis
2. A case of regional anaesthesia
3. A case of sepsis with haemodynamic instability
4. A complicated pregnancy that went to surgery
5. A major head injury.
6. A patient with pre-existing diabetes requiring management of blood sugar levels perioperatively
7. “A patient requiring management of acute perioperative or chronic pain”.
8. “Surgical procedures with the surgeon as anaesthetist. Problems and solutions”.

Procedures

<u>Procedures</u>	<u>Requirement</u>	<u>Date</u>	<u>Signature</u>
Cardiopulmonary resuscitation	3
Insertion of central line	1		
Adult intubation	10
LMA insertion	5
Non instrumental airway management	10

	
	
	
	
Cricothyroidotomy	1		
Tracheostomy	1		
Spinal (pregnant)	10
Spinal (non-pregnant)	10
Caudal	1		
Axillary block or other brachial plexus block.	5
Wrist block	3
Ankle blocks	2
Digital nerve block	3
Anaesthetic Management – Age Group			
Neonate	2
Infant (< 2yrs)	3
Toddler (2-5yrs)	5

Elderly>60 yrs	3
Anaesthetic Management – Special Cases			
Pregnancy Induced Hypertension	2
Ruptured Ectopic Pregnancy	2
Trauma with major blood loss	2
Laparotomy for penetrating abdominal wound	2
Severe Head Injury	1		
Anaesthetic Management by Specialty			
Head or Neck	2
ENT or Dental	2
Neurosurgery	1		
Intravenous Anaesthesia			
Non-ketamine neurolepsis	5
Ketamine	10

Notes:

These are the minimum requirements. It is recognized that it may not be possible to perform some of these procedures under direct supervision.

Candidates should keep a separate record of all the anaesthetic procedures they undertake over the course of their training.

It is recognized and accepted that a single patient may be relevant to several categories. (eg a patient who is intubated may also be a patient having a laparotomy for a penetrating wound). It is acceptable to use the same patient for both entries in that situation.

Child Health

Assignments

Completion date

Students to complete **3 (three)** of the following assignments (details on page 84)

- 1. Malaria**
- 2. Meningitis**
- 3. Asthma**
- 4. HIV**
- 5. Oxygen**
- 6. Neonatal deaths**
- 7. Immunization coverage**

Case Reports

Completion date

- 1. A case of a child with tuberculosis**
- 2. A case of meningitis**
- 3. A case of severe malnutrition**
- 4. A case of severe diarrhoea with dehydration.**
- 5. A case of a low birth weight neonate <2000gm**
- 6. A child presenting with HIV infection and AIDS**
- 7. A child presenting with severe anaemia requiring transfusion.**

Procedures

<u>Procedures</u>	<u>Requirement</u>	<u>Date</u>	<u>Signature</u>
Neonatal resuscitation	4
Management of LBW neonate	4
Intraosseous needle placement	1
Healthy Newborn examination	5
Ponsetti cast	2
IV access with splinting in child under 5 years of age.	5
Assembly of oxygen bottle, regulator, flowmeter, humidifier.	1
Insert and secure a nasopharyngeal oxygen catheter	2
Give intradermal BCG vaccine	5

Obstetrics and Gynaecology

Procedures

<u>Procedures</u>	<u>Requirement</u>	<u>Date</u>	<u>Signature</u>
Surgical management of ectopic pregnancy (trainee as surgeon)	4
Management of post- partum haemorrhage (at least one that requires transfusion)	6
Obstructed labour requiring destructive delivery	1
Retained placenta and manual removal	5
Management of Placenta Praevia - (one major and one minor)	2
Breech delivery	5
Ovarian cystectomy	1
Management of severe PET.	2
Lower uterine segment Caesarean section.	6
Vacuum extraction	6
Major placental abruption	1
	5

Post-partum tubal ligation	
Interval tubal ligation (ie. not in the puerperium)	2
Evacuation of retained products of conception for incomplete abortion	6
Dilatation and curettage for menorrhagia or diagnostics	2
Paracervical block (may be same case as D&C)	2
Failure to progress and augmentation of labour with oxytocin.	6
Insertion of IUD.	2
Twin delivery including one with internal version and breech extraction.	4

Internal Medicine

Assignments

Completion date

Complete TWO (2) of:

Chronic Respiratory Diseases

DOTS Programs

Type 2 Diabetes

Typhoid Fever

Hypertension

Coronary Artery Disease

HIV/AIDS management

Chronic Liver Disease

Disorder of Haemopoiesis

AND

Cancer in PNG

Case Reports

Completion date

Severe malaria

Severe Asthma or COAD

Epilepsy

Inflammatory polyarthritis (eg Rheumatoid)

Myocardial Infarction

Tuberculosis

<u>Supervised Cases</u>	<u>Requirement</u>	<u>Date</u>	<u>Signature</u>
Severe malaria (one with renal impairment)	4
Asthma	2
COAD	3
Acute Myocardial Infarction	3
CVA	2
Congestive Cardiac Failure	3
Severe Hypertension	1
Anaphylaxis	1
Status Epilepticus	1
Snake bite envenomation (one with antivenom)	2
Tuberculosis – at least 2 with extrapulmonary forms and at least one as a relapsed case, and one with drug resistance	6
HIV/AIDS	4
Severe Sepsis	2
Acute hepatitis	1
Chronic liver disease and hepatoma	2
Severe community acquired pneumonia	2
Peptic Ulcer Disease and Gastritis	1
Drug Overdose or poisoning	2

Procedures

<u>Procedures</u>	<u>Requirement</u>	<u>Date</u>	<u>Signature</u>
Perform an ECG	4
Teach use of a metered dose inhaler	2
Create a spacer	1
Snake bite immobilization bandage	1
Lumbar puncture	2

Psychiatry

Case Reports

Completion date

Acute psychosis (including post-partum psychosis)

Somatoform disorder

Public Health

Assignments

Completion date

District Health Report

AND

Any two of the following:

- 1. Outbreak of Food poisoning**
- 2. What is disease surveillance?**
- 3. Investigating deaths from an unknown illness**
- 4. Domestic violence**
- 5. Immunization**
- 6. Reproductive Health Services**
- 7. Occupational/Environmental health**

Ophthalmology and Otorhinolaryngology

Case Reports

Completion date

Perforating eye injury

Acute red eye

Epistaxis

Chronic Suppurative Otitis Media

Procedures

Procedures	Requirement	Date	Signature
Remove a foreign body from the eye	2

Laboratory Medicine

Procedures

Procedures	Requirement	Date	Signature
Blood grouping and cross-match	4
Finger prick BSL	2
Urine microscopy	1
Stool microscopy	1
HIV Rapid test	2
Giemsa stain	2

Other Short Courses.

Candidates where possible will be given a chance to attend other courses relevant to their practice in rural health. Such courses include:

Emergency Management of Severe Trauma (EMST)

Emergency Management of Severe Burns (EMSB)

Care of the Critically Injured Surgical Patient (CCRISP)

Basic Ultrasonography

Basic Radiography

Advanced Life Support

Paediatric Refresher course

Solar and Radio Installation and Maintenance

Courses Successfully completed

Name of Course	Dates

Acknowledgments.

The beginning of our journey to create a career training pathway for doctors wanting to work in the rural and remote parts of PNG was back in the latter parts of 2004. Since those early days and ever since, there have been many people who have given enormous assistance and encouragement to the process.

The late Dr Adolf Saweri, Sir Isi Kevau, Dr Ikau Kevau, Professor Glen Mola, Dr Paulus Ripa, Dr Harry Aigeeleng, were all so supportive initially several have continued to give valuable input until today.

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Drs Florence Muga, Dr David Linge and Dr Pauline Wake have over the last decade given their expert input to our examination process for psychiatry, internal medicine and anaesthesia consistently. Thank you.

Professor Georgia Guldan has lead the revitalization of the Public Health Division at the school and has been one of the main forces behind the revitalization of the 5th year rural blocks. She has also given all her support to the MMED (Rural Health) program and to the early ideas for a Discipline in Rural and Generalist Medicine.

Dr Jane Barker took on the task of developing a rural training program for generalists in the Solomon Islands. She was kind enough to share the excellent draft curriculum she had developed for anaesthesia teaching as a part of that program. The formatting and much of that curriculum have been incorporated into this document.

The administrative staff of SMHS and the HECS office – our “Aunty” Claire Matainho, Rose Solien, Lineth Pokas, Roselyn Nii, Ferguson Ronespha – these have been the people that actually gave legs to our ideas – got our doctors from point A to B for training, made sure they were accommodated and provided for. Without you, we could not have got this far – thank you.

I also wish to acknowledge the support of the Royal Australian College of General Practitioners who continue provide academic support for our trainees, and especially Dr Ken Wanguhu who has been our external examiner from RACGP since 2012 – his enormous personal experience as a rural generalist and in the field of medical education has been greatly respected by all here.

It’s one thing to have the ideas for how to train doctors, but someone actually has to do the training. From the very start we were blessed to have excellent senior doctors around PNG who believed in the mission of training young Papua New Guineans for work in rural areas. These doctors were not paid any extra to do training – they did it because they believed in it. Dr Jim Radcliffe, followed later by Ben Radcliffe and Sheryl Uyeda at Kudjip Hospital, Dr Father Jan Jaworski and Dr Gadelkareem Nassar at Kundiawa, Dr Lucas Samof at Alotau stand out amongst these. We are extremely grateful to them all.

The Old Dart Foundation (ODF) have more recently given much needed financial support to the training program which has given wings to many of the ideas we had to make this the best

possible rural training program with the right level of supports. Those ideas have always been there, but have not been financially accessible. ODF has made them possible and that has really seen the program accelerate in recent years.

To the MMED (Rural) trainees and graduates – you were the ones who decided to take the plunge and go where others had not gone – you took a risk and because you took a risk you have opened a pathway for others that is growing wider and slightly easier day by day. We still have such a long way to go, but without your leadership, the trail could not have been blazed. There have been others before you – missionaries and famous expatriates who have inspired us all, but you were the first Papua New Guineans to do it, and you are the future of the health care of this nation. I thank you for your courage.

Lastly, although many people have been a great help to us in this process, there is one who stands out. I don't believe that MMED (Rural Health) could have survived and thrived without Professor John Vince. His input to, and impact upon medical training generally in PNG is probably incalculable. But as the one who arguably knows the journey of PNG rural medical training best, I can say that his guidance, his support and advocacy have been of enormous encouragement and pivotal importance. It is hard to imagine SMHS without him sitting there in that office surrounded by books and the paraphernalia of medical education. Thank you John.

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