



Bond University Medical Program

**Surgery Health
Student/Clinician Guide**

YEAR 4

Surgery Rotation

The aim of the Surgical Rotation is to gain practical experience in the initial evaluation, investigation and management of acute and elective illnesses common to General Surgery patients. Students will be given training in the basics of general surgical principles, learning how to solve surgical problems as they add on to their basic knowledge, develop clinical judgment and perform motor skills through guided and supervised patient care.

This rotation also provides students with learning experiences associated with the clinical care of surgical patients and for the development of clinical knowledge and understanding of the common conditions in Surgery and the principles of surgical management.

	Surgery Rotation Specific Learning Outcomes	Link to year LO's See appendix 1
S1	Recognise serious illness requiring urgent management /intervention;	Y4SS01 Y4CP03 Y4CP04
S2	Plan investigations (including imaging) and be able to provide a rationale for their appropriateness (support or refute a diagnosis, cost-effectiveness, influence on management);	Y4SS01 Y4CP03 Y4CP07
S3	Compose and dictate a Discharge Summary;	Y4PL03
S4	Demonstrate competence in basic surgical skills;	Y4CP05
S5	Interpret the results of commonly encountered diagnostic tests, imaging and procedures encountered in surgical patients;	Y4CP05 Y4CP07
S6	Demonstrate understanding of the principles that apply to assessment and management of surgical patients in the phases of preoperative, operative and postoperative care.	Y4SS01 Y4CP01, Y4CP02, Y4CP03, Y4CP08 Y4PL01, Y4PL02, Y4PL04

Procedural Skills List for Surgery Rotation

+🕒 ePortfolio learning module available

Understand all and perform most of the following basic procedures:

+🕒 venepuncture/phlebotomy

+🕒 insertion of intravenous catheter

obtain arterial blood sample (arterial blood gas)

+🕒 insertion of urethral (Foley) catheter

insertion of nasogastric tube

removal of surgical drains

+🕒 local anaesthesia

wound preparation e.g. draping and skin preparation

+🕒 closure of surgical incisions

suturing of simple lacerations

+🕒 removal of suture/staples

dressing changes

+🕒 operating room protocols e.g. scrubbing, gowning, gloving, prepping and draping

assistance in operative procedures

Core Topics in General Surgery

This program involves weekly self-directed learning modules and three student presentation sessions. Each week students should do background readings that will enable them to answer the corresponding questions for each module. Students may be asked to provide verbal or written proof of their work by their supervisors during the course of the clinical attachment. This is not an assessable or graded task. The modules will assist students to learn important surgical concepts that are also relevant to general medicine. There are also up to 18 student presentation topics that may be selected for presentation depending on the total number of students allocated to a surgical rotation. The student presentations focus on specific surgical specialty topics that require summarisation and presentation of a greater volume of learning material. Students will facilitate the learning of their peers by providing a topic overview. This should focus on aspects that are relevant to medical officers working in community, emergency or wards, i.e. not a subspecialist level.

Suggested Reading Materials

Textbook: Current Diagnosis and Treatment: Surgery, 15th Edition (2020), Gerard Doherty

Textbook: Textbook of Surgery, 4th Edition (2020), Smith, Kaye, Christophi, Brown

Week 1

Module 1: Biohazards in Surgery

The purpose of this module is to be aware of important biohazards that may be encountered by patients and staff during the delivery of surgical care. Students will learn about prevention and management of air-borne, blood-borne and surgical site pathogens.

Doherty Chapter 3 Preoperative Preparation, sections 'Operating Room' and 'Preparation of the Operating Room Facility'

Textbook of Surgery: Ch 1 'Preoperative Management', Ch 5 'Surgical Techniques'

Using the suggested pre-reading and other reading materials, answer the following questions regarding biohazards in surgery:

1. Describe 'standard aseptic technique', the key components and when it is used.
2. What is 'surgical sterile technique' and how it is different to aseptic technique?
3. List potential air-borne, blood-borne and commensal pathogens and what biohazard precautions are taken in healthcare facilities.
 - a. Covid-19
 - b. TB
 - c. HIV
 - d. Hep B
 - e. Hep C
 - f. Multi-resistant organisms
4. What are the common pathogens in surgical wound infections? What measures have been proven to reduce surgical site infections?

Week 2

Module 2: Preoperative Preparation, Prophylaxis and Postoperative Care (Self-directed learning)

The purpose of this module is to ensure students understand and can implement vital perioperative care for all surgical patients. This includes pre-operative safety assessment, perioperative medication management, pre-operative patient optimisation, nutrition, thromboprophylaxis, post-operative respiratory care. Management of specific post-operative complications such as post-thyroidectomy haemorrhage and hypocalcaemia, post ERCP pancreatitis, colorectal anastomotic leaks, vascular reperfusion injuries, etc should be discussed during the relevant dedicated student presentation.

Doherty Chapter 3 Preoperative Preparation, sections 'Preparation of the Patient' and 'Preoperative Process'

Textbook of Surgery: Ch 1 'Preoperative Management', Ch 2 'Assessment of Surgical Risk'

Using the suggested pre-reading or other reading materials, answer the following questions regarding surgical patient perioperative care:

1. List the antiplatelet medications and the required pre-operative cessation time to eliminate their effect
2. List the anticoagulation medications and the required pre-operative cessation time to eliminate their effect
3. What circumstances may require continuation of antiplatelet or anticoagulation medications?
4. How is CHADSVASC calculated and what is the CVA risk in patients not receiving anticoagulation?
5. Summarise the risks and the necessary precautions when an operation is planned on a patient with the following condition:
 - a. Diabetes (IDDM and non-IDDM)
 - b. AF
 - c. Thyrotoxicosis
 - d. Adrenal insufficiency (including patients on long term steroids)
 - e. Obesity
 - f. Pregnancy
 - g. Anaemia
 - h. Chronic Kidney Disease
 - i. Chronic Liver Disease
 - j. Organ transplant
6. What care should patients receive to prevent thromboembolic complications?

Week 3

Module 3: Skin lesions and Melanoma (Self-directed learning + Student Presentation)

The purpose of this module is to familiarise students with common lesions including actinic lesions, seborrheic keratosis, benign naevi, epidermoid cysts, lipomas, BCCs, keratoacanthoma, SCCs, melanoma and significant rarer lesions such as Merkel cell carcinoma and dermal sarcoma.

Chapter 43 Plastic and Reconstructive Surgery, section 'Skin Lesions and Tumours'

Textbook of Surgery: Ch 44 'Tumours and cysts of the skin', Ch 45 'Soft tissue tumours'

A student will be allocated to present on skin cancers including BCC, SCC and melanoma. The presentation should aim to cover skin anatomy and histology, risk factors, key diagnostic features (and differential diagnoses), appropriate biopsy techniques, indications for specialist referral, appropriate investigations and basic management concepts including disease staging, reconstruction options and adjuvant therapies. The presentation does not require a specialist surgeon level of knowledge. There should be a focus on key concepts that GPs and physicians should understand as they will inevitably be caring for patients with comorbid skin conditions.

All students will also be required to use the suggested pre-reading or other reading materials to answer the following questions:

1. Describe the pathogenesis, distinguishing features and management of epidermoid cysts and lipomas. What malignancies may be mistaken for one of these benign lesions?
2. What is the relationship between UVA and UVB and the development of skin cancers?
3. Describe the classic features and management options for: Seborrheic keratosis, Actinic/Solar keratosis, Bowen's Disease, Keratoacanthoma.
4. Provide a brief summary and key management recommendations for the following rare cutaneous tumours:
 - a. Merkel cell carcinoma
 - b. Dermatofibrosarcoma protuberans (DFSP),
 - c. Atypical fibroxanthoma and Pleomorphic dermal sarcoma (PDS)
 - d. Leiomyosarcoma, Liposarcoma and Angiosarcoma

Week 3 Presentation Topics

1. SKIN: BCC, SCC, Melanoma: Primary assessment and management as outlined above
2. BENIGN BREAST CONDITIONS: Mastalgia, mastitis, abscess, nipple discharge, fibro-cystic disease, gynaecomastia, phyllodes.
3. MALIGNANT BREAST CONDITIONS: DCIS, Invasive cancer, screening, diagnostics, management including surgery, radiotherapy and hormone therapy, reconstruction
4. THYROID: Surgical aspects to managing Graves Disease, Thyroiditis, Multinodular Goitre. Workup for thyroid nodules. Thyroid cancers.
5. ENDOCRINE: Adrenal incidentalomas, benign tumours and malignancy. Surgical management of hyperparathyroidism.
6. HEAD & NECK LUMPS: Salivary gland tumours, Sialadenitis, Cervical lymphadenopathy, Branchial cyst/fistula, Cystic hygroma and ranula.

Learning integration question: Provide differential diagnoses for a patient presenting with a subcutaneous lump in the lateral neck

Week 4

Module 4: Fluid, Electrolytes, TPN, Blood products

Doherty Chapter 9 Fluid, Electrolyte & Acid-Base Disorder, sections 'Fluids and Electrolytes' and 'Electrolyte Disorders'

Chapter 10 Surgical Metabolism and Nutrition, section 'Nutrition Intervention'

Textbook of Surgery: Ch 4 'Postoperative Care', Ch 7 'Nutrition and the Surgical Patient'

Using the suggested pre-reading or other reading materials, answer the following questions:

1. What are the normal daily fluid and electrolyte requirements for a 70kg man
 - a. Water
 - b. Sodium
 - c. Potassium
 - d. Glucose
2. What parameters are considered when performing a patient fluid balance assessment
3. What disease states require fluid replacement therapy in addition to daily maintenance fluids?
4. What are the indications for commencing TPN?
5. What are the indications for administering blood products? (consider anaemia, platelets, INR)
6. What are standard pre-operative fasting times?
7. What is ERAS? What are the key components? Can ERAS be applied to all patients?
8. List the potential causes of post-operative fever and how you would manage each.

Week 4 Presentation Topics

1. OESOPHAGUS: GORD, hiatus hernia, dysphagia, Zenker's Diverticulum, Malignancy
2. STOMACH: Peptic ulcer disease, Helicobacter Pylori, Gastric malignancy, GIST
3. GALL BLADDER & BILE DUCT: Spectrum of gallstones related disorders, malignancy
4. PANCREAS: Aetiology, pathophysiology and management of pancreatitis. Pancreatic neoplasia.
5. BARIATRIC SURGERY: Indications, options, outcomes, management of complications
6. TRAUMA SURGERY: EMST principles of management, mechanisms of injury, injury severity grading for liver, spleen, pancreas, duodenum, trauma laparotomy and damage control

Learning integration task: provide a clerked case or verbal presentation to one of your supervisors. This should be a surgical patient case that includes pre-operative assessment, pre-operative optimisation, operative and post-operative management and a relevant discussion.

Week 5

Module 5: The Acute Abdomen

Doherty Chapter 23 The Acute Abdomen

Textbook of Surgery: Ch 68 'The acute abdomen, peritonitis and intra-abdominal abscesses'

Students should develop a clear understanding of what constitutes an 'acute abdomen' from their readings and experience whilst on surgical clinical attachment.

Using the suggested pre-reading or other reading materials, answer the following questions regarding the acute abdomen:

1. Write your definition of 'the acute abdomen'. What symptoms and signs do you regard as pathognomonic for the diagnosis of an acute abdomen?
2. What is the aetiology and pathophysiology of pain associated with an acute abdomen? (use an example of intra-abdominal infection such as acute appendicitis or cholecystitis)
3. Using a systematic approach of your own preference, present a comprehensive list of conditions that may cause an acute abdomen, appropriate investigations and suggested management.
4. What are 'non-surgical' causes of an acute abdomen?

Week 5 Presentation Topics

1. HERNIAS: Inguinal, femoral, ventral, incisional, obturator, Spigelian, lumbar
2. COLON: Diverticular disease, volvulus, polyps, bowel cancer, screening
3. COLITIS: Infective, Inflammatory, Ischaemic colitis, IBD: UC, Crohn's
4. PROCTOLOGY: Haemorrhoids, fissure, abscess, Fourniers, fistulae, prolapse, pilonidal disease
5. ARTERIAL DISEASE: Peripheral vascular disease (including acute and chronic limb ischaemia), abdominal aortic aneurysm, carotid artery disease, diabetic foot & gangrene.
6. VENOUS DISEASE & LYMPHOEDEMA: Venous drainage of lower limbs, varicose veins, phlegmasia, chronic venous insufficiency, lower limb ulcers, VTE & post phlebitis syndrome, congenital and acquired lymphoedema.

Learning integration question: Provide differential diagnoses for a patient presenting with a lump in the groin.

Week 6

Module 6: Healing, Wound Care, Plastic and Reconstructive Surgery

Doherty Chapter 6 Wound Healing

Textbook of Surgery: Ch 6 'Management of Surgical Wounds', Ch 9 'Surgical Infection', Ch 47 'Principles of plastic surgery'

All students will also be required to use the prescribed pre-reading or other reading materials to answer the following questions:

1. Describe the stages and steps in normal wound healing?
2. What factors impair or prolong acute wound healing, and contribute to development of a chronic wound?
3. Outline the recommendations for managing the following wounds:
 - a. Venous ulcer
 - b. Ischaemia ulcer
 - c. Highly exudative wound
 - d. Biofilm
 - e. Cellulitic wound
 - f. Bone ulceration
4. Describe the process of maturation of a split and full thickness skin graft. What factors contribute to graft failure.

Week 7

Clerked case presentations summative assessment

Timetable and Contacts

Students are expected to be present on a daily basis during their rotation. If students are unable to attend for any reason, they are required to advise the clinician, hospital co-ordinator (where available) and the Placements Team at Bond University: Med-placements@bond.edu.au

Clinical Supervision and Assessment

Students have a variety of workplace-based assessments (WBA) to successfully complete as a requirement for progression in the Medical Program. Assessments are completed in Osler ePortfolio, a cloud-based mobile assessment technology. For assistance with Osler contact: osler@bond.edu.au

1. **The In-Training Assessment (ITA)** is a workplace-based assessment tool utilised in clinical rotations, where the clinical supervisor provides comments about student overall performance on that rotation. The ITA is a summary evaluation of whether students have met the requirements of that rotation for:
 - Clinical knowledge
 - Procedural skills
 - Clinical History taking and physical examination skills
 - Communication
 - Communication with children and families
 - Appropriate clinical handover using ISBAR
 - Personal and professional behaviour
 - Attendance

The ITA can only be completed by the supervising Consultant or their delegate after seeking opinion from the team about the student performance. A formative, 'check point' ITA is due in Week 3. The purpose of this 'check point' is to ensure students know they are progressing successfully. The final summative ITA is due in Week 7, ideally after consultation and discussion with the student.

2. **Mini-CEX:** Students are encouraged to participate in active learning by interacting with patients and engaging in discussions with clinician supervisors. These clinical activities are known as a Mini-CEX. During the clinical placement, students will be supervised by both their consultant supervisor plus a range of clinicians such as those in specialist training pathways in the medical team.

1. **2 x Mini-CEX evaluated by Consultant or delegate Registrar**

- 1 x Mini-CEX History
- 1 x Mini-CEX Physical examination

2. **2 x Mini-CEX evaluated by Other Doctors, Allied health, Nursing, Technicians**

- For example: Procedural skills, X-ray interpretation, Clinical Documentation of an episode of patient care such as a ward round, ED review, OPD review, calculating percentile growth charts, interpreting lab results, ECG interpretation...

3. **Patient Logs:** Students are asked to log 3 patients per week / 20 per rotation to evidence the breadth of their engagement with patients on rotation. Supervisors may utilise student logs to:
 - Evaluate student participation and engagement on placements to support completion of ITAs
 - Incorporate patient logs in learning activities
 - Identify opportunities for evaluation of a Mini-CEX

4. **Clerked Case:** Students will submit and present one (1) formal **Clerked Case** per placement. Students will take a history, examine a patient, then complete and submit a written Clerked Case which they will also present in W7 to their supervisor. Evaluation of the Clerked case incorporates three components: the written submission, ability to reference current literature to the patient case and student oral presentations.

This activity is designed for students to:

1. Practice the skill of concise and relevant documentation
2. Develop their ability to articulate clinically relevant patient information in both Oral and Written formats
3. Guide their deeper clinical understanding of core conditions, including management options
4. Develop their clinical reasoning – their ability to formulate a diagnosis from the History and Physical examination, supported by specific tests

Process of Clerked Case Completion:

1. We ask the student to spend time with a patient sufficient to take a full history and examination and extract the relevant findings.
2. ~ W5: Students then concisely document their findings and write a problem list and care plan, including a GP letter, with reference to the literature in support of their clinical decision-making:
 - a. This document is submitted to Osler and an assessment is assigned to you.
3. 1000 word maximum with 250-word abstract
4. ~ W6/7 the student presents the patient case to you orally and answers your questions, enabling you to evaluate their clinical reasoning.
5. Students will need guidance on when to present their clerked case orally to you, their supervisor.
6. You are encouraged to ask questions at any time in the presentation about the case and how students arrived at their diagnosis/management plan, for example:
7. Explain their rationale for each step in the clinical reasoning process
8. Explain the mechanism of action or pathophysiology of the condition
9. Ask them to identify red flags or co-morbidities
10. You may determine the format required for the presentation and communicate this to students:
 - a. You may wish students to present a power point presentation
 - b. You may wish to do the oral in front of peers for group learning
 - c. It can be done in front of the patient at the bedside
11. Once the student has presented, please complete the assessment in Osler ePortfolio
12. W7: The Osler ePortfolio assessment is due on Friday Wk7, the last day of the rotation

The evaluation of the Clerked Case will be based on performance in the following 3 domains:

1. Research, analysis, and connection of Literature to the case
2. Organisation and content of written work
3. Quality of Oral presentation

The assessment overall results is one of the following:

- Not yet at expected level (Fail)
- At expected level (Pass)
- Excellent - Above expected level

<p>Research, analysis and connection of literature to the case *</p> <p><input type="checkbox"/> Not yet at expected level</p> <p><input type="checkbox"/> At expected level</p> <p><input type="checkbox"/> Excellent - Above expected level</p>
<p>Organisation and content of written work *</p> <p><input type="checkbox"/> Not yet at expected level</p> <p><input type="checkbox"/> At expected level</p> <p><input type="checkbox"/> Excellent - Above expected level</p>
<p>Quality of Oral Presentation *</p> <p><input type="checkbox"/> Not yet at expected level</p> <p><input type="checkbox"/> At expected level</p> <p><input type="checkbox"/> Excellent - Above expected level</p>
<p>Overall Result *</p> <p><input type="checkbox"/> Not yet at expected Level</p> <p><input type="checkbox"/> At expected Level</p> <p><input type="checkbox"/> Excellent - Above expected level</p>

5. Procedural Skills:

Bond Medical Students are required to complete the following procedural Skills on patients by the completion of their Phase 2 placements to graduate. Nine skills are to be completed on patients under guided supervision whilst 5 procedures are Theory only modules to support skills development.

#	Required Procedural Skill Activities
1	In-dwelling Catheter
2	IV Cannulation
3	Suturing
4	IM injection
5	SC injection
6	ECG
7	Venepuncture (venous blood sample)
8	Blood Culture Sampling
9	Sterile wash hand, gown, and glove
10	Examination of ICU patient – Theory Module only
11	Blood Gas Analysis – Theory Module only
12	Chest X-ray Interpretation – Theory Module only
13	Pulse Oximetry – Theory Module only
14	PPE – Theory Module only

Procedural Skills Assessments are completed by the observing clinician using Osler e-Portfolio.

Clinicians evaluate student procedural skills performance on an Entrustability Rating Scale:

- Trust Level 1. Requires physician assistance / direct instruction
- Trust Level 2. Requires significant supervisor input
- Trust Level 3. Performs independently but requires direct supervision
- Trust Level 4. Safe to perform independently (supervision immediately available)

Appendix 1 MEDI71-YR4: Core Clinical Practice

MEDI71-YR4 Core Clinical Practice A, B and C

1. Science and Scholarship: The medical graduate as scientist and scholar
2. Clinical Practice: The medical graduate as practitioner
3. Health and Society: The medical graduate as a health advocate
4. Professionalism and Leadership: The medical graduate as a professional and leader

The Australian Medical Council's Graduate Outcome Statements are organised into four domains. Within this subject, the framework mapped to the learning outcomes are: Science and Scholarship Domain (learning outcomes 1-3), Clinical Practice Domain (learning outcomes 4-11), Health and Society Domain (learning outcomes 12-15) and Professionalism and Leadership Domain (learning outcomes 16-22).

YLO	Year 4 LO	Description	PLO 2021	AMC DOMAIN
		<i>On successful completion of this subject the learner will be able to:</i>		
01	Y4SS 01	Apply current medical and scientific knowledge to individual patients, populations and health systems.	01	1.1, 1.2, 1.2, 1.3, 1.4
02	Y4SS 02	Integrate evidence based and environmentally sustainable health care practice in patient care and research methodology.	02	1.5, 1.6, 2.7
03	Y4SS 03	Commence MD Project and collect evidence in MD portfolio	03	1.1, 1.5, 1.6, 3.3 4.9
04	Y4CP 01	Demonstrate cognitive, technical and interpretive skills in undertaking an accurate, detailed system-focussed history from a range of patients within a variety of clinical settings.	04	2.2
05	Y4CP 02	Perform an accurate and complete physical examination on any body system including a mental state examination.	05	2.3
06	Y4CP 03	Use knowledge of common conditions, the patient history and physical examination findings, and clinical data, to undertake clinical reasoning and formulate probable and differential diagnoses.	06	2.2, 2.3, 2.4, 2.7, 2.8, 2.10
07	Y4CP 04	Recognise deteriorating and critically unwell patients who require immediate care and act appropriately	07	2.12
08	Y4CP 05	Safely perform a range of common procedures relevant to the rotation.	08	2.6, 2.11, 2.14
09	Y4CP 06	Safely apply the principles of "quality use of medicines" in an environmentally sustainable way relevant to the rotation	09	2.6, 2.7
10	Y4CP 07	In consultation with their supervisors, select and justify common investigations, based on the pathological basis of disease, utility, safety,	10	2.5, 3.7

		cost-effectiveness, sustainability and resource stewardship and interpret their results		
11	Y4CP 08	Formulate an initial management plan in consultation with patients, family and carers across a variety of clinical settings with consideration of psychosocial and cultural aspects that may influence management.	11	2.1, 2.7, 2.9, 2.13, 2.14, 2.15 3.2, 3.4
12	Y4HS 01	Using evidence from behavioural science and population health research to integrate prevention, early detection, health maintenance and chronic disease management into clinical practice.	12	1.6, 2.10, 3.5
13	Y4HS 02	Discuss and critically reflect on population, global and planetary health issues applicable to the relevant clinical and community setting	13	3.1, 3.2, 3.4, 3.5, 3.8, 3.9
14	Y4HS 03	Discuss the complex interactions between the healthcare environment, doctor and patient, and the role of the individual to ensure a safe working context.	14	2.1, 2.8, 3.6, 3.7, 4.5
15	Y4HS 04	Communicate effectively in all roles including health advocacy, education, assessment, and appraisal.	15	2.1, 3.3, 4.9
16	Y4PL 01	Demonstrate knowledge and a critical understanding of medico-legal and ethical issues (including ecological justice) that impact on patient healthcare	16	3.6, 4.1, 4.2, 4.4, 4.6, 4.10
17	Y4PL 02	Demonstrate an ability to manage a case load across a range of patients and from a variety of clinical settings.	17	2.2, 2.3, 2.4, 4.1, 4.2, 4.9
18	Y4PL 03	Comply with organisational policies regarding timely and accurate documentation.	18	2.15, 4.1, 4.2, 4.10
19	Y4PL 04	Demonstrate and ability to work as an effective team member, respecting the variety of roles within the clinical setting and the professional responsibilities relevant to one's own position and/or role within the team.	19	3.1, 4.1, 4.2, 4.6, 4.8
20	Y4PL 05	Uphold the standards and values of the medical profession and perform clinical activities in accordance with 'Good Medical Practice for Doctors in Australia' to support the health and well-being of individuals, communities and populations now and for future generations.	20	4.1, 4.2, 4.3, 4.5, 4.10
21	Y4PL 06	Self-evaluate one's professional practice and seek appropriate assistance according to level of training and experience	21	4.1, 4.2, 4.5, 4.7, 4.9
22	Y4PL 07	Proactively engage in life-long learning behaviours.	22	4.9