

Standard 3 Appendix

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Division:	Education and Training Administration	Ref. No.	ETA-SET-010
Department:	Surgical Training		
Title:	Trainee Registration and Variation		

1. PURPOSE AND SCOPE

This policy outlines trainee registration for the College Surgical Education and Training (SET) Programs and the mechanisms by which trainees may apply for variations to their registration.

2. KEYWORDS

Registration; Variation; Training; Surgical; Education; SET; Interruption; Deferral; Suspension

3. BODY OF POLICY

3.1. Registration for training

- 3.1.1. Trainees selected for the SET program must pay the applicable training fees and complete any additional registration requirements as specified at the time of invoicing.
- 3.1.2. Trainees will be registered as either being in full time clinical training, flexible clinical training, accredited research, or not in clinical training (interrupted, deferred, suspended, exam pending).
- 3.1.3. Trainees who wish to alter their registration status must apply for a variation in accordance with the relevant specialty training regulations in a timely manner. Retrospective applications may not be approved.
- 3.1.4. Each Specialty Training Board will determine and publish the maximum term for completion of the SET Program (which will not include any time absent from clinical training due to illness or family leave).
- 3.1.5. Applicants offered a position on a SET Program may make applications for deferral in accordance with the relevant specialty board regulations.
- 3.1.6. Existing trainees on a SET Program offered a position on another SET program may apply for deferral so as to complete their current program.
- 3.1.7. Trainees may apply to interrupt clinical training through a leave of absence from a rotation or rotations.
- 3.1.8. Trainees applying for interruption due to medical reasons (illness, family leave) may do so if supported by medical evidence.
- 3.1.9. Interruption will not be granted if the trainee has received notice of dismissal.
- 3.1.10. Specialty Training Boards may implement return to training plans for trainees who have been absent from clinical training.
- 3.1.11. Trainees may apply to undertake clinical training on a less than full time basis.
- 3.1.12. Specialty Training Boards will ensure that there is an open and transparent process for assessing Trainees' eligibility for flexible training, and will assist eligible Trainees interested in taking up flexible training in an accredited training post.
- 3.1.13. Trainees may be suspended from the SET program by the relevant Specialty Training Board, in accordance with the relevant regulations.

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Division:	Education and Training Administration	Ref. No.	ETA-SET-010
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3.2. Appeal

- 3.2.1. Decisions relating to requests for deferment, interruption or flexible training may be reviewed or appealed in accordance with the College Appeals Mechanism.

4. ASSOCIATED DOCUMENTS

Policy: College Appeals Mechanism

Policy: College Surgical Education and Training Fee (CSET) Policy

Policy: Specialty Surgical Education and Training Fee Policy

5. GLOSSARY

Exam Pending	A trainee who has completed the required clinical rotations of training but has yet to complete the non-clinical elements and/or the Fellowship Examination.
Interruption	A period of leave from the training program.
Deferral	A delay to the commencement of the Surgical Education and Training program
Suspension	A temporary prohibition or exclusion from participation in the SET program
Research	The pursuit of new and original knowledge in surgery.
Accredited Research	Research undertaken by a trainee that is recognised by the Board as contributing to the completion of the SET program.
Flexible	Training in an accredited training post with a time commitment greater than 50% but less than 100% fulltime equivalent.

Approver Education Board
Authoriser Council

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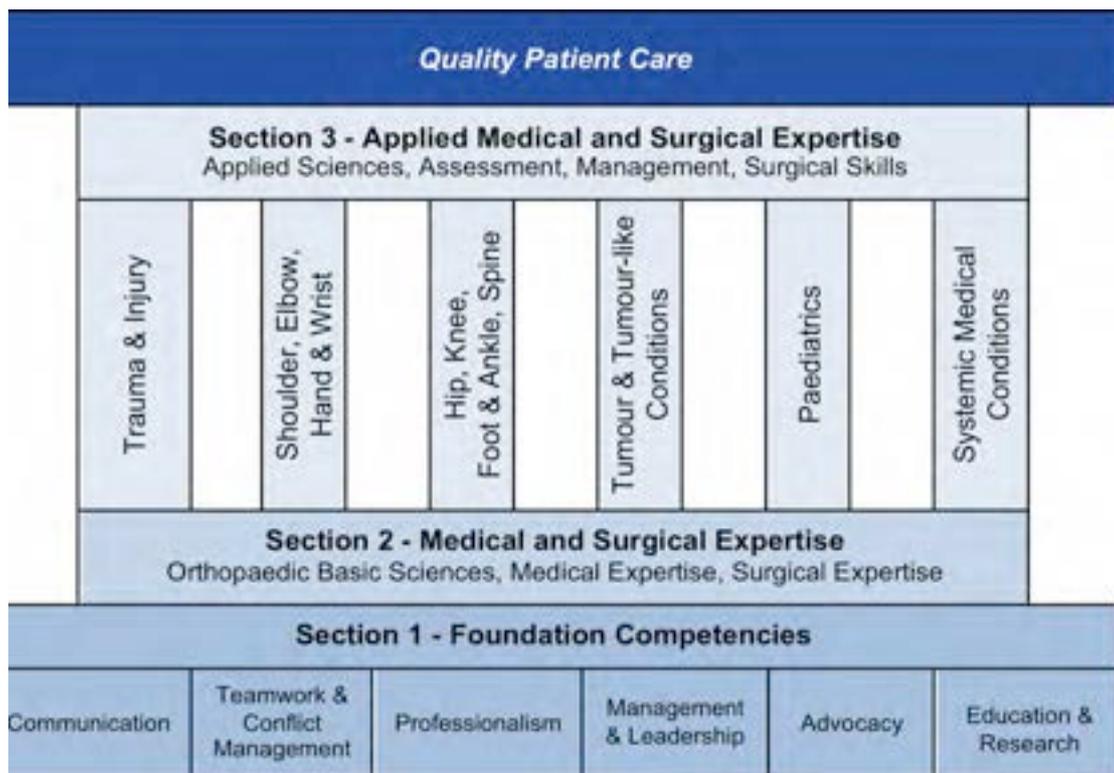


Curriculum for Education and Training in Orthopaedic Surgery: Overview

The overarching goal of the curriculum for education and training in Orthopaedic Surgery, is to guide trainees in learning and refining Foundation Competencies, in addition to those related to medical and surgical expertise, to improve the patient care they provide. The framework identifies and describes the abilities required of trainees to effectively meet the health care needs of patients.

This curriculum is divided into three sections, as illustrated in the below framework diagram.

Curriculum framework



Curriculum overview

SECTION 1 – FOUNDATION COMPETENCIES <i>Competencies that, together with medical and surgical expertise, are the foundation for quality patient care.</i>	
1.1 Communication	Establishing relationships with patients and their families* Eliciting relevant information Sharing information with patients and their families Sharing information with colleagues and others
1.2 Teamwork and Conflict Management	Working with others Handover Conflict management
1.3 Professionalism	Professional and ethical behaviour Commitment to Orthopaedic Surgery as a Profession Health and sustainable practice
1.4 Leadership and Organisational Skills	Leadership Organisational practice (including practice management) Cost and allocation of healthcare
1.5 Advocacy	Advocacy for individual patients Advocacy for the community Cultural awareness and sensitivity
1.6 Education and Research	Ongoing learning (CPD and integration of evidence) Teaching Critical evaluation of literature Research, development and dissemination of new knowledge

Based on the CanMEDs approach, Section 1 competencies together with medical and surgical expertise are the foundations of quality patient care. They are applied across all stages of training and have been brought together at the beginning of the curriculum document to emphasise their importance.

Competencies on conflict management and handover, practice management and critical evaluation of literature have been included. In keeping with current medical education best practice, professional and ethical behaviour, and health and sustainable practice are distinct subsections of Professionalism. Although cultural awareness and sensitivity spans a number of Foundation Competencies, it has been included within Advocacy.

Each section of the curriculum builds upon the previous one. The achievement of specific competencies with regard to orthopaedic surgery detailed in later sections, is underpinned by the development of Foundation Competencies.

SECTION 2 – MEDICAL AND SURGICAL EXPERTISE	
<i>Medical and surgical expertise competencies underpin competencies within Section 3.</i>	
2.1 Orthopaedic Principles and Basic Sciences (OPBS)	Musculoskeletal Pathology Biomechanics and motion Materials and engineering Infection, immunology and inflammation Neurovascular Pharmacology Radiology and investigations
2.2 Medical Expertise (ME)	Applied Science Assessment Management
2.3 Surgical Expertise (SE)	Pre operative Intra operative Post operative

The medical and surgical expertise competencies define the fundamental specialty knowledge and skills of orthopaedic surgeons across all areas of practice. The collation of these ‘generic’ orthopaedic surgery competencies prevents repetition throughout the curriculum, and when applied to a specific context within Section 3, reflects a spiral learning approach.

SECTION 3 – APPLIED MEDICAL AND SURGICAL EXPERTISE IN ORTHOPAEDICS	
<i>Medical and surgical expertise competencies applied to each topic area.</i>	
Topics:	<u>ME - Applied Sciences</u>
3.1 Trauma and Injury	Anatomy, including surgical approaches
3.2 Shoulder	Biomechanics
3.3 Elbow	Pathology
3.4 Hand and Wrist	<u>ME - Assessment</u>
3.5 Hip	History taking
3.6 Knee	Physical Examination Investigations

3.7 Foot and Ankle	<u>ME - Management</u>
3.8 Spine	
3.9 Tumour and Tumour-like Conditions	
3.10 Paediatric	<u>SE - Surgical Skills</u>
3.11 Systemic Medical Conditions	

Each topic area is divided into four sub-sections; Applied Science; Assessment; Management; and Surgical Skills.

Surgical skills are categorised into three levels. On their first day of independent practice, all trainees graduating from the AOA education and training program will be able to competently perform all procedures listed in level one. They will have been provided with the opportunity to observe, assist with or perform under supervision those procedures listed in level two. In addition, they will be able to discuss how procedures in level three would be performed. In summary the levels indicate – ‘must perform’, ‘should have performed’, ‘would be beneficial to have had some educational exposure’.

It is expected that many trainees may also be able to independently perform procedures that are listed in level two and three. The goal is to train to excellence, and assess for competence. Regional training centres will encourage trainees to achieve beyond the minimum required, as described in this curriculum.

	Aortic Disease August 15, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the natural history of Aortic Disease. The role of currently available cardiac investigations and the indications for therapies currently utilised in cardiovascular disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Take a history, examine, diagnose, perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting aortic disease ▪ Accurately identify risk factors associated with aortic disease ▪ Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making. ▪ Manage patients (operatively and non-operatively) with aortic disease
Essential Reading	<p>Kirklin/Barratt-Boyes Cardiac Surgery: Morphology, Diagnostic Criteria, Natural History, Techniques, Results, and Indications Nicholas T. Kouchoukos (Editor), Churchill Livingstone (November 2003)</p>
Recommended Reading	<p>Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor), Mastery of Cardiac Surgery ISBN: 0316482102 Cardiac Surgery in the Adult Lawrence H. Cohn & L. Henry Edmunds</p>
References	<p>http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/</p>
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Interpret echocardiographic, CT, MRI and radiographic anatomy of the aorta • Discuss the development of degenerative, rheumatic, inflammatory and infective aortic disease • Describe the normal and variant anatomy of the aorta • Describe the physiology of the aorta and the derangements caused by aneurysm, dissection and coarctation • Review the risks and benefits of imaging modalities • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and efficient manner • Take a history, examine, diagnose patients exhibiting aortic disease • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of aortic disease to accurately diagnose and effectively manage patients • Carry out the pre and postoperative care of patients undergoing surgery for aortic disease 	<ul style="list-style-type: none"> • Accurately identify the risks and benefits of the chosen management plan and its alternatives • Explain the indications and timing of surgery for aortic disease • Explain the indications for percutaneous treatment of aortic disease 	<ul style="list-style-type: none"> • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting aortic disease • Communicate information about procedures and risks in relation to aortic disease to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Facilitate the learning of others • Advocate patient health along with primary and secondary prevention of disease 	<ul style="list-style-type: none"> • Interpret and discuss the available literature regarding the outcomes of interventions for aortic disease • Manage patients (operatively and non-operatively) with aortic disease • Summarise the rationale for and explain surgery for aortic disease
<ul style="list-style-type: none"> • Evaluate patients with aortic disease • Read and interpret invasive and non invasive tests of patients aortic disease • Direct the critical care management of pre and post operative patients with aortic disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with aortic disease • Participate in and perform evaluation of transthoracic and transoesophageal echocardiograms 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with aortic disease • Participate in and perform evaluation of intraoperative echo 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with aortic disease • Participate in and perform surgery for aortic dissection • Participate in and perform surgery for aortic arch and descending aortic disease

	Cardiopulmonary bypass and management of coagulation	August 15, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the cardiothoracic patient requires a thorough understanding of the extracorporeal bypass. The physiology and complications of extracorporeal bypass are closely linked to daily cardiac surgery practice. An in depth knowledge the coagulation system is required in daily practice in cardiac surgery.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Access and apply relevant knowledge to clinical practice ▪ Accurately identify the risks and benefits of the chosen management plan and its alternatives ▪ Plan and implement appropriate surveillance programs ▪ Appreciate and act according to ethical standards within cardiothoracic surgery ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making ▪ Manage patients in ways that demonstrate sensitivity to their physical, social, cultural, and psychological needs ▪ Approach and carry out procedures with due attention to safety of patient, self, and others 	
Essential Reading	Kirklin/Barratt-Boyes Cardiac Surgery: Morphology, Diagnostic Criteria, Natural History, Techniques, Results, and Indications Nicholas T. Kouchoukos (Editor), Churchill Livingstone (November 2003)	
Recommended Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor), Mastery of Cardiac Surgery ISBN: 0316482102 Cardiac Surgery in the Adult Lawrence H. Cohn & L. Henry Edmunds	
References	http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/	
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching program within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured program for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online access to current journals within each unit Access to unit database for research purposes</p>	
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>	

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> ▪ Explain the development of cardiopulmonary bypass ▪ Discuss the physiology of CPB ▪ Take a history, examine, diagnose, perform (and/or arrange for) appropriate therapeutic procedures, and manage patients undergoing CPB ▪ Apply their thorough knowledge of the, physiology, and pathology of CPB to accurately diagnose and effectively manage patients ▪ Explain the pathophysiology of coagulation ▪ Explain/discuss effective blood conservation 	<ul style="list-style-type: none"> ▪ Describe the physiology of CPB ▪ Describe the physiology of coagulation ▪ Discuss pharmacological agents involved in coagulation ▪ Accurately identify risk factors associated with post-operative bleeding ▪ Select medically appropriate management of coagulation disturbances in a cost-effective, ethical and efficient manner 	<ul style="list-style-type: none"> ▪ Communicate information about procedures and risks in relation to CPB to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management ▪ Appropriately adjust the way they communicate with patients to accommodate cultural and linguistic differences and emotional status 	<ul style="list-style-type: none"> ▪ Review the rationale for and describe techniques of CPB ▪ Interpret and discuss the available literature regarding the outcomes extracorporeal circulation ▪ Manage patients extracorporeal circulation ▪ Review the rationale for and describe techniques of blood conservation and pharmacological management of coagulation
<ul style="list-style-type: none"> • Evaluate patients on CPB • Interpret pathology tests related coagulation • Direct the critical care management of pre and post operative 	<ul style="list-style-type: none"> • Supervise CPB during surgery • Perform cannulation for extracorporeal circulation • Direct appropriate administration of blood products 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients undergoing hypothermic circulatory arrest • Perform peripheral cannulation for extracorporeal circulation 	<ul style="list-style-type: none"> • Perform operative and non-operative management of CPB • Perform axillary cannulation and arch perfusion • Supervise CPB

Module Title	Chest Wall August 15, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the normal anatomy and disease of the chest wall. The role of currently available investigations and the indications for therapies currently utilised in thoracic disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Formulate a differential diagnosis based on clinical and investigative findings ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making ▪ Effectively use resources to balance patient care and systemic demands in a setting of limited and finite system resources ▪ Work in collaboration with members of an interdisciplinary team where appropriate ▪ Manage complexity and uncertainty ▪ Assume responsibility for their own on-going learning
Essential Reading	General Thoracic Surgery Thomas W. Shields, M.D. (Editor), Thomas W. Shields, M.D. , Joseph Locicero, III, , Ronald B. Ponn, M.D. , Valerie W. Rusch, M.D. August 2004 ISBN: 078173889X
Recommended Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),
References	http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Describe normal and variant anatomy of the chest wall • Describe surgical incisions • Interpret radiographic anatomy of the chest wall • Explain the physiology of respiration • Discuss major muscle flaps • Discuss the pathology and management of benign and malignant chest wall neoplasms • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the chest wall to accurately diagnose patients • Take a history, examine, diagnose patients with chest wall pathology 	<ul style="list-style-type: none"> • Discuss the pathology and management of congenital abnormalities • Discuss the pathology and management of thoracic outlet syndrome • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner 	<ul style="list-style-type: none"> • Communicate information about procedures and risks in relation to disorders of the chest wall to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Communicate to patients (and their family) the treatment options, potential benefits, complications and risks associated with all treatment modalities 	<ul style="list-style-type: none"> • Summarise the pre and postoperative care of patients undergoing chest wall surgery • Interpret and discuss the available literature regarding the outcomes of surgery of the chest wall • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients operatively and non operatively with chest wall pathology • Collaborate with other professionals in the selection and use of various treatment modalities and assess the potential effectiveness of each management option
<ul style="list-style-type: none"> • Evaluate patients with chest wall tumours, congenital deformity and thoracic outlet syndromes • Read and interpret invasive and non invasive tests of patients with the above conditions • Direct the critical care management of pre and post operative patients with chest wall pathology 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with chest wall disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with chest wall disease • Participate in the performance and management of lung and chest wall resection 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with chest wall disease • Participate in perform lung and chest wall surgery • Develop a care plan for a patient in collaboration with a interdisciplinary team

Module Title	Coronary artery disease 2006	August 15,
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the natural history of Coronary Artery Disease. The role of currently available cardiac investigations and the indications for therapies currently utilised in cardiovascular disease must be appreciated.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Formulate a differential diagnosis based on clinical and investigative findings ▪ Perform surgery for the management of coronary artery disease and its complications ▪ Demonstrate procedural knowledge and technical skill at a level appropriate to cardiothoracic surgery and their level of training ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making ▪ Promote health maintenance of patients ▪ Effectively use resources to balance patient care and systemic demands in a setting of limited and finite system resources ▪ Critically appraise new trends in cardiothoracic surgery ▪ Appreciate and act according to ethical standards within cardiothoracic surgery 	
Essential Reading	Kirklin/Barratt-Boyes Cardiac Surgery: Morphology, Diagnostic Criteria, Natural History, Techniques, Results, and Indications Nicholas T. Kouchoukos (Editor), Churchill Livingstone (November 2003)	
Recommended Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor), Mastery of Cardiac Surgery ISBN: 0316482102 Cardiac Surgery in the Adult Lawrence H. Cohn & L. Henry Edmunds	
References	http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/	
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching program within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured program for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>	

Assessment and Examination	<p>Self Assessment Tasks - multiple choice and short answer questions (have hyperlink)</p> <p>Essay Questions - set by and submitted regularly to unit's supervisor of surgical training</p> <p>Clinical Vivas - short and long cases performed with consultant surgeons</p> <p>Clinical Assessment and Mentor Reports</p>
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Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Take a history, examine, diagnose, perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting Coronary Artery disease • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the Coronary system to accurately diagnose patients • Interpret radiographic anatomy of the coronary arteries and the heart • Compare the normal and variant anatomy of coronary circulation • Analyse the physiology of the coronary circulation and the derangements caused by stenosis and obstruction. • Discuss the development of the atherosclerotic plaque • Compare and contrast the risks and benefits of coronary angiography, percutaneous balloon angioplasty and stenting and coronary surgery 	<ul style="list-style-type: none"> • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner • Accurately identify risk factors associated with coronary artery conditions • Review the rationale for and techniques of coronary artery bypass surgery as well as the use of various conduits 	<ul style="list-style-type: none"> • Communicate information about procedures and risks in relation to disorders of the Coronary Artery to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the Coronary system to effectively manage patients • Advise patients and their families on health maintenance with Coronary Artery Disease 	<ul style="list-style-type: none"> • Carry out the pre and postoperative care of patients undergoing coronary surgery • Interpret and discuss the available literature regarding the outcomes of interventions for coronary artery disease
<ul style="list-style-type: none"> • Evaluate patients with angina pectoris, unstable angina pectoris and acute myocardial infarction • Read and interpret invasive and non invasive tests of patients with ischaemic heart disease • Direct the critical care management of pre and post operative patients with ischaemic heart disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with ischaemic heart disease • Participate in the performance and evaluation of transthoracic and transoesophageal echocardiograms 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with ischaemic heart disease • Participate in performs surgery for the complications of myocardial infarction 	

	<p style="text-align: center;">Electrophysiology August 16, 2006</p>
<p>Module Rationale and Competencies</p>	<p>In contemporary practice the assessment of the cardiothoracic patient requires a thorough understanding of the conduction system and electrophysiology of the heart. The role of currently available cardiac investigations and the indications for therapies currently utilised in cardiovascular disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Access and apply relevant knowledge to clinical practice ▪ Maintain clinically relevant and accurate contemporaneous records ▪ Accurately identify the risks and benefits of the chosen management plan and its alternatives ▪ Plan and implement appropriate surveillance programs for cardiothoracic surgical disorders ▪ Appreciate and act according to ethical standards within cardiothoracic surgery ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making ▪ Manage patients in ways that demonstrate sensitivity to their physical, social, cultural, and psychological needs ▪ Approach and carry out procedures with due attention to safety of patient, self, and others
<p>Essential Reading</p>	<p>Kirklin/Barratt-Boyes Cardiac Surgery: Morphology, Diagnostic Criteria, Natural History, Techniques, Results, and Indications Nicholas T. Kouchoukos (Editor), Churchill Livingstone (November 2003)</p>
<p>Recommended Reading</p>	<p>Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor), Mastery of Cardiac Surgery ISBN: 0316482102 Cardiac Surgery in the Adult Lawrence H. Cohn & L. Henry Edmunds</p>
<p>References</p>	<p>http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/</p>
<p>Learning Opportunities and Methods</p>	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching program within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured program for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>

Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>
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Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> ▪ Explain the development of arrhythmias ▪ Discuss the pharmacology of drug therapy for arrhythmia ▪ Interpret electrocardiograms ▪ Compare the normal and variant anatomy of the conduction system ▪ Take a history, examine, diagnose, perform (and/or arrange for) appropriate therapeutic procedures, and manage patients with arrhythmias ▪ Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the conduction system to accurately diagnose and effectively manage patients 	<ul style="list-style-type: none"> ▪ Discuss the physiology of rhythm disturbance ▪ Accurately identify risk factors associated with arrhythmias ▪ Review the risks and benefits of electrophysiology studies ▪ Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner 	<ul style="list-style-type: none"> ▪ Communicate information about procedures and risks in relation to arrhythmias to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management ▪ Appropriately adjust the way they communicate with patients to accommodate cultural and linguistic differences and emotional status ▪ Perform the pre and postoperative care of patients undergoing surgery for arrhythmias 	<ul style="list-style-type: none"> ▪ Summarise the rationale for and describe techniques of surgery for arrhythmias ▪ Interpret and discuss the available literature regarding the outcomes of interventions for arrhythmias ▪ Perform insertion of pacemaker, defibrillator, arrhythmia surgery ▪ Manage patients (operatively and non-operatively) with arrhythmias
<ul style="list-style-type: none"> • Evaluate patients with arrhythmia • Read and interpret invasive and non invasive tests of patients with arrhythmia • Direct the critical care management of pre and post operative patients with arrhythmia • Manage temporary pacing systems 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with arrhythmia • Implant pacemakers and defibrillators 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with arrhythmia • Implant pacemakers and defibrillators 	<ul style="list-style-type: none"> • Perform operative and non-operative management of arrhythmia • Perform surgery for ventricular tachycardia, aberrant pathways • Implant pacemakers and defibrillators • Perform surgery for atrial fibrillation

	Heart failure / Transplantation	August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the natural history of End-stage Cardiac failure. The role of currently available cardiac investigations and the indications for therapies currently utilised in cardiovascular disease must be appreciated.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> ▪ Recognise and solve real-life problems ▪ Effectively manage complications of operative procedures and the underlying disease process ▪ Maintain existing skills and acquire new skills ▪ Manage patients in ways that demonstrate sensitivity to their physical and psychological needs ▪ Approach and carry out procedures with due attention to safety of patient, self, and others ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making ▪ Communicate with and co-ordinate surgical teams to achieve an optimal surgical environment ▪ Draw on different kinds of knowledge in order to weigh up patient's problems in terms of context, issues, needs, and consequences 	
Essential Reading	Heart and Lung Transplantation ISBN: 0721673635	
Recommended Reading	Mastery of Cardiac Surgery ISBN: 0316482102 http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/ Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor), Mastery of Cardiac Surgery ISBN: 0316482102 Cardiac Surgery in the Adult Lawrence H. Cohn &L. Henry Edmunds	
References	http://www.corereview.org/	
Learning Opportunities and Methods	Clinical-Ward teaching in selected Transplantation Units <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club Clinical-Operating room teaching <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery Online access to current journals within each unit Access to unit database for research purposes	
Assessment and Examination	Self Assessment Tasks <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) Essay Questions <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training Clinical Vivas <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons Clinical Assessment and Mentor Reports	

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Explain the clinical pathology of cardiac rejection • Recognise the clinical signs and symptoms of cardiac rejection • Interpret invasive and non-invasive parameters to assess heart in failure • Explain the physiology of the failing heart and the derangements caused • Explain the advantages and disadvantages of the variety of mechanical devices currently applied • Explain the rationale for and techniques of surgery for mechanical implantation • Discuss the various aetiologies of end-stage heart failure • Take a history, examine, diagnose, perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting end-stage heart failure 	<ul style="list-style-type: none"> • Review the range of medical and non-mechanical surgical therapies available before considering mechanical support • Accurately identify risk factors associated with cardiac failure • Describe the indications and perform the assessment process for cardiac transplantation • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders causing end-stage heart failure to accurately diagnose and effectively manage patients • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner 	<ul style="list-style-type: none"> • Communicate information about procedures and risks in relation to mechanical circulatory support to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Work collaboratively as a member of a multi-discipline team • Employ a consultative approach with colleagues and other professionals • Summarise the pre and postoperative care of patients undergoing mechanical support surgery 	<ul style="list-style-type: none"> • Indicate the issues of evaluating and managing donor organs • Safely demonstrate the methods of donor organ harvest and preservation • Interpret and discuss the available literature regarding the outcomes of medical and surgical management of heart failure • Manage immunosuppressive therapy regimes • Manage patients (operatively and non-operatively) with mechanical devices • Effectively perform the surgical techniques particular to cardiac transplantation
<ul style="list-style-type: none"> • Read and interpret invasive and non invasive tests of patients with end stage heart failure • Assist/attend to/participate in critical care management of pre and post operative patients following transplantation 	<ul style="list-style-type: none"> • Participate in the performance and evaluation of cardiac transplant patients postoperative care and monitoring • Evaluate patients with end-stage heart failure • Read and interpret invasive and non invasive tests of patients with heart failure • Participate in the evaluation of patients for mechanical support 	<ul style="list-style-type: none"> • Perform operative management of donor organ procurement and assessment • Participate in the operative management of Cardiac transplantation • Participate in operative and non-operative management of patients with mechanical support • Demonstrate understanding of device selection 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients having mechanical support/cardiac transplantation • Participate in and perform the surgical care in the postoperative period following cardiac transplantation • Direct the critical care management of pre and post operative patients with mechanical support

Module Title	Lungs and pleura August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the anatomy and pathology of the lungs and pleura. The role of currently available investigations and the indications for therapies currently utilised in pulmonary disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Consistently demonstrate sound surgical skills ▪ Formulate and implement a management plan for cardiothoracic surgical disorders taking into account that intervention may include operative and non-operative options ▪ Accurately identify the risks and benefits of the chosen management plan and its alternatives ▪ Appraise and interpret results of investigations against patients' and system needs ▪ Promote health maintenance for patients ▪ Appreciate and act according to ethical standards within cardiothoracic surgery ▪ Communicate to patients (and their family) the treatment options, potential benefits, complications and risks associated with all treatment modalities ▪ Critically appraise new trends in cardiothoracic surgery
Essential Reading	General Thoracic Surgery Thomas W. Shields, M.D. (Editor), Thomas W. Shields, M.D. , Joseph Locicero, III, , Ronald B. Ponn, M.D. , Valerie W. Rusch, M.D. August 2004 ISBN: 078173889X
Recommended Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),
References	http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Analyse the normal and variant anatomy of the lungs and pleura • Interpret radiographic anatomy of the lungs and pleura • Discuss the development of the tumours of the lung • Discuss the physiology of the respiration, the mechanisms of breathing • Discuss tests of lung function • Discuss non invasive and invasive procedures for staging of lung cancer • Take a history, examine, diagnose patients exhibiting diseases of the lungs and pleura • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the lungs and pleura to accurately diagnose and effectively manage patients 	<ul style="list-style-type: none"> • Describe staging of lung cancer • Manage patients (operatively and non-operatively) with the lungs and pleura • Explain the indications and techniques for either medical or surgical treatment of pulmonary metastases • Accurately identify risk factors associated with surgery of the lungs and pleura • Explain the role of VATS in neoplastic disease resections • Explain epidemiology and etiologically relevant factors in lung cancer • Explain how to recognize the complications of pulmonary resection and discuss their management; • Recognises complications requiring operative treatment 	<ul style="list-style-type: none"> • Discuss indications, complications and surgical techniques of standard resections for neoplastic disease; • Discuss evaluation, clinical features and treatment of carcinoid and solitary nodules • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting diseases of the lungs and pleura • Understand TNM system and its application to the diagnosis and therapeutic planning; • Communicate information about procedures and risks in relation to disorders of the lungs and pleura to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management 	<ul style="list-style-type: none"> • Interpret and discuss the available literature regarding the outcomes of interventions for diseases of lungs and pleura • Discuss indications and technical aspects of surgical procedures for special circumstances • Carry out the pre and postoperative care of patients undergoing surgery of the lungs and pleura • Perform surgery for the management of diseases of the lungs and pleura • Advocate patient health along with primary and secondary prevention of disease • Consider all issues relevant to the patient • Audit their own performance
<ul style="list-style-type: none"> • Evaluate patients with pleural and lung disease • Read and interpret invasive and non invasive tests of patients with pleural and lung disease • Direct the critical care management of pre and post operative patients with pleural and lung disease • Perform tube thoracostomy 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with pleural disease • Perform bronchoscopy 	<ul style="list-style-type: none"> • Perform operative and non-operative management lung resection 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with lung malignancy • Perform complex lung and pleural resection

	Lung Transplantation	August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment and management of the Cardiothoracic patient requires a thorough understanding of the natural history of end-stage respiratory failure. The role of currently available investigations and the indications for therapies currently utilised in respiratory must be appreciated.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> ▪ Demonstrate currency of knowledge ▪ Demonstrate procedural knowledge and technical skill at a level appropriate to cardiothoracic transplantation ▪ Demonstrate the manual dexterity and technical skills to carry out procedures ▪ Accurately identify the risks and benefits of the chosen management plan and its alternatives ▪ Manage complexity and uncertainty with sound judgment ▪ Critically evaluate new technologies and procedures ▪ Plan and implement appropriate surveillance programs for cardiothoracic surgical disorders ▪ Communicate to patients (and their family) the treatment options, potential benefits, complications and risks associated with all treatment modalities ▪ Collaborate with other professionals in the selection and use of various treatment modalities and assess the potential effectiveness of each management option ▪ Effectively use resources to balance patient care and systemic demands in a setting of limited and finite system resources ▪ Critically appraise new trends in cardiothoracic surgery 	
Essential Reading	Heart and Lung Transplantation ISBN: 0721673635	
Recommended Reading	<p>General Thoracic Surgery Thomas W. Shields, M.D. (Editor), Thomas W. Shields, M.D. , Joseph Locicero, III, , Ronald B. Ponn, M.D. , Valerie W. Rusch, M.D. August 2004 ISBN: 078173889X</p> <p>Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),</p>	
References	<p>http://www.corereview.org/</p> <p>http://www.ctsnet.org/</p> <p>http://www.ctsnet.org/residents/ctsn/</p>	

Learning Opportunities and Methods	<p>Clinical-Ward teaching in selected Transplantation Units</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online access to current journals within each unit Access to unit database for research purposes</p>
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions <p>Thoracic Imaging: Case Review by Phillip M., Md Boisselle, Theresa C., MD McCloud ISBN: 0323006566</p> <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Review the issues of evaluating and managing donor organs • Discuss the clinical pathology of lung rejection 	<ul style="list-style-type: none"> • Summarise the pre and postoperative care of patients undergoing lung transplantation surgery • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner • Take a history, examine, diagnose patients with lung transplantation pathology • Explain the indications and carry out the assessment process for Lung and Heart Lung transplantation 	<ul style="list-style-type: none"> • Review the management of immunosuppressive therapy regimes • Communicate information about procedures and risks in relation to disorders of the heart/lung to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients with lung transplantation pathology • Recognise the clinical signs and symptoms of pulmonary allograft rejection • Demonstrate the methods of donor organ harvest and preservation 	<ul style="list-style-type: none"> • Perform the surgical techniques particular to single, double and heart lung transplantation • Manage patients (operatively and non-operatively) with lung transplantation pathology
<ul style="list-style-type: none"> • Read and interpret invasive and non invasive tests of patients with end stage respiratory failure 	<ul style="list-style-type: none"> • Participate in the performance and evaluation of lung transplant patients postoperative care and monitoring 	<ul style="list-style-type: none"> • Perform operative management of donor organ procurement and assessment • Participate in the operative management of Lung transplantation 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients having lung transplantation

<ul style="list-style-type: none">• Assist in critical care management of pre and post operative patients following lung transplantation			<ul style="list-style-type: none">• Participate in and perform the surgical care in the postoperative period following lung transplantation
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Module Title	Mediastinum and Pericardium	August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the anatomy and pathology of the lungs and pleura. The role of currently available investigations and the indications for therapies currently utilised in the management of mediastinal and pericardial disease must be appreciated.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Demonstrate the manual dexterity and technical skills to carry out procedures ▪ Critically analyse their own clinical performance for continuous improvement ▪ Formulate and implement a management plan for cardiothoracic surgical disorders taking into account that intervention may include operative and non-operative options - non-operative may include medical, drug and per-cutaneous and palliative options ▪ Critically evaluate the advantages and disadvantages of different investigative modalities ▪ Communicate to patients (and their family) the treatment options, potential benefits, complications and risks associated with all treatment modalities ▪ Maintain clinically relevant and accurate contemporaneous records ▪ Assume responsibility for own on-going learning 	
Essential Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),	
Recommended Reading	General Thoracic Surgery Thomas W. Shields, M.D. (Editor), Thomas W. Shields, M.D. , Joseph Locicero, III, , Ronald B. Ponn, M.D. , Valerie W. Rusch, M.D. August 2004 ISBN: 078173889X	
References	http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/	
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching program within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured program for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>	
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>	

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Describe the normal and variant anatomy of the mediastinum and pericardium • Explain the anatomic boundaries of the mediastinum and the structures found within each region; • Explain signs and symptoms associated with mediastinal abnormalities; • Discuss pericardial constriction and its management • Explain clinical-pathological features of thymoma • Explain classification, diagnosis and treatment of thymic tumors • Discuss the development of the mediastinum and pericardium • Interpret radiographic anatomy of the mediastinum and pericardium • Discuss medical and surgical therapeutic options for patients with myasthenia gravis; • Explain clinical presentation, radiological investigation and treatment of mediastinal cysts and esophageal duplications • Take a history, examine, diagnose patients exhibiting diseases of the mediastinum and pericardium 	<ul style="list-style-type: none"> • Accurately identify risk factors associated with surgery of the lungs and pleura • Discuss various open surgery procedures and VATS approach to the mediastinum; • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner • Discuss presentation, diagnostic evaluation, staging, surgical and non-surgical treatment and prognosis of thymic carcinoma • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the mediastinum and pericardium to accurately diagnose and effectively manage patients • Discuss diagnosis and the role of surgery, radio and chemotherapy in the treatment of thymoma; • Discuss the investigation and surgical management of posterior mediastinal tumours 	<ul style="list-style-type: none"> • Communicate information about procedures and risks in relation to disorders of the mediastinum and pericardium to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Carry out the pre and postoperative care of patients undergoing surgery of the mediastinum and pericardium • Review the rationale for and techniques of surgery of the mediastinum and pericardium • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting diseases of the mediastinum and pericardium 	<ul style="list-style-type: none"> • Manage patients (operatively and non-operatively) with diseases of the mediastinum and pericardium • Perform surgery for the management of diseases of the mediastinum and pericardium • Interpret and discuss the available literature regarding the outcomes of interventions for diseases of the mediastinum and pericardium
<ul style="list-style-type: none"> • Evaluate patients with mediastinal and pericardial disease • Read and interpret invasive and non invasive tests of patients with mediastinal and pericardial disease • Direct the critical care management of pre and post operative patients mediastinal and pericardial disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with mediastinal and pericardial disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management pericardial constriction 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with mediastinal and pericardial disease • Perform open and videoscopic surgery of the mediastinum and pericardium

	Myocardium and Cardiac Tumours August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the natural history of myocardial disease and cardiac tumours. This includes myocarditis, hypertrophic cardiomyopathy and benign and malignant cardiac tumours. The role of currently available cardiac investigations and the indications for therapies currently utilised in cardiovascular disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Take a history, examine, diagnose, perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting myocardial disease and cardiac tumours. heart disease ▪ Accurately identify risk factors associated with myocardial disease and cardiac tumours. ▪ Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making. ▪ Manage patients (operatively and non-operatively) with myocardial disease and cardiac tumours.
Essential Reading	<p>Kirklin/Barratt-Boyes Cardiac Surgery: Morphology, Diagnostic Criteria, Natural History, Techniques, Results, and Indications Nicholas T. Kouchoukos (Editor), Churchill Livingstone (November 2003)</p>
Recommended Reading	<p>Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor), Mastery of Cardiac Surgery ISBN: 0316482102 Cardiac Surgery in the Adult Lawrence H. Cohn & L. Henry Edmunds</p>
References	<p>http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/</p>
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Interpret echocardiographic, CT, MRI and radiographic anatomy of myocardial disease and cardiac tumours. • Discuss the development of myocardial disease and cardiac tumours. • Describe the normal and variant anatomy of the myocardium • Describe the physiology of the myocardium • Review the risks and benefits of imaging modalities • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner • Take a history, examine, diagnose patients exhibiting myocardial disease and cardiac tumours. • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of myocardial disease and cardiac tumours to accurately diagnose and effectively manage patients • Carry out the pre and postoperative care of patients undergoing surgery for myocardial disease and cardiac tumours. 	<ul style="list-style-type: none"> • Accurately identify the risks and benefits of the chosen management plan and its alternatives • Explain the indications and timing of surgery for HCM • Explain the indications and timing of surgery for cardiac tumours 	<ul style="list-style-type: none"> • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting myocardial disease and cardiac tumours. • Communicate information about procedures and risks in relation to myocardial disease and cardiac tumours to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Facilitate the learning of others • Advocate patient health along with primary and secondary prevention of disease 	<ul style="list-style-type: none"> • Interpret and discuss the available literature regarding the outcomes of interventions for myocardial disease and cardiac tumours. • Manage patients (operatively and non-operatively) with myocardial disease and cardiac tumours. • Summarise the rationale for and explain the surgery for myocardial disease and cardiac tumours.
<ul style="list-style-type: none"> • Evaluate patients with myocardial disease and cardiac tumours • Read and interpret invasive and non invasive tests of patients with myocardial disease and cardiac tumours • Direct the critical care management of pre and post operative patients with myocardial disease and cardiac tumours 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with myocardial disease and cardiac tumours • Participate in and perform evaluation of transthoracic and transoesophageal echocardiograms 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with myocardial disease and cardiac tumours • Participate in and perform evaluation of intraoperative echo 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with HCM • Participate in and perform surgery for cardiac tumours

Module Title	Non Clinical Surgical Practice August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice surgeons need to be well versed in the important aspects of non clinical surgical practice</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Appreciate and act according to ethical standards within cardiothoracic surgery ▪ Communicate honestly and openly with patients, family and other health care providers ▪ Effectively use resources to balance patient care and systemic demands in a setting of limited and finite system resources ▪ Promote health maintenance of patients ▪ Critically appraise new trends in cardiothoracic surgery ▪ Understand clinical databases and outcome analysis ▪ Understand concepts of practice management ▪ Understand medico-legal factors, including risk management, record keeping and expert witness testimony ▪ Understand the importance of clinical and non-clinical personal development ▪ Design, conduct and analysis cardiothoracic research
Essential Reading	
Recommended Reading	
References	<p>http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/</p>
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching program within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured program for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>RACS courses</p> <p>Online access to current journals within each unit</p> <p>Access to unit database for research purposes</p>

Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching program within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured program for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>RACS courses</p> <p>Online access to current journals within each unit</p> <p>Access to unit database for research purposes</p>
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Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Collect and verify database information • Present unit audit • Display high ethical standards in the performance of daily duties • Practice medical record keeping in accordance with the highest standard • Understand scientific method • Perform critical analysis 	<ul style="list-style-type: none"> • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner • Understand comparative analysis and balance cost and clinical outcome 	<ul style="list-style-type: none"> • Communicate information about procedures and risks in relation to disorders patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Deal appropriately with issues of death and dying with patients and family 	<ul style="list-style-type: none"> • Demonstrate an extensive knowledge and practical implementation of risk management • Demonstrate ethical behaviour in relation to the medical industry • Complete a RACS approved medico-legal education program • Conduct scientific or clinical research

Module Title	Oesophagus August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the anatomy and pathology of the oesophagus. The role of currently available investigations and the indications for therapies currently utilised in oesophageal disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> •Apply scientific knowledge in practice •Consistently demonstrate sound surgical skills •Formulate a differential diagnosis based on clinical and investigate findings •Appreciate and act according to ethical standards within cardiothoracic surgery •Effectively use resources to balance patient care and systemic demands in a setting of limited and finite system resources •Communicate information to patients (and their family) in ways that encourage their participation in informed decision making •Recognise the need to refer patients to other professionals
Essential Reading	General Thoracic Surgery Thomas W. Shields, M.D. (Editor), Thomas W. Shields, M.D. , Joseph Locicero, III, , Ronald B. Ponn, M.D. , Valerie W. Rusch, M.D. August 2004 ISBN: 078173889X
Recommended Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),
References	http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching program within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured program for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Explain the development of the oesophagus • Explain signs and symptoms associated with oesophageal abnormalities • Describe the normal and variant anatomy of the oesophagus • Explain the anatomic boundaries of the oesophagus and the structures found within each region • Interpret radiographic anatomy of the oesophagus • Take a history, examine, diagnose patients exhibiting diseases of the oesophagus • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the oesophagus to accurately diagnose and effectively manage patients • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner 	<ul style="list-style-type: none"> • Discuss various open surgery procedures and VATS approach to the oesophagus; • Accurately identify risk factors associated with surgery of the oesophagus • Discuss presentation, diagnostic evaluation, staging, surgical and non-surgical treatment and prognosis of oesophageal carcinoma; • Discuss clinical presentation, radiological investigation and treatment of oesophageal cysts and esophageal duplications • Review the rationale for and techniques of surgery of the oesophagus 	<ul style="list-style-type: none"> • Carry out the pre and postoperative care of patients undergoing surgery of the oesophagus • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting diseases of the oesophagus • Communicate information about procedures and risks in relation to disorders of the oesophagus to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management 	<ul style="list-style-type: none"> • Interpret and discuss the available literature regarding the outcomes of interventions for diseases of the oesophagus • Discuss the investigation and surgical management of oesophageal tumours • Manage patients (operatively and non-operatively) with diseases of the oesophagus • Perform surgery for the management of diseases of the oesophagus
<ul style="list-style-type: none"> • Evaluate patients with oesophageal disease • Read and interpret invasive and non-invasive tests of patients with oesophageal disease • Direct the critical care management of pre and post operative patients oesophageal disease 	<ul style="list-style-type: none"> • Perform endoscopic investigation of oesophagus • Perform operative and non-operative management of patients with oesophageal disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with oesophageal disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management of strictures including stenting and laser therapy • Perform open and videoscopic surgery of the oesophagus

Module Title	Paediatric Cardiac Surgery August 16, 2006	
Rationale and Competencies	<p>Paediatric cardiothoracic abnormalities can produce significant morbidity and mortality. A thorough understanding of normal anatomy and physiology, as well as pathophysiology and investigative tools, is required to allow appropriate investigation and management of paediatric patients with cardiothoracic disorders. Knowledge of the effects of therapeutic agents is also essential.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> ▪ Recognise the symptoms of, and accurately diagnose, common paediatric cardiothoracic problems ▪ Efficiently and effectively examine the patient ▪ Recognise the most common disorders of the cardiothoracic systems and differentiate those amenable to surgical treatment ▪ Take a history, perform an examination, and arrive at a well-reasoned diagnosis ▪ Appraise and interpret imaging against patients' needs ▪ Critically evaluate the advantages and disadvantages of different investigative modalities ▪ Communicate information to patients and their family about procedures, potentialities, and risks associated with surgery in ways that encourage their participation in informed decision making ▪ Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type ▪ Develop a care plan for a paediatric patient in collaboration with members of an interdisciplinary team ▪ Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner 	
Topics relevant to this module	<p>The common congenital cardiac and vascular defects that the trainee is expected to study in some detail include –</p> <ul style="list-style-type: none"> – Atrial septal defect – Ventricular septal defect – Patent ductus arteriosus – Partial atrioventricular septal defect – Complete atrioventricular septal defect – Tetralogy of Fallot – Transposition of the great arteries – Vascular rings – TAPVD – Congenital aortic valve stenosis – Pulmonary valve stenosis – Coarctation of the aorta – Ebstein's anomaly – Congenital coronary artery anomalies 	<p>Less common defects that the trainee is not expected to study in detail include –</p> <ul style="list-style-type: none"> – Aorto-pulmonary window – Truncus arteriosus – Tricuspid atresia – Pulmonary atresia with intact ventricular septum – Interrupted aortic arch – Hypoplastic left heart syndrome – Other forms of univentricular heart
Essential Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),	

Recommended Reading	1. Stark J. and de Leval M, Surgery for Congenital Heart Defects, Saunders, 1994 2. Kouchoos NT, Cardiac surgery by Kirklin & Barratt-Boyes, 3 rd ed, Churchill Livingstone, 2003.
Learning Opportunities and Methods	The trainee should take the opportunity to learn from many other colleagues and specialities – paediatric cardiologist, intensivist, echocardiographer, bypass perfusionist and cardiac anaesthetist. Ideally this should include – (1) Time spent looking at echocardiograms and cardiac angiograms. (2) Time with the paediatric cardiac perfusionist. (3) Involvement in ward rounds in the Intensive Care Unit and on the ward, learning about the details of post-operative care.
Assessment and Examination	

LEARNING OBJECTIVES

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> ▪ Describe the embryology of the heart and great vessels, and explain how it relates to the development of the common congenital heart anomalies. ▪ Describe the abnormal anatomy of the major congenital cardiovascular anomalies, <ul style="list-style-type: none"> - apply this to accurately interpreting echocardiograms, angiograms and MRI examinations. ▪ Explain the intra-uterine fetal cardiac physiology, the physiologic changes around birth in the circulation and pulmonary vascular bed, and the pathophysiology of the common congenital heart defects <ul style="list-style-type: none"> - apply this to the interpretation of cardiac catheter studies 	<ul style="list-style-type: none"> ▪ Summarise the principles of cardiopulmonary bypass for infants and children, and the intra-operative management of bypass, comparing these with adult techniques for bypass and myocardial preservation. ▪ Review the clinical features, diagnosis, investigations and the management principles for the common congenital and acquired heart defects in the paediatric age group 	<ul style="list-style-type: none"> ▪ Describe the operative techniques and the post-operative care for the common congenital and acquired heart defects in this age group. ▪ Describe the expected outcome, long-term results and late complications for the common congenital and acquired heart defects. ▪ Describe the major medical, social and surgical issues for adolescents and young adults with congenital heart disease, and the management of the common surgical problems in the adult with treated congenital heart disease 	

	Thoracic Trauma	August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the assessment and manage. The role of currently available cardiac investigations and the indications for therapies currently utilised in cardiovascular disease must be appreciated.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> ▪ Recognise and solve real-life problems ▪ Adapt their skills in the context of each patient and each procedure ▪ Critically analyse their own clinical performance for continuous improvement ▪ Effectively manage complications of operative procedures and the underlying disease process ▪ Manage complexity and uncertainty with sound judgment ▪ Manage patients in ways that demonstrate sensitivity to their physical, social, cultural, and psychological needs ▪ Plan and implement appropriate surveillance programs for cardiothoracic surgical disorders ▪ Appropriately adjust the way they communicate with patients to accommodate cultural and linguistic differences and emotional status ▪ Communicate with and co-ordinate surgical teams to achieve an optimal surgical environment ▪ Recognise the need to refer patients to other professionals ▪ Maintain accurate records 	
Essential Reading	<p>General Thoracic Surgery Thomas W. Shields, M.D. (Editor), Thomas W. Shields, M.D. , Joseph Locicero, III, , Ronald B. Ponn, M.D. , Valerie W. Rusch, M.D. August 2004 ISBN: 078173889X</p>	
Recommended Reading	<p>Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),</p>	
References	<p>http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/</p>	
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit -structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>	

Assessment and Examination	<p>Self Assessment Tasks - multiple choice and short answer questions (have hyperlink)</p> <p>Essay Questions - set by and submitted regularly to unit's supervisor of surgical training</p> <p>Clinical Vivas - short and long cases performed with consultant surgeons</p> <p>Clinical Assessment and Mentor Reports</p>
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Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Explain the mechanisms of chest trauma • Discuss the pathophysiology of injury to the chest wall, heart, mediastinum, great vessels, oesophagus, diaphragm • Compare the normal and variant anatomy of the thorax, thoracic inlet and diaphragm, and the relationship of the adjacent structures • Take a history, examine, diagnose patients with thoracic trauma • Interpret radiography, CT, MRI, echocardiography and angiography • Apply their thorough knowledge of the anatomy, physiology, and pathology of thoracic trauma to accurately diagnose and effectively manage patients 	<ul style="list-style-type: none"> • Compare and differentiate between the risks and benefits of imaging modalities • Summarise the rationale for and techniques of surgery for thoracic trauma • Accurately identify risk factors associated with thoracic trauma • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner 	<ul style="list-style-type: none"> • Carry out the pre and postoperative care of patients with thoracic trauma • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients (operatively and non-operatively) with thoracic trauma • Communicate information about procedures and risks in relation to thoracic trauma to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Manage patient's clinical needs in a complex environment 	<ul style="list-style-type: none"> • Interpret and discuss the available literature regarding the outcomes of interventions for thoracic trauma • Perform surgery for thoracic trauma chest tube insertion, trauma thoracotomy, VATS, decortication, lung resection, repair of great vessels, myocardial rupture/penetration, diaphragmatic rupture • Work as a collaborative member of a interdisciplinary team where appropriate • Manage and lead clinical teams where appropriate
<ul style="list-style-type: none"> • Evaluate patients with thoracic trauma • Read and interpret tests of patients with thoracic trauma • Direct the critical care management of pre and post operative patients with thoracic trauma 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with thoracic trauma 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with thoracic trauma 	<ul style="list-style-type: none"> • Perform operative and non-operative management of thoracic trauma • Perform surgery for traumatic injury of the great vessels

Module Title	Trachea and bronchi August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the anatomy and pathology of the trachea and bronchi. The role of currently available investigations and the indications for therapies currently utilised in airway disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Formulate a differential diagnosis based on clinical and investigative findings ▪ Plan, and where necessary implement a risk management plan ▪ Critically analyse their own clinical performance for continuous improvement ▪ Critically evaluate new technologies and procedures ▪ Appreciate and act according to ethical standards within cardiothoracic surgery ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making and on-going management ▪ Maintain accurate records ▪ Advocate patient health along with primary and secondary prevention of disease ▪ Effectively use resources to balance patient care and systemic demands in a setting of limited and finite system resources
Essential Reading	General Thoracic Surgery Thomas W. Shields, M.D. (Editor), Thomas W. Shields, M.D. , Joseph Locicero, III, , Ronald B. Ponn, M.D. , Valerie W. Rusch, M.D. August 2004 ISBN: 078173889X
Recommended Reading	Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor),
References	http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>

Assessment and Examination	<p>Self Assessment Tasks - multiple choice and short answer questions (have hyperlink)</p> <p>Essay Questions - set by and submitted regularly to unit's supervisor of surgical training</p> <p>Clinical Vivas - short and long cases performed with consultant surgeons</p> <p>Clinical Assessment and Mentor Reports</p>
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Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Interpret radiographic anatomy of the trachea and bronchi • Explain the development of the trachea and bronchi • Describe tests of lung function • Describe staging of lung cancer • Describe the normal and variant anatomy of the trachea and bronchi • Discuss the physiology of the respiration, the mechanisms of breathing • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of the trachea and bronchi to accurately diagnose and effectively manage patients • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner 	<ul style="list-style-type: none"> • Review the rationale for and techniques of surgery of trachea and bronchi • Accurately identify risk factors associated with surgery of the trachea and bronchi 	<ul style="list-style-type: none"> • Communicate information about procedures and risks in relation to disorders of the trachea and bronchi to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Carry out the pre and postoperative care of patients undergoing surgery of the trachea and bronchi • Manage patients (operatively and non-operatively) with trachea and bronchi • Advocate life-style changes with patients 	<ul style="list-style-type: none"> • Interpret and discuss the available literature regarding the outcomes of interventions for diseases of trachea and bronchi • Perform surgery for the management of diseases trachea and bronchi and its complications • Audit their own performance
<ul style="list-style-type: none"> • Evaluate patients with diseases of the trachea and bronchi • Read and interpret invasive and non invasive tests of patients with diseases of the trachea and bronchi • Direct the critical care management of pre and post operative patients with diseases of the trachea and bronchi 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with diseases of the trachea and bronchi • Perform bronchoscopy 	<ul style="list-style-type: none"> • Perform operative and non-operative management of diseases of the trachea and bronchi 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with lung malignancy • Perform complex lung and pleural resection

	Valvular Heart Disease August 16, 2006
Module Rationale and Competencies	<p>In contemporary practice the assessment of the Cardiothoracic patient requires a thorough understanding of the natural history of Valvular Disease. The role of currently available cardiac investigations and the indications for therapies currently utilised in cardiovascular disease must be appreciated.</p> <p>The Graduating Trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Apply scientific knowledge in practice ▪ Take a history, examine, diagnose, perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting valvular heart disease ▪ Accurately identify risk factors associated with valvular heart disease ▪ Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner ▪ Communicate information to patients (and their family) in ways that encourage their participation in informed decision making. ▪ Manage patients (operatively and non-operatively) with valvular heart disease
Essential Reading	<p>Kirklın/Barratt-Boyes Cardiac Surgery: Morphology, Diagnostic Criteria, Natural History, Techniques, Results, and Indications Nicholas T. Kouchoukos (Editor), Churchill Livingstone (November 2003)</p>
Recommended Reading	<p>Glenn's Thoracic and Cardiovascular Surgery (6th edition) Authors: Arthur E. Baue (Editor), Hillel Laks (Editor), Mastery of Cardiac Surgery ISBN: 0316482102 Cardiac Surgery in the Adult Lawrence H. Cohn & L. Henry Edmunds</p>
References	<p>http://www.ctsnet.org/ http://www.ctsnet.org/residents/ctsn/</p>
Learning Opportunities and Methods	<p>Clinical-Ward teaching</p> <ul style="list-style-type: none"> - supervised ward rounds with consultant surgeon - multidisciplinary meetings within each unit - clinical audit meetings within each unit - structured teaching programme within each unit including trainee presentations and journal club <p>Clinical-Operating room teaching</p> <ul style="list-style-type: none"> - structured programme for progression and assessment of surgical skills - assistance with and observation of methods and techniques used for complicated surgery <p>Online Image Bank with Case Scenarios Online access to current journals within each unit Access to unit database for research purposes</p>
Assessment and Examination	<p>Self Assessment Tasks</p> <ul style="list-style-type: none"> - multiple choice and short answer questions (have hyperlink) <p>Essay Questions</p> <ul style="list-style-type: none"> - set by and submitted regularly to unit's supervisor of surgical training <p>Clinical Vivas</p> <ul style="list-style-type: none"> - short and long cases performed with consultant surgeons <p>Clinical Assessment and Mentor Reports</p>

Level One	Level Two	Level Three	Level Four
<ul style="list-style-type: none"> • Interpret echocardiographic, CT, MRI and radiographic anatomy of heart valves • Discuss the development of degenerative, rheumatic, inflammatory and infective valvular heart disease • Describe the normal and variant anatomy of cardiac valves • Describe the physiology of normal valves and the derangements caused by stenosis and regurgitation • Review the risks and benefits of imaging modalities • Select medically appropriate investigative tools to carry out clinical investigations and monitoring techniques in a cost-effective, ethical and effective manner • Take a history, examine, diagnose patients exhibiting valvular heart disease • Apply their thorough knowledge of the anatomy, physiology, and pathology of disorders of valvular heart disease to accurately diagnose and effectively manage patients • Carry out the pre and postoperative care of patients undergoing surgery for valvular heart disease 	<ul style="list-style-type: none"> • Accurately identify the risks and benefits of the chosen management plan and its alternatives • Explain the indications and timing of surgery for valvular heart disease 	<ul style="list-style-type: none"> • Perform (and/or arrange for) appropriate therapeutic procedures, and manage patients exhibiting valvular heart disease • Communicate information about procedures and risks in relation to valvular heart disease to patients (and/or their family) in ways that encourage their participation in informed decision making and on-going management • Facilitate the learning of others • Advocate patient health along with primary and secondary prevention of disease 	<ul style="list-style-type: none"> • Interpret and discuss the available literature regarding the outcomes of interventions for valvular heart disease • Manage patients (operatively and non-operatively) with valvular heart disease • Summarise the rationale for and explain the surgery for valvular heart disease and the use of various prostheses and homografts
<ul style="list-style-type: none"> • Evaluate patients with valvular heart disease • Read and interpret invasive and non invasive tests of patients with valvular heart disease • Direct the critical care management of pre and post operative patients with valvular heart disease 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with valvular heart disease • Participate in and perform evaluation of transthoracic and transoesophageal echocardiograms 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with valvular heart disease • Participate in and perform evaluation of intraoperative echo 	<ul style="list-style-type: none"> • Perform operative and non-operative management of patients with valvular heart disease • Participate in and perform surgery for infective endocarditis

MODULE TITLE:	ABDOMINAL WALL, RETROPERITONEUM, UROGENITAL	7-Nov-2016
DEVELOPED BY:	Richard Turner	
REVIEWED BY:	Richard Turner (2010). Ian Campbell, Patrick Cregan, Li Hsee, Michael Rodgers, David Townend, Emma Secomb, Graham Stewart (2013). David Fletcher (2016).	
Module Rationale and Objectives	<p>A general surgeon is required to have a thorough understanding of normal anatomy and physiology, as well as pathophysiology, investigations, differential diagnosis and surgical and non-surgical management of abdominal wall and retroperitoneal disorders. It is important that general surgeons maintain a current understanding of the most appropriate time and manner of intervention.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of the abdominal wall and retroperitoneum ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnose and manage pathological conditions that pertain to the abdominal wall, retroperitoneum and urogenital tract, including referral to other specialists where indicated ▪ select appropriate investigative tools ▪ adapt their skill in the context of each patient and each procedure ▪ identify and manage risk ▪ recognise the need to refer patients to other professionals ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have basic knowledge of the normal embryology, anatomy, and pathology, of:</p> <ul style="list-style-type: none"> ▪ abdominal cavity and its walls ▪ inguinoscrotal region ▪ external genitalia ▪ urogenital tract 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <p>(1) Atlas of Abdominal Wall Reconstruction, by Michael J Rosen. Elsevier</p> <p>(2) The SAGES Manuel of Hernia Repair, By Brian Jacobs. Springer</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Adult groin hernias						
<ul style="list-style-type: none"> ▪ inguinal ▪ femoral 						
Early SET	<ul style="list-style-type: none"> ▪ Describe the anatomy of inguinal region, spermatic cord and testis ▪ Describe the embryology of testicular descent and processus vaginalis ▪ Provide an anatomical and pathological classification of groin hernias 	<ul style="list-style-type: none"> ▪ Identify signs and symptoms of reducible, irreducible and strangulated hernias ▪ Distinguish inguinal from femoral hernias 	<ul style="list-style-type: none"> ▪ Select and interpret appropriate medical imaging modalities where indicated 	<ul style="list-style-type: none"> ▪ List management options (non-surgical and surgical): <ul style="list-style-type: none"> - indications - contraindications - basic procedural details ▪ Indications/contraindications for laparoscopic repair ▪ Describe details of common management options, as well as possible risks/ complications and how to deal with them, postoperative care ▪ Management of recurrent hernias ▪ Post hernia repair pain 		<ul style="list-style-type: none"> ▪ Open (mesh) repair of inguinal hernia ▪ Open repair of femoral hernias ▪ Open repair of strangulated and non-strangulated femoral and inguinal hernias ▪ Laparoscopic inguinal hernia repair
Paediatric inguinal hernia/congenital hydrocele						
Early SET	<ul style="list-style-type: none"> ▪ Explain the anatomy of the inguinoscrotal region and spermatic cord in a child ▪ Describe/ differentiate between normal and abnormal embryology of testicular descent and processus vaginalis 			<ul style="list-style-type: none"> ▪ Outline surgical management: <ul style="list-style-type: none"> - indications - basic procedural details ▪ Timing of surgery in children vs. adults 		
Mid SET	<ul style="list-style-type: none"> ▪ Understand acute hernia management in children 	<ul style="list-style-type: none"> ▪ Discuss signs and symptoms (history) of inguinal hernias in children ▪ Discuss signs and symptoms of hydroceles and hydroceles of the cord in children 		<ul style="list-style-type: none"> ▪ Describe details of surgical management, including possible risks and complications ▪ Plan management of acutely irreducible inguinal hernia 	<ul style="list-style-type: none"> ▪ Inguinal herniotomy 	
Umbilical/para-umbilical/epigastric hernia						
Early SET	<ul style="list-style-type: none"> ▪ Explain the embryology and anatomy of umbilicus/ abdominal wall 	<ul style="list-style-type: none"> ▪ Interpret examination findings of umbilical hernia 		<ul style="list-style-type: none"> ▪ Summarise surgical management: <ul style="list-style-type: none"> - indications - basic procedural details ▪ Describe operative management options (including indications for mesh repair), possible complications and how to deal with them, postoperative care 		<ul style="list-style-type: none"> ▪ Repair of umbilical/ paraumbilical hernia (with or without mesh)

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Exomphalos/Gastroschisis						
Early SET				<ul style="list-style-type: none"> Recognise that there are congenital abdominal wall defects requiring emergency management and transfer 		
Late SET				<ul style="list-style-type: none"> Describe principles of surgical management and indications for referral 		
Incisional/ventral hernias						
Early SET	<ul style="list-style-type: none"> Describe normal and abnormal abdominal wall anatomy Identify/explain etiological factors 	<ul style="list-style-type: none"> Recognise typical signs and symptoms, in particular with regard to irreducibility and strangulation 	<ul style="list-style-type: none"> Select and interpret appropriate medical imaging modalities where indicated 	<ul style="list-style-type: none"> Outline management options (non-surgical and surgical): <ul style="list-style-type: none"> indications basic procedural details Provide details of operative management options, possible complications and how to deal with them, postoperative care 		
Mid SET		<ul style="list-style-type: none"> Recognise the importance of defect size and its implications on choice of repair Recognises risk factors influencing outcomes of successful repair 		<ul style="list-style-type: none"> Pre-operative planning Types of mesh and physiological properties 		<ul style="list-style-type: none"> Open repair of abdominal incisional hernia, with and without mesh/ bowel resection A retro-rectus mesh repair
Late SET	<ul style="list-style-type: none"> Identify pathophysiology of massive incisional hernias and repair 			<ul style="list-style-type: none"> Mesh locations and types of repairs and its associated risks and benefits Provide details of management options associated with massive abdominal wall defects and the possible complications Assessment of abdominal domain and its physiological implications after repair 	<ul style="list-style-type: none"> Laparoscopic incisional hernia repair (indications and contraindications) Incisional hernia repair using separation of components Techniques to restore abdominal domain 	<ul style="list-style-type: none"> Open repair of irreducible incisional hernia
Abdominal wound dehiscence/burst abdomen						
Early SET	<ul style="list-style-type: none"> Identify etiological factors 	<ul style="list-style-type: none"> Recognise symptoms and signs <ul style="list-style-type: none"> superficial fascial 		<ul style="list-style-type: none"> Plan and carry out pre-operative management 		
Mid SET				<ul style="list-style-type: none"> Describe definitive surgical management Role of VAC dressing/delayed closure 		<ul style="list-style-type: none"> Definitive closure of abdominal wound dehiscence Management of the open abdomen

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Open abdomen / laparostomy <i>See also Trauma Module</i>						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of the peritoneal cavity, including peritoneal reflections Define the normal range of intra-abdominal pressure Explain the pathophysiological consequences of raised intra-abdominal pressure 	<ul style="list-style-type: none"> Recognise the clinical signs of raised intra-abdominal pressure 	<ul style="list-style-type: none"> Describe the technique for measuring intra-abdominal pressure including significant measure Measures to reduce intra-abdominal pressure 	<ul style="list-style-type: none"> Describe the indications for laparostomy 		
Mid SET				<ul style="list-style-type: none"> Describe details of managing a laparostomy wound Define indications / suitability for wound closure 		<ul style="list-style-type: none"> Laparostomy Application of vacuum dressing Definitive wound closure
Late SET						<ul style="list-style-type: none"> Graduated Fascial closure techniques
Other abdominal wall hernias <ul style="list-style-type: none"> Spigelian Lumbar Obturator 						
Early SET	<ul style="list-style-type: none"> Describe the relevant abdominal wall anatomy 	<ul style="list-style-type: none"> Recognise symptoms and examination findings 	<ul style="list-style-type: none"> Select and interpret appropriate medical imaging modalities where indicated 	<ul style="list-style-type: none"> Explain management options: <ul style="list-style-type: none"> indications basic procedural details Provide details of operative management, possible complications and how to deal with them, postoperative care 		
Mid SET						<ul style="list-style-type: none"> Open hernia repair (with or without mesh)
Late SET					<ul style="list-style-type: none"> Laparoscopic repair of other hernias 	
Stomal hernia <i>See Colorectal Module</i>						
Epididymo-orchitis <i>See Emergency Module</i>						
Testicular torsion <i>See Emergency Module</i>						

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Haematocele/Scrotal haematoma						
Early SET	<ul style="list-style-type: none"> Describe normal and abnormal anatomy of testis, spermatic cord Identify etiological/predisposing factors 	<ul style="list-style-type: none"> Recognise symptoms and signs testicular viability Implications of anti-coagulation 	<ul style="list-style-type: none"> Describe role of ultrasound in assessment 	<ul style="list-style-type: none"> Identify indication for urgent conservative surgical management, including basic procedural details 		
Mid SET						<ul style="list-style-type: none"> Scrotal exploration and drainage
Epididymal cyst						
Early SET	<ul style="list-style-type: none"> Describe normal and abnormal anatomy of testis, epididymis and spermatic cord Explain the embryology of testis and epididymis 	<ul style="list-style-type: none"> Discuss examination findings 	<ul style="list-style-type: none"> Select and interpret appropriate medical imaging modalities where indicated 	<ul style="list-style-type: none"> Explain principles of surgical management: <ul style="list-style-type: none"> indications basic procedural details 		
Mid SET				<ul style="list-style-type: none"> Describe details of surgical management, including possible complications and how to deal with them 		<ul style="list-style-type: none"> Excision of epididymal cyst scrotal exploration and drainage
Adult hydrocele (acquired)						
Early SET	<ul style="list-style-type: none"> Describe normal and abnormal anatomy of testis and tunica vaginalis 	<ul style="list-style-type: none"> Identify characteristic examination findings Exclusion of malignancy/infective causes 	<ul style="list-style-type: none"> Select and interpret appropriate investigation modalities where indicated 	<ul style="list-style-type: none"> Identify indications for and management options (non-surgical and surgical) Identify basic procedural details 		
Mid SET				<ul style="list-style-type: none"> Describe details of surgical management, including possible complications and how to deal with them 		<ul style="list-style-type: none"> Operative cure of hydrocele
Mal-descent of the testis – paediatric and adult						
Early SET	<ul style="list-style-type: none"> Describe normal and abnormal embryology of testis Review the anatomy of testis, spermatic cord and inguinoscrotal region 	<ul style="list-style-type: none"> Interpret examination findings 				
Mid SET	<ul style="list-style-type: none"> Describe the pathology and pathological consequences of undescended testis 		<ul style="list-style-type: none"> Select and interpret appropriate medical imaging modalities where indicated 	<ul style="list-style-type: none"> Explain the principles of surgical management: <ul style="list-style-type: none"> indications basic procedural details possible complications including malignancy 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Mal-descent of the testis – paediatric and adult (continued)						
Late SET					<ul style="list-style-type: none"> Orchidopexy Laparoscopic exploration for absent testis 	
Varicocele						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of testis, spermatic cord and inguinoscrotal region Explain the etiology, pathology and possible consequences 	<ul style="list-style-type: none"> Interpret examination findings 	<ul style="list-style-type: none"> Select and interpret appropriate medical imaging modalities where indicated 	<ul style="list-style-type: none"> Summarise principles of surgical management: <ul style="list-style-type: none"> indications basic procedural details Describe details of surgical management, including possible complications and how to deal with them, postoperative care 		
Mid SET						<ul style="list-style-type: none"> Surgical treatment of varicocele (inguinal approach)
Late SET					<ul style="list-style-type: none"> Laparoscopic treatment of varicocele 	
Testicular tumours - benign / malignant						
Early SET	<ul style="list-style-type: none"> Describe the embryology of the testis Differentiate between normal and abnormal anatomy of testis, spermatic cord, inguinoscrotal region and retroperitoneum Describe lymphatic drainage of the testis Review classification and staging of testicular neoplasms 	<ul style="list-style-type: none"> Interpret history and examination findings 			<ul style="list-style-type: none"> Orchidectomy via inguinal approach 	
Mid SET			<ul style="list-style-type: none"> Select and interpret appropriate medical imaging modalities where indicated Identify serum tumour markers 	<ul style="list-style-type: none"> Summarise principles of multi-disciplinary management Implement staging procedures Plan multi-disciplinary management Describe details of surgical management Plan follow-up 	<ul style="list-style-type: none"> Testicular exploration and/or radical orchidectomy (inguinal approach) 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Vasectomy						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of scrotum and spermatic cord 		<ul style="list-style-type: none"> Interpret pathology tests used in determination of efficacy: <ul style="list-style-type: none"> histology semen analysis 	<ul style="list-style-type: none"> Explain details of procedure and complications including consent Perform pre- and post-operative counselling 		
Mid SET						<ul style="list-style-type: none"> Vasectomy
Nephro-/uretero-/vesico-lithiasis <i>See Emergency Module</i>						
Phimosis/ paraphimosis <i>See Emergency Module</i>						
Other peripheral nerve entrapments <i>See Skin & Soft Tissue Module</i>						

MODULE TITLE:	BREAST	7-Nov-2016
DEVELOPED BY:	Bruce Mann, Meron Pitcher, Chris Pyke	
REVIEWED BY:	BreastSurgANZ (2010) Michael Donovan, Senarath Edirimanne, Brian Kirkby, Burton King, Chris Pyke, Owen Ung, David Walsh (2013). Robert Tasevski, Robert Whitfield (2016).	
Module Rationale and Objectives	<p>The clinical features of breast disease require early detection, careful investigation and appropriate operative management. This module addresses issues that need to be considered in diagnosing and making decisions about the immediate as well as long-term needs of the patient. The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of Breast Diseases ▪ identify and recognise the symptoms and signs of these conditions ▪ assess and treat any common breast conditions likely to be encountered in consultative general surgical practice ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ recognise which conditions to refer on to a specialised multidisciplinary oncology service ▪ employ a consultative approach with colleagues and other professionals ▪ critically appraise new trends in the surgical management of the breast ▪ select appropriate investigative tools and monitoring techniques in a cost effective manner ▪ convey bad news to patients in a way that conveys sensitivity to the patient's social, cultural and psychological needs ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology, of:</p> <ul style="list-style-type: none"> ▪ breast ▪ axilla ▪ lymphatic systems ▪ pituitary gonadal axis ▪ steroid hormone biochemistry and molecular biology 	
Suggested Reading	<p>Cancer Australia Guidelines for the Management of Early Breast Cancer</p> <p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, the following texts are recommended:</p> <ol style="list-style-type: none"> (1) The Breast: Comprehensive Management of Benign and Malignant Diseases (ISBN 9781416052210), 4th edition, by K.I. Bland & E.M. Copeland (2) Breast Surgery: A Companion to Specialist Surgical Practice (ISBN 9780702049590), 5th edition by J.M. Dixon (3) Treatment of Breast Infection. BMJ, ISSN 0959-8138, 02/2011, Volume 342, Issue Feb11 1, p. d396. Dixon, J. M and Khan, L. (4) Diseases of the Breast (ISBN 9781451186277), 5th edition by J.R. Harris, M.E. Lippman, M. Morrow, C.K. Osborne. (5) ABC of Breast Diseases (ISBN 9781444337969), 4th edition by J.M. Dixon <p>Trainees are expected to keep abreast of the current literature, including textbooks, key journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>Communications Workshops (delivering bad news), Ultrasound + biopsy workshops – often held in conjunction with the RACS Annual Scientific Congress and Breast Society Meetings (BreastSurgANZ / Australasian Society of Breast Disease). Trainees should attend hospital Breast MDT meetings where available.</p> <p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Benign breast disease						
Early SET	<ul style="list-style-type: none"> Describe anatomy and embryology of the breast including normal histology Review causes of benign breast disease and developmental abnormalities 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings 			<ul style="list-style-type: none"> Image-guided fine needle aspiration and/or core biopsy 	<ul style="list-style-type: none"> Clinical fine needle aspiration Skin punch biopsy Core biopsy Excisional biopsy
Mid SET			<ul style="list-style-type: none"> Review the appropriate use of medical imaging and the strengths and weaknesses of fine needle aspiration versus core biopsy and triple assessment Understand the concept of correlation of clinical and imaging findings with cytopathology or histopathology findings 	<ul style="list-style-type: none"> Discuss the management options: <ul style="list-style-type: none"> conservative management versus aesthetic excision Describe management of recurrent cysts, intraduct papilloma, papillary lesions 		<ul style="list-style-type: none"> Wire / carbon localised excision biopsy Microdochectomy
Late SET	<ul style="list-style-type: none"> Describe molecular mechanisms, stem cells and endocrinology affecting breast development 				<ul style="list-style-type: none"> Office ultrasound 	
Indeterminate proliferative lesions						
Mid SET	<ul style="list-style-type: none"> Review pathology 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings 	<ul style="list-style-type: none"> Review the appropriate use of medical imaging and the strengths and weaknesses of fine needle aspiration versus core biopsy and triple assessment 	<ul style="list-style-type: none"> Explain the significance and implications for future follow-up 		<ul style="list-style-type: none"> Localised excision biopsy
Nipple discharge						
Early SET	<ul style="list-style-type: none"> Differentiate between physiological and pathological discharge List causes of each 	<ul style="list-style-type: none"> Recognise clinical presentation of each possible cause 	<ul style="list-style-type: none"> Review appropriate use of imaging 			
Mid SET			<ul style="list-style-type: none"> Explain the use and limitations of discharge cytology and galactography 	<ul style="list-style-type: none"> Identify those who require further investigation 		<ul style="list-style-type: none"> Microdochectomy Central duct excision
Breast pain						
Mid SET	<ul style="list-style-type: none"> Differentiate between causes Describe mechanisms of breast pain 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings, including "cyclical" v "non-cyclical" pain 	<ul style="list-style-type: none"> Review the appropriate use of medical imaging 	<ul style="list-style-type: none"> Exclusion of serious pathology and reassurance Describe management options Describe a management plan for refractory breast pain 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Breast pain (continued)						
Late SET				<ul style="list-style-type: none"> Describe the principles of chronic pain management 		
Inflammatory conditions, breast abscess						
Early SET	<ul style="list-style-type: none"> Review the pathophysiological causes and causative mechanisms Understand the difference between lactational and non lactational infections Describe the relevant microbiology 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings 	<ul style="list-style-type: none"> Review the appropriate use of medical imaging Review the appropriate use of 'triple assessment' Understand the role of MRI in assessment of mammary fistula 	<ul style="list-style-type: none"> Carry out/compare the management of mastitis and breast abscesses Appropriate application of: <ul style="list-style-type: none"> antibiotics recurrent aspiration incision and drainage 	<ul style="list-style-type: none"> Ultrasound-guided aspiration of deep/recurrent collections 	<ul style="list-style-type: none"> Clinical aspiration of palpable breast abscess
Mid SET				<ul style="list-style-type: none"> Appraise Granulomatous mastitis Describe appropriate follow up in patients with a residual mass following initial therapy 		<ul style="list-style-type: none"> Excision of central ducts in chronic inflammation
Late SET					<ul style="list-style-type: none"> Lay open/excise mammary fistula Management of complex mammary fistula Operative management of mammary fistula Office ultrasound 	
Ductal Carcinoma in Situ						
Mid SET	<ul style="list-style-type: none"> Review/summarise/discuss the contribution of: <ul style="list-style-type: none"> epidemiology, genetics, risk factors, UICC pathologic staging, histological types, molecular biology, genetic testing, oestrogen receptors 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings 	<ul style="list-style-type: none"> Review the appropriate use of medical imaging including MRI Describe the strengths and weaknesses of fine needle aspiration versus core biopsy and triple assessment 	<ul style="list-style-type: none"> Review/summarise: <ul style="list-style-type: none"> indications and contraindications for breast conservation therapy and radiotherapy indications and contraindications for immediate breast reconstruction 		<ul style="list-style-type: none"> Wire/ carbon/seed localised biopsy Wide local excision (complete local excision) Mastectomy Sentinel node biopsy (probe and blue dye)
Late SET	<ul style="list-style-type: none"> Name: Pathological Scoring system for DCIS 			<ul style="list-style-type: none"> Review/summarise: <ul style="list-style-type: none"> indications for prophylactic mastectomy indications for SNB in DCIS 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Breast screening						
<i>See also Surgical Oncology Module</i>						
Early SET	<ul style="list-style-type: none"> ▪ Outline principles of population screening specifically related to breast cancer ▪ Identification and Screening of high risk families 		<ul style="list-style-type: none"> ▪ Summarise the principles of breast screening ▪ Principles of screening vs. diagnostic imaging ▪ In screening context understand findings of: <ul style="list-style-type: none"> - normal - benign - probably benign - suspicious - malignant - in situ - invasive disease ▪ Breast Imaging Reporting and Data System (BI-RADS) classification for breast density. 			
Mid SET			<ul style="list-style-type: none"> ▪ Further assessment of radiological abnormalities 	<ul style="list-style-type: none"> ▪ Specificity/ sensitivity/ screening intervals ▪ Importance of quality assurance of the program 		<ul style="list-style-type: none"> ▪ Surgical management of positive screening findings
Late SET	<ul style="list-style-type: none"> ▪ Outline of BRCA gene mutations and testing 		<ul style="list-style-type: none"> ▪ Screening in the high risk patient (BRCA1 and 2, Li Fraumeni) 			
Early breast cancer						
Early SET	<ul style="list-style-type: none"> ▪ Review/summarise/discuss the contribution of: <ul style="list-style-type: none"> - epidemiology, genetics, risk factors, UICC pathologic staging, histological types - HER2 status - principles of wide excision vs mastectomy, sentinel node mapping and assessment ▪ Basic knowledge of: <ul style="list-style-type: none"> - molecular sub typing, molecular biology, genetic testing, oestrogen receptors 					<ul style="list-style-type: none"> ▪ Wire / carbon localised biopsy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Early breast cancer (continued)						
Mid SET	<ul style="list-style-type: none"> ▪ Basic knowledge of: <ul style="list-style-type: none"> - principles of metastasis, patterns of metastasis - principles of prognosis and prediction of response to treatment 	<ul style="list-style-type: none"> ▪ Review the clinical features in the history and the examination findings 	<ul style="list-style-type: none"> ▪ Review the appropriate use of medical imaging including MRI ▪ BI-RADS classification for breast abnormalities ▪ Mammogram classification (M1 – M5) ▪ Ultrasound classification (U1 – U5) ▪ Describe the strengths and weaknesses of fine needle aspiration versus core biopsy and triple assessment ▪ Cytology classification (C1 – C5) ▪ Understand the role of plain x-ray, CT, Nuclear medicine, MRI and PET for early breast cancer 	<ul style="list-style-type: none"> ▪ Review/summarise: <ul style="list-style-type: none"> - sentinel node mapping with isotope and blue dye - principles and indications of Radiotherapy and its delivery systems - principles of systemic adjuvant therapy (cytotoxic, hormonal, biological) and their side effects - indications for neoadjuvant therapy - options for axillary staging in setting of neoadjuvant therapy - prognostic estimation - indications and contraindications to breast conservation therapy - indications and contraindications to immediate breast reconstruction - indications for prophylactic mastectomy - principles of staging ▪ The role of gene expression profiling ▪ Molecular markers of prognosis ▪ Genetic testing and familial syndromes ▪ Principles of management of local recurrence ▪ Principles and protocols for follow-up after breast cancer surgery and treatment ▪ Understand principles of management and variances for: <ul style="list-style-type: none"> - pregnancy associated breast cancer - axillary lymphadenopathy with occult breast primary - familial breast cancer 		<ul style="list-style-type: none"> ▪ Wide local excision (complete local excision) of breast cancer ▪ Mastectomy ▪ Sentinel node biopsy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Early breast cancer (continued)						
Late SET					<ul style="list-style-type: none"> ▪ Principles of oncoplastic surgery ▪ Breast reconstruction ▪ Skin sparing mastectomy ▪ Nipple sparing mastectomy 	<ul style="list-style-type: none"> ▪ Axillary dissection
Locally advanced breast cancer						
Early SET	<ul style="list-style-type: none"> ▪ Review/classify/ differentiate between/discuss the contribution of: <ul style="list-style-type: none"> - all listed above for early breast cancer - principles of metastasis, patterns of metastasis 					<ul style="list-style-type: none"> ▪ Punch biopsy
Mid SET		<ul style="list-style-type: none"> ▪ Review the clinical features in the history and the examination findings 	<ul style="list-style-type: none"> ▪ Review: <ul style="list-style-type: none"> - means of tissue diagnosis - imaging of the breasts - role of CT, Nuclear medicine and PET in staging - use of serum markers 	<ul style="list-style-type: none"> ▪ Implement/ compare the management through: <ul style="list-style-type: none"> - principles of neoadjuvant therapies - axillary staging options in the setting of neoadjuvant therapies - Radiotherapy and its delivery systems - principles of systemic adjuvant therapy and their side effects ▪ Indications and contraindications of breast conservation therapy 	<ul style="list-style-type: none"> ▪ Reconstructive techniques post radical excision 	<ul style="list-style-type: none"> ▪ Wide local excision (complete local excision) of breast cancer ▪ Mastectomy
Late SET					<ul style="list-style-type: none"> ▪ Breast conservation post primary/neoadjuvant chemotherapy 	<ul style="list-style-type: none"> ▪ Axillary dissection
Advanced breast cancer						
Early SET	<ul style="list-style-type: none"> ▪ Review/classify/ differentiate between/discuss the contribution of: <ul style="list-style-type: none"> - principles of metastasis, patterns of metastasis 					
Mid SET		<ul style="list-style-type: none"> ▪ Review the clinical features in the history and the examination findings 	<ul style="list-style-type: none"> ▪ Review: <ul style="list-style-type: none"> - means of tissue diagnosis - imaging of the breasts - staging investigations - use of serum markers 	<ul style="list-style-type: none"> ▪ Implement/ compare the management: <ul style="list-style-type: none"> - all features applicable to early breast cancer - principles of palliative care 	<ul style="list-style-type: none"> ▪ Complex salvage surgery: <ul style="list-style-type: none"> - breast and chest wall - axilla 	<ul style="list-style-type: none"> ▪ Post neoadjuvant Mastectomy and axillary surgery ▪ Skin grafting ▪ Insertion permanent central venous catheter (portacath): See also Vascular Module

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Advanced breast cancer (continued)						
Late SET	<ul style="list-style-type: none"> Molecular biological factors in initiation, promotion and metastasis of breast cancer 				<ul style="list-style-type: none"> Pleurodesis – chemical or talc 	
Male breast disease						
Mid SET	<ul style="list-style-type: none"> Male breast cancer Gynaecomastia 	<ul style="list-style-type: none"> History, including alcohol, steroids and other drugs, Family History Clinical examination Testicular and liver examination for gynaecomastia 	<ul style="list-style-type: none"> Triple assessment Investigations for gynaecomastia: LFTs, endocrine hormones, testicular markers, genetic syndromes 	<ul style="list-style-type: none"> Consider cancer Recognise physiological changes Differentiate primary and secondary gynaecomastia Surgical and non-surgical management strategies 		<ul style="list-style-type: none"> Subcutaneous mastectomy for gynaecomastia, recognition of cosmesis Mastectomy and axillary surgery for cancer; See also Early Breast Cancer
Multidisciplinary care						
<i>See also Surgical Oncology Module</i>						
Early SET	<ul style="list-style-type: none"> Review/summarise: <ul style="list-style-type: none"> principles of post-traumatic stress and grieving – individual and family pathophysiology of chemotherapy, hormonal intervention and radiotherapy 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings 				

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Multidisciplinary care (continued)						
Mid SET				<ul style="list-style-type: none"> ▪ Review/compare the management of: <ul style="list-style-type: none"> - delivering bad news - principles of management complications and principles of timing of courses: chemotherapy, hormonal intervention and radiotherapy - principles of follow-up - assessing risk of developing breast cancer - family counselling/risk analysis - treating menopausal symptoms - fertility issues (especially in younger patients) ▪ Sequencing of treatment: <ul style="list-style-type: none"> - Surgery - Radiotherapy - Chemotherapy - Biological therapy ▪ Hormonal therapy ▪ Consensus and conflict resolution ▪ Communication in a team and sequential follow-up 		
Late SET				<ul style="list-style-type: none"> ▪ Medico-legal aspects associated with multi-disciplinary meetings and genetic counselling 		
Axillary nodes unknown primary						
<i>See also Surgical Oncology Module</i>						
Early SET	<ul style="list-style-type: none"> ▪ Review Lymphatic anatomy, pathology of primary lymphadenopathy and secondary lymphadenopathy 	<ul style="list-style-type: none"> ▪ Review the clinical features in the history and the examination findings of the lymphatic system 	<ul style="list-style-type: none"> ▪ Review: <ul style="list-style-type: none"> - means of tissue diagnosis - imaging of the breasts - staging tests - use of serum markers 			
Mid SET				<ul style="list-style-type: none"> ▪ Implement/ compare the management: <ul style="list-style-type: none"> - affected axilla - affected breast cancer - systemic 		<ul style="list-style-type: none"> ▪ Axillary node biopsy ▪ Mastectomy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Axillary nodes unknown primary (continued)						
Late SET					▪ Office ultrasound and guided needle biopsy of axillary node	▪ Axillary dissection
Lymphoedema <i>See also Vascular Module</i>						
Early SET	▪ Outline pathological classifications, definitions, predisposing factors, incidence	▪ Methods of examination	▪ Selective Ultrasound to exclude venous occlusion/local recurrence	▪ Education, avoidance of exacerbating factors		
Mid SET		▪ Describe the strengths and weaknesses of tape measurement, volume displacement, bioimpedence		▪ Lymphatic massage, compression garments, multidisciplinary care		

MODULE TITLE:	COLORECTAL	7-Nov-2016
DEVELOPED BY:	K. Chip Farmer, John Hansen, Christopher Young	
REVIEWED BY:	Joanne Dale, Damien Petersen, John Hansen (2010). Nigel Barwood, Matthew Croxford, Elizabeth Dennett, Paul Hollington, Greg Makin, Stewart Skinner, Patrick Tan, Michael Warner, Bruce Waxman, Christopher Young (2013). Elizabeth Dennett, Paul Hollington (2016).	
Module Rationale and Objectives	<p>Colorectal problems are a common condition in General Surgery. The individual presenting with colorectal disease is frequently experiencing significant symptoms which impacts on preoperative decision making and timing of any surgical intervention. This module covers issues relevant to clinical decision making and surgical management, including evidence based interventions in the perioperative period.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies including colorectal cancer, diverticular disease, Crohn's disease, ulcerative colitis, haemorrhoids, perianal sepsis (abscess, fistula), and fissure in ano. ▪ describe and assess the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ take a thorough history from the patient and perform a competent examination ▪ clearly elicit features in the history and examination that predict perioperative and postoperative outcomes ▪ order and interpret appropriate investigations ▪ recognise the most common disorders and differentiate those amenable to operative and non-operative treatment ▪ plan and manage appropriate surgical or non-surgical treatment, including principles of enhanced recovery after abdominal surgery ▪ demonstrates procedural knowledge and technical skill, including the use and workings of rigid sigmoidoscopy, banding devices, stapling devices, energy sources, laparoscopic and endoscopic equipment and devices ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology, of:</p> <ul style="list-style-type: none"> ▪ small bowel, colon, and rectum ▪ anus and anal sphincter ▪ pelvis 	
Suggested Reading	<p>CSSANZ: http://www.cssanz.org.</p> <p>Available from the College library as electronic books are:</p> <ol style="list-style-type: none"> (1) Principles and Practice of Surgery for the Colon, Rectum, and Anus (ISBN 9780824729615), by Gordon, P.H and Nivatvongs, S. (2) Surgery of the Anus, Rectum & Colon, 3rd edition (ISBN 9780702027239) by M Keighley <p>These are all excellent, comprehensive books that cover basic pathophysiology, clinical features and therapeutic options for common colorectal conditions.</p> <p>For the Fellowship examination, the following texts are recommended:</p> <ol style="list-style-type: none"> (1) Colorectal Surgery: A Companion to Specialist Surgical Practice (ISBN-13: 9780702049651), 5th edition by R.K.S. Phillips & S Clark. (2) Current therapy in colon and rectal surgery (ISBN 9781556644801), 2nd edition by V.W. Fazio, J.M. Church & C.P. Delaney. <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources. Also essential here are the NH&MRC guidelines and the New Zealand guidelines for the management of colorectal cancer.</p> <p>Recommended journals- BJS and ANZJS. Suggested journals Diseases of the Colon and Rectum / Colorectal Disease.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM.</p>	
Assumed Knowledge	<ul style="list-style-type: none"> ▪ GI anatomy and embryology ▪ Functional physiology of the GI tract 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Haemorrhoids including external anal skin tags						
Early SET	<ul style="list-style-type: none"> Describe the anatomy, aetiology and pathophysiology of haemorrhoids Understand the anatomy of the anal cushions, their role in formation of haemorrhoids and the pathogenesis of complications of haemorrhoids 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment including grading of haemorrhoids 	<ul style="list-style-type: none"> Appropriateness of further investigations 	<ul style="list-style-type: none"> Outline: <ul style="list-style-type: none"> principles of conservative management of haemorrhoids local non-excisional techniques 		
Mid SET				<ul style="list-style-type: none"> Indications for surgery and management of complications following haemorrhoidectomy 		<ul style="list-style-type: none"> Banding of haemorrhoids Sclerotherapy Haemorrhoidectomy Management of post haemorrhoidectomy bleeding
Late SET					<ul style="list-style-type: none"> Stapled haemorrhoidectomy Procedures for anal stenosis DH-HAL: Doppler guided haemorrhoid artery ligation 	
Fissure in Ano						
Early SET	<ul style="list-style-type: none"> Describe the anatomy, aetiology and pathophysiology of anal fissures, with emphasis on the role of the internal anal sphincter and the anal mucosal blood supply in the pathogenesis of anal fissure 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 		<ul style="list-style-type: none"> Outline conservative management of anal fissures, including the use of pharmacological agents and contraindications 		
Mid SET				<ul style="list-style-type: none"> Describe surgical management of anal fissures including fissurectomy, Botox injection, and anal sphincterotomy 	<ul style="list-style-type: none"> Fissurectomy Botox injection 	<ul style="list-style-type: none"> Internal sphincterotomy
Late SET					<ul style="list-style-type: none"> Advancement flap repair 	
Perianal and Ischiorectal abscess						
Early SET	<ul style="list-style-type: none"> Describe the anatomy and pathogenesis of perianal abscess including the role of the anal glands and the relevant microbiology 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> Microbiological cultures Select and interpret appropriate imaging modalities where appropriate 	<ul style="list-style-type: none"> Outline principles of surgical management Describe details of surgical management including use of drains 	<ul style="list-style-type: none"> Fournier's gangrene / necrotising fasciitis: See Skin & Soft Tissue Module 	<ul style="list-style-type: none"> Surgical drainage of perianal and ischiorectal abscess Appropriate use of drains

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Anal fistula						
Early SET	<ul style="list-style-type: none"> Describe relevant anatomy, aetiology and pathophysiology including anal fistula classification 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 		<ul style="list-style-type: none"> Outline: <ul style="list-style-type: none"> surgical principles of management of high and low fistula use of seton drains 		
Mid SET			<ul style="list-style-type: none"> Use of endoanal ultrasound and MRI 	<ul style="list-style-type: none"> Describe details of surgical management including for high, low and complex anal fistula 		<ul style="list-style-type: none"> Anal fistulotomy Use of seton drains
Late SET				<ul style="list-style-type: none"> Need to exclude Crohn's disease in complex fistula Medical management of Crohn's fistula 	<ul style="list-style-type: none"> Surgery for complex or high fistula Advancement flap repair LIFT procedure Fibrin glue Fistula plugs 	
Ano-rectal incontinence						
Early SET	<ul style="list-style-type: none"> Describe relevant anatomy and the functions of each component of the rectum, anal canal and anal sphincters in maintaining continence Describe common aetiologies, their pathophysiology and associated symptoms 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 				
Mid SET			<ul style="list-style-type: none"> Use of anorectal physiology studies (endoanal ultrasound, manometry, pudendal nerve latency) 	<ul style="list-style-type: none"> Outline principles of conservative management including biofeedback Identify indications for surgery and manage complications 	<ul style="list-style-type: none"> Surgical techniques for anal incontinence: anterior anal sphincter repair Sacral nerve stimulation 	<ul style="list-style-type: none"> Stoma formation (open and laparoscopic)
Rectal prolapse						
Early SET	<ul style="list-style-type: none"> Describe relevant anatomy including the normal supporting structures of the rectum in the pelvis, and pathophysiology 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment Differentiate rectal mucosal prolapse from full thickness prolapse 				

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Rectal prolapse (continued)						
Mid SET			<ul style="list-style-type: none"> ▪ Select and interpret appropriate imaging modalities: defecating proctography ▪ Colonoscopy 	<ul style="list-style-type: none"> ▪ Outline principles of surgical management options and patient selection including abdominal and perineal approaches ▪ Outline principles of management of complications/ change in bowel function post operatively 		
Late SET					<ul style="list-style-type: none"> ▪ Laparoscopic resection/rectopexy ▪ Abdominal resection/rectopexy ▪ Perineal approaches 	
Pruritus ani						
Early SET	<ul style="list-style-type: none"> ▪ Describe the underlying causes 	<ul style="list-style-type: none"> ▪ Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> ▪ Use of skin biopsies ▪ Proctoscopy 	<ul style="list-style-type: none"> ▪ Manage the underlying causes using appropriate investigations ▪ Indicate/implement principles of conservative management 		
Colorectal polyps						
Early SET	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - aetiology, pathophysiology and genetics of colonic neoplasia - genetic syndromes - epidemiology ▪ Outline molecular sequences resulting in colorectal neoplasia 	<ul style="list-style-type: none"> ▪ Perform/discuss assessment and differential diagnosis of various polyps and significance of family history 	<ul style="list-style-type: none"> ▪ Select and interpret: <ul style="list-style-type: none"> - colonoscopy - imaging modalities - histology - faecal occult blood tests 	<ul style="list-style-type: none"> ▪ Outline: <ul style="list-style-type: none"> - management of colonic polyps, including surveillance and follow-up - Identify indications for surgery and manage complications 		
Mid SET			<ul style="list-style-type: none"> ▪ Select and interpret: <ul style="list-style-type: none"> - genetic testing 	<ul style="list-style-type: none"> ▪ Outline management of familial cancer syndromes 	<ul style="list-style-type: none"> ▪ Endoscopic tattoo ▪ Transanal local excision ▪ Total proctocolectomy and ileal pouch anal anastomosis ▪ Laparoscopic bowel resection ▪ Minimally invasive transanal 	<ul style="list-style-type: none"> ▪ Colonoscopy and polypectomy ▪ Open colectomy, anterior resection
Late SET					<ul style="list-style-type: none"> ▪ Transanal endoscopic microsurgery ▪ Advanced colonoscopic polypectomy 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Colorectal cancer						
Early SET	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - anatomy of the colon and rectum including its blood supply and lymphatic drainage and autonomic nerve supply - aetiology, risk factors and pathogenesis - epidemiology - genetic syndromes including FAP and Lynch syndrome - TNM and Dukes classification systems 	<ul style="list-style-type: none"> ▪ Perform/discuss the clinical assessment ▪ DRE of rectal lesions 	<ul style="list-style-type: none"> ▪ Select and interpret: <ul style="list-style-type: none"> - tumour markers - colonoscopy - imaging modalities - staging tests including CT, ultrasound, MRI and PET scan - genetic tests - faecal occult blood tests 	<ul style="list-style-type: none"> ▪ Outline screening programs for bowel cancer ▪ Outline principles of multidisciplinary management of colorectal cancer including: <ul style="list-style-type: none"> - multidisciplinary care - genetic counselling, prevention and surveillance - the role of adjuvant, neoadjuvant therapies - principles of curative and palliative surgery - role of stomal therapy ▪ Outline principles of follow-up ▪ Principles of TME dissection 		
Mid SET				<ul style="list-style-type: none"> ▪ Management of postoperative complications ▪ Selection of patients for restorative resections 	<ul style="list-style-type: none"> ▪ Colonic stenting ▪ Laparoscopic colectomy 	<ul style="list-style-type: none"> ▪ Colonoscopy ▪ Colectomy ▪ Right hemicolectomy ▪ High anterior resection ▪ Ileostomy and colostomy (end and loop) and reversal ▪ Hartmann's procedure
Late SET				<ul style="list-style-type: none"> ▪ Management of recurrent cancer, including surgical management, endoscopic, irradiation and chemotherapy 	<ul style="list-style-type: none"> ▪ Ultralow anterior resection +/- colonic pouch ▪ Abdominoperineal resection ▪ Coloanal anastomosis 	
Diverticula						
Early SET	<ul style="list-style-type: none"> ▪ Describe relevant anatomy and pathophysiology ▪ Describe Hinchey Classification system. 	<ul style="list-style-type: none"> ▪ Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> ▪ Select and interpret: <ul style="list-style-type: none"> - imaging modalities - colonoscopy 	<ul style="list-style-type: none"> ▪ Outline principles of conservative management 		
Mid SET				<ul style="list-style-type: none"> ▪ Role of colonoscopy ▪ Identify indications for surgery ▪ Explain/implement management of complications of diverticular disease; See also Emergency Conditions 	<ul style="list-style-type: none"> ▪ Laparoscopic bowel resection 	<ul style="list-style-type: none"> ▪ Colonoscopy ▪ Anterior resection ▪ Hartmann's procedure
Late SET					<ul style="list-style-type: none"> ▪ Restoration of continuity after Hartmann's procedure 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Ulcerative colitis						
Early SET	<ul style="list-style-type: none"> Describe relevant anatomy, histological features, aetiology and pathophysiology 					
Mid SET		<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> Select and interpret: <ul style="list-style-type: none"> colonoscopy imaging modalities relevant haematological and biochemical tests 	<ul style="list-style-type: none"> Outline: <ul style="list-style-type: none"> principles of medical management including appropriate pharmacological therapy management of associated conditions and complications, including toxic mega colon Identify indications and appropriate surgical therapy 		<ul style="list-style-type: none"> Colonoscopy, including surveillance biopsies
Late SET					<ul style="list-style-type: none"> Total proctocolectomy and ileal pouch anal anastomosis Recognition and management of ileo-anal pouch complications 	<ul style="list-style-type: none"> Emergency subtotal colectomy and ileostomy
Crohn's disease						
Early SET	<ul style="list-style-type: none"> Describe relevant anatomy, histological features, aetiology and pathophysiology 					
Mid SET		<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> Select and interpret: <ul style="list-style-type: none"> colonoscopy imaging modalities relevant haematological and biochemical tests 	<ul style="list-style-type: none"> Outline: <ul style="list-style-type: none"> principles of medical management including appropriate pharmacological therapy and immuno-therapy management of associated conditions and complications Identify indications and appropriate surgical therapy 	<ul style="list-style-type: none"> Laparoscopic bowel resection 	<ul style="list-style-type: none"> Loop ileostomy Small and large bowel resection Surgical drainage of perianal and ischiorectal abscess Use of setons Use of drains
Late SET					<ul style="list-style-type: none"> Surgery for complex fistula in Crohn's Strictureoplasty Panproctocolectomy and ileostomy 	<ul style="list-style-type: none"> Emergency subtotal colectomy and ileostomy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Colitis/ Proctocolitis / Proctitis						
<ul style="list-style-type: none"> ▪ radiation ▪ ischaemic ▪ bacterial, including pseudomembranous colitis ▪ parasitic ▪ other, e.g. microscopic colitis 						
Early SET	<ul style="list-style-type: none"> ▪ Describe relevant anatomy, aetiology and pathophysiology ▪ Describe relevant anatomy and risk factors for ischaemic colitis 	<ul style="list-style-type: none"> ▪ Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> ▪ Select and interpret: <ul style="list-style-type: none"> - stool cultures - colonoscopy - imaging modalities - relevant haematological and biochemical tests 			
Mid SET				<ul style="list-style-type: none"> ▪ Outline non-operative management of conditions ▪ Identify indications for surgery and manage complications 		
Late SET					<ul style="list-style-type: none"> ▪ Topical formalin application ▪ Argon beam coagulation therapy 	<ul style="list-style-type: none"> ▪ Resection (Hartmann's procedure; total colectomy and end ileostomy)
Carcinoma anus/ anal warts/ perianal malignancies, including Paget's disease						
Early SET	<ul style="list-style-type: none"> ▪ Describe relevant anatomy, aetiology and pathology including HPV, anal warts, and AIN 	<ul style="list-style-type: none"> ▪ Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> ▪ Use of: <ul style="list-style-type: none"> - biopsy - imaging modalities 	<ul style="list-style-type: none"> ▪ Outline: <ul style="list-style-type: none"> - multidisciplinary management of anal carcinoma - non operative treatment, chemo-radiotherapy - indication for surgical excision and complications and follow-up - topical management of warts 		
Mid SET				<ul style="list-style-type: none"> ▪ Principles of follow-up after chemo-radiotherapy including role and timing of biopsy ▪ Screening of high risk populations 	<ul style="list-style-type: none"> ▪ Inguinal node dissection ▪ Pap smear ▪ High resolution anoscopy 	<ul style="list-style-type: none"> ▪ Biopsy ▪ Local excision
Late SET					<ul style="list-style-type: none"> ▪ Abdomino-perineal resection 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Emergency conditions						
<ul style="list-style-type: none"> ▪ haemorrhage ▪ perforation ▪ fistula both internal and external ▪ ischaemia ▪ trauma and foreign bodies ▪ complications of surgery ▪ complications of colonoscopy ▪ anastomotic dehiscence 						
Early SET	<ul style="list-style-type: none"> ▪ Describe risk factors for anastomotic dehiscence ▪ Describe the pathophysiology and microbiology of septic shock/peritonitis ▪ Describe the pathophysiology of hypovolaemic shock, physiological responses and associated clinical features 	<ul style="list-style-type: none"> ▪ Assessment of acute post-surgical complications 	<ul style="list-style-type: none"> ▪ Describe, select and interpret: <ul style="list-style-type: none"> - radiological tests - nuclear medicine imaging - endoscopic investigations 	<ul style="list-style-type: none"> ▪ Review/implement: <ul style="list-style-type: none"> - management protocols - principles of peritoneal sepsis - removal of foreign bodies - massive transfusion and reversal of anticoagulation ▪ Assess perineal/rectal trauma 		<ul style="list-style-type: none"> ▪ Diagnostic laparoscopy / laparotomy
Mid SET				<ul style="list-style-type: none"> ▪ Use of interventional radiology 	<ul style="list-style-type: none"> ▪ On table lavage 	<ul style="list-style-type: none"> ▪ On table gastroscopy and colonoscopy ▪ Colonic resection ▪ Colostomy and ileostomy ▪ Repair of perforation ▪ Foreign body removal
Large bowel obstruction/volvulus/pseudo-obstruction						
Early SET	<ul style="list-style-type: none"> ▪ Describe relevant anatomy, aetiology and pathophysiology ▪ Embryology of large bowel 	<ul style="list-style-type: none"> ▪ Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> ▪ Select and interpret/discuss: <ul style="list-style-type: none"> - imaging - colonoscopy 	<ul style="list-style-type: none"> ▪ Outline: <ul style="list-style-type: none"> - principles of operative and non-operative management - identify indications for surgery 		<ul style="list-style-type: none"> ▪ Placement of rectal tube
Mid SET				<ul style="list-style-type: none"> ▪ Outline role of colonic stents 	<ul style="list-style-type: none"> ▪ On table lavage 	<ul style="list-style-type: none"> ▪ Resection ▪ Anastomosis ▪ Colostomy formation ▪ Colonoscopic decompression of pseudo obstruction / volvulus

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Constipation / obstructed defecation/ megacolon						
Mid SET	<ul style="list-style-type: none"> Describe relevant anatomy, aetiology and pathophysiology 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> Use of: <ul style="list-style-type: none"> contrast studies colonic motility studies colonoscopy imaging for obstructed defecation 	<ul style="list-style-type: none"> Outline principles of non-operative management Describe use of various aperients and other motility agents Identify indications for surgery and management of complications 	<ul style="list-style-type: none"> Appendicostomy 	<ul style="list-style-type: none"> Colonoscopy Colectomy and ileo-rectal anastomosis
Stoma (ileostomy/ colostomy)						
Early SET	<ul style="list-style-type: none"> Describe relevant anatomy, 	<ul style="list-style-type: none"> Assess stomal complications 		<ul style="list-style-type: none"> Correct stomal sighting Management of complications 		
Mid SET						<ul style="list-style-type: none"> Formation and closure (open and laparoscopic)
Late SET					<ul style="list-style-type: none"> Parastomal hernia repair Stoma revision 	
Irritable bowel syndrome Non-surgical/non-specific abdominal pain						
Early SET	<ul style="list-style-type: none"> Describe relevant anatomy, aetiology and pathophysiology 	<ul style="list-style-type: none"> Perform/discuss the clinical assessment and differential diagnosis 	<ul style="list-style-type: none"> Select and interpret: <ul style="list-style-type: none"> appropriate imaging modalities colonoscopy 	<ul style="list-style-type: none"> Outline principles of management of irritable bowel syndrome 		
Mid SET						<ul style="list-style-type: none"> Colonoscopy

MODULE TITLE:	EMERGENCY (excluding Trauma and Emergencies defined by other subspecialties)	7-Nov-2016
DEVELOPED BY:	Graeme Campbell, Peter Danne, Philip Truskett	
REVIEWED BY:	Alan Saunder (2010) Ian Campbell, Michael Cox, Li Hsee, Michael Rodgers, Emma Secomb, Graham Stewart (2013). Priscilla Martin, Richard Turner (2016).	
Module Rationale and Objectives	<p>By its very nature, an emergency situation requires decisive decision-making and effective timing of any surgical intervention. This module addresses issues that need to be considered in both decision-making and surgical management. The trainee should have expertise in all aspects of the management of General Surgery emergency conditions.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common acute surgical pathologies of the abdomen, head and neck, chest, and limbs ▪ identify and recognise the symptoms and signs of these conditions ▪ efficiently and effectively examine the patient ▪ describe and select appropriate diagnostic testing ▪ order and interpret appropriate imaging investigations ▪ formulate a differential diagnosis based on investigative findings ▪ identify appropriate treatment options, and their indications and contraindications ▪ safely and effectively perform appropriate surgical procedures ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) ▪ appreciate the role of other disciplines in emergency care and team-based management 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology, of:</p> <ul style="list-style-type: none"> ▪ the abdominal cavity and its contents ▪ head and neck ▪ the thorax and its contents ▪ the upper and lower limbs 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, recommended text books:</p> <p>(1) Current Surgical Diagnosis and Treatment (ISBN 9780071590877), 13th edition by L.W. Way and G.M. Doherty.</p> <p>(2) CCRISP Manual</p> <p>(3) War Surgery in Afghanistan and Iraq: A Series of Cases of 2003-2007 (ISBN 9780981822808), edited by S.C. Nessen, D.E. Lounsbury, and S.P. Hetz.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
ABDOMINAL						
Acute Appendicitis						
Early SET	<ul style="list-style-type: none"> Describe anatomy and embryology including variations Describe pathophysiology 	<ul style="list-style-type: none"> Describe the clinical symptoms and signs 	<ul style="list-style-type: none"> Outline the appropriate use of and interpret laboratory and imaging 	<ul style="list-style-type: none"> Outline the principles of pre-operative, post-operative and non-operative management Recognise and manage post-operative complications 		<ul style="list-style-type: none"> Open appendicectomy Laparoscopic appendectomy
Mid SET				<ul style="list-style-type: none"> Synthesise strategy for unexpected pathology Management of appendiceal tumours Laparoscopic versus open 		<ul style="list-style-type: none"> Drainage of appendiceal abscess Conversion to hemicolectomy
Peritonitis of various aetiologies, pancreatitis, cholangitis and gastro intestinal bleeding						
<i>See also Upper GI/HPB, Colorectal, Small Bowel, and Transplantation Modules</i>						
Abdominal haemorrhage						
<ul style="list-style-type: none"> abdominal wall intra-peritoneal retroperitoneal 						
Early SET	<ul style="list-style-type: none"> Describe anatomy Describe pathophysiology 	<ul style="list-style-type: none"> Describe the clinical symptoms and signs Understand coagulation disorders 	<ul style="list-style-type: none"> Outline the appropriate use of and interpret laboratory and imaging 	<ul style="list-style-type: none"> Describe the management of each condition 		
Mid SET				<ul style="list-style-type: none"> Appreciate role of interventional radiology in management 	<ul style="list-style-type: none"> Drainage and control of retroperitoneal haemorrhage 	<ul style="list-style-type: none"> Extra-peritoneal drainage of collection
Late SET				<ul style="list-style-type: none"> Intra-abdominal haemorrhage control 		
Spontaneous bacterial peritonitis						
Early SET	<ul style="list-style-type: none"> Describe pathophysiology including microbiology 	<ul style="list-style-type: none"> Describe the clinical symptoms and signs Differential diagnosis 	<ul style="list-style-type: none"> Outline the appropriate use of and interpret laboratory and imaging 			
Mid SET				<ul style="list-style-type: none"> Describe the management of peritonitis in the presence of liver disease Basic understanding of antibiotics <ul style="list-style-type: none"> clearance resistance 	<ul style="list-style-type: none"> Removal and insertion of peritoneal dialysis catheter 	<ul style="list-style-type: none"> Laparotomy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
UROLOGICAL						
Urinary retention and urinary tract infection						
Early SET	<ul style="list-style-type: none"> Describe appropriate anatomy, aetiology and, patho-physiology of urinary retention 	<ul style="list-style-type: none"> Assess and diagnose urinary retention 	<ul style="list-style-type: none"> Arrange and interpret ultrasound if required 	<ul style="list-style-type: none"> Manage the condition of urinary retention Appropriate antibiotics for UTI Role of suprapubic catheters and know how to insert one in detail 		<ul style="list-style-type: none"> Catheterisation Suprapubic catheterisation
Phimosis and paraphimosis						
Early SET	<ul style="list-style-type: none"> Differentiate between normal and abnormal anatomy of penis and foreskin Explain the pathology of balanitis (acute and chronic) and foreskin adhesions (in children) 	<ul style="list-style-type: none"> Identify symptoms and examination findings 		<ul style="list-style-type: none"> Identify the medical indications for circumcision Contraindications 		<ul style="list-style-type: none"> Perform non-operative reduction of paraphimosis
Mid SET				<ul style="list-style-type: none"> Describe details of surgical management, including possible complications and postoperative care 		<ul style="list-style-type: none"> Circumcision <ul style="list-style-type: none"> elective acute
Epididymo-orchitis						
Early SET	<ul style="list-style-type: none"> Explain the etiology/pathogenesis Discuss the microbiology 	<ul style="list-style-type: none"> Recognise symptoms and examination findings 	<ul style="list-style-type: none"> Interpret microbiological investigations Select and interpret appropriate medical imaging modalities where indicated 	<ul style="list-style-type: none"> Plan medical management Provide details of medical management 		
Mid SET				<ul style="list-style-type: none"> Identify indications for surgical management Role of exploration of scrotum Describe details of drainage of scrotal abscess, including postoperative care 		<ul style="list-style-type: none"> Incision and drainage of scrotal abscess
Testicular torsion						
Early SET	<ul style="list-style-type: none"> Describe the variations in testicular/epididymal anatomy that may predispose to torsion Describe the pathology of testicular infarction 	<ul style="list-style-type: none"> Recognise symptoms and signs 	<ul style="list-style-type: none"> Discuss the appropriate use of ultrasound in diagnosis 	<ul style="list-style-type: none"> Identify indication for urgent surgical management, including basic procedural details Describe details of acute surgical management, including possible complications (of surgery and of delay to surgery) and how to deal with them 		<ul style="list-style-type: none"> Scrotal exploration of testes and orchidopexy Trans-scrotal orchidectomy (where indicated)

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Ureteric obstruction, including calculi and pyonephrosis						
Early SET	<ul style="list-style-type: none"> Describe the aetiology and pathophysiology of ureteric obstruction and sepsis 	<ul style="list-style-type: none"> Assess and diagnose ureteric obstruction and its causes 	<ul style="list-style-type: none"> Analyse: <ul style="list-style-type: none"> ultrasound CT scan urinary cultures biochemical tests of renal function 	<ul style="list-style-type: none"> Describe and demonstrate principles of management of: <ul style="list-style-type: none"> ureteric obstruction 		
Mid SET					<ul style="list-style-type: none"> Emergency ureteric stenting for infected obstructed kidney 	
GYNAECOLOGY						
Ectopic pregnancy						
Early SET	<ul style="list-style-type: none"> Describe the underlying anatomy and pathophysiology of ectopic pregnancy 	<ul style="list-style-type: none"> Diagnose and inform patient of differential diagnosis of ectopic pregnancy 	<ul style="list-style-type: none"> Arrange and interpret: <ul style="list-style-type: none"> pelvic ultrasound pregnancy tests 	<ul style="list-style-type: none"> Discuss the principles of management of ectopic pregnancy and haemorrhage 		
Mid SET					<ul style="list-style-type: none"> Operations for ectopic pregnancy, repair of Fallopian tube 	<ul style="list-style-type: none"> Salpingectomy
Ovarian cysts						
Early SET	<ul style="list-style-type: none"> Indicate causes of ovarian cysts 	<ul style="list-style-type: none"> Differential diagnosis 	<ul style="list-style-type: none"> Pelvic ultrasound 			
Mid SET			<ul style="list-style-type: none"> Management of adnexal masses 	<ul style="list-style-type: none"> Discuss the principles of management of cystic lesions of the ovary Management of rhesus isoimmunisation 	<ul style="list-style-type: none"> Oophorectomy 	<ul style="list-style-type: none"> Ovarian cystectomy
ENT						
Epistaxis						
Early SET	<ul style="list-style-type: none"> Anatomy of nasal cavity 	<ul style="list-style-type: none"> Determine significance and when to refer 	<ul style="list-style-type: none"> Appropriate haematology investigations 	<ul style="list-style-type: none"> Control of haemorrhage (including interventions) Control medical factors 	<ul style="list-style-type: none"> Nasal packing 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
SEPSIS						
Focal Sepsis						
Early SET	<ul style="list-style-type: none"> Describe the anatomy and pathophysiology of focal sepsis as it relates to skin, the limbs, solid organs, and body cavities Fournier's gangrene: See Skin & Soft Tissue Module 	<ul style="list-style-type: none"> Assess and diagnose focal sepsis 	<ul style="list-style-type: none"> Arrange and interpret: <ul style="list-style-type: none"> CT Scans Ultrasound Plain X Rays 	<ul style="list-style-type: none"> Demonstrate an ability to assess the level of severity of sepsis Demonstrate an ability to provide appropriate resuscitation Demonstrate an understanding of the appropriate choice of antibiotics and their side effects Demonstrate an ability to choose appropriate methods of drainage, either open or image guided percutaneous drainage Demonstrate an understanding of the managements of drainage tubes Understanding necrotising conditions Use of appropriate antibiotics 		<ul style="list-style-type: none"> Drainage of an abscess
Mid SET						<ul style="list-style-type: none"> Debride necrotising fasciitis: See Skin & Soft Tissue Module Open drainage of abscesses of the abdominal cavity and abdominal solid organs Fournier's gangrene: See Skin & Soft Tissue Module
Sepsis Syndrome						
<i>See also Sepsis Module and CCriSP Manual</i>						
Early SET	<ul style="list-style-type: none"> Describe the pathophysiology of the Sepsis Syndrome 	<ul style="list-style-type: none"> Assess and diagnose the Sepsis Syndrome 		<ul style="list-style-type: none"> Demonstrate an understanding and indication in the use of antibiotics, resuscitative fluids, and vasoactive agents Understanding organ dysfunction 		<ul style="list-style-type: none"> Gain access for central line placement

MODULE TITLE:	ENDOCRINE	7-Nov-2016
DEVELOPED BY:	Jonathan Serpell	
REVIEWED BY:	Jonathan Serpell (2010) Michael Donovan, Senarath Edirimanne, Richard Harman, Brian Kirkby, Chris Pyke, Neil Wetzig (2013). Michael Donovan, Julie Howle (2016).	
Module Rationale and Objectives	<p>The general surgeon is expected to be able to investigate, assess and manage commonly occurring diseases of the endocrine glands and to be competent in accurately identifying conditions that require surgery, and those which are best treated by other means. They also expected to be able to recognise the need and appropriate time to refer such patients to other professionals.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of thyroid, parathyroid, adrenal, pancreas, and gut endocrine organs ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ recognise, assess and treat any common thyroid, parathyroid, adrenal, pancreatic endocrine and neuro-endocrine tumour conditions likely to be encountered in consultative general surgical practice ▪ recognise which conditions to refer on to a specialised multidisciplinary service ▪ critically evaluate the advantages and disadvantages of different investigative modalities ▪ select appropriate investigative tools and monitoring techniques in a cost effective manner ▪ appropriately adjust the way they communicate with patients to accommodate cultural and linguistic differences ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology, of:</p> <ul style="list-style-type: none"> ▪ branchial arch development ▪ regional anatomy of neck ▪ surgical anatomy of the neck ▪ thyroid ▪ parathyroid ▪ adrenal ▪ pancreas/neuroendocrine system 	
Suggested Reading	<p>Society of Australian & New Zealand Endocrine Surgeons http://www.endocrinesurgeons.org.au/</p> <p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, the following text is recommended:</p> <p>(1) Textbook of Endocrine Surgery (ISBN 9789351528067), 3rd edition by O. Clark, Q-Y Duh et al.</p> <p>This is an excellent reference textbook on Endocrine Surgery.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Multinodular goitre, thyroiditis, thyrotoxicosis, thyroglossal cyst <i>See Head & Neck Module</i>						
Early SET	<ul style="list-style-type: none"> ▪ Normal and abnormal anatomy, embryology histology of the thyroid gland, including thyroglossal duct cyst ▪ Natural history and causes of multinodular goitre, including retrosternal and recurrent goitres and thyroiditis, including Hashimoto's and subacute thyroiditis ▪ Thyrotoxicosis - Graves, toxic adenoma, toxic MNG ▪ Physiology of thyroid hormone and iodine metabolism including pathophysiology of hyper and hypothyroidism 	<ul style="list-style-type: none"> ▪ Take a history of thyroid disorders including the assessment by history of thyroid function ▪ Conduct a thorough thyroid gland examination and other features of neck examination ▪ Describe clinical features of thyroglossal cyst 	<ul style="list-style-type: none"> ▪ Review the relevance of: <ul style="list-style-type: none"> - thyroid function (TSH, T4, T3) - thyroid antibody tests, ESR, CRP - thyroglobulin - imaging (U/S, Nuclear medicine scans, CT) - fine needle aspiration cytology +/- repeat FNAC - understand the place of laryngoscopy - indirect laryngoscopy 			
Mid SET	<ul style="list-style-type: none"> ▪ Understand principles of nerve monitoring 	<ul style="list-style-type: none"> ▪ Perform indirect laryngoscopy 	<ul style="list-style-type: none"> ▪ FNA thyroid ▪ Laryngoscopy <ul style="list-style-type: none"> - indirect - flexible 	<ul style="list-style-type: none"> ▪ Summarise indications for surgery versus medical therapy versus radioiodine treatment for hyperthyroidism ▪ Describe indications for surgery and preoperative assessment multinodular goitre ▪ Manage postoperative complications including hypocalcaemia, thyroid storm, airway compromise, post-operative bleeding and infection, recurrent laryngeal nerve palsy, external branch of superior laryngeal nerve palsy ▪ Outline preoperative management hyperthyroid patient 	<ul style="list-style-type: none"> ▪ Total Thyroidectomy ▪ Autotransplant parathyroid 	<ul style="list-style-type: none"> ▪ Hemithyroidectomy ▪ Tracheostomy
Late SET				<ul style="list-style-type: none"> ▪ Understand role of office ultrasound 	<ul style="list-style-type: none"> ▪ Sternal split ▪ Re-operative thyroid surgery ▪ Sistrunk operation: See Head & Neck Module ▪ Principles of intraoperative neuromonitoring 	<ul style="list-style-type: none"> ▪ Hemithyroidectomy ▪ Total Thyroidectomy ▪ Autotransplant parathyroid

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Thyroid tumours ▪ benign ▪ malignant						
Early SET	<ul style="list-style-type: none"> - Discuss the: - natural history and causes benign and malignant thyroid tumours - histopathological types of thyroid cancer - inheritance patterns, genetic and molecular implications of various malignancies - spectrum of sporadic versus MEN I & II syndromes - presentation and natural history ▪ Detailed knowledge (levels I to VII lymph nodes of neck)	▪ Review the clinical features in the history and the examination findings	▪ Review the relevance of: <ul style="list-style-type: none"> - medical imaging (U/S, Nuclear Medicine scans, CT, PET scanning) - fine needle aspiration cytology (Bethesda classification) 	▪ Understand the differences between Total and Hemithyroidectomy and a basic understanding of the risks of thyroid surgery and the place of radioactive iodine therapy		
Mid SET		▪ <i>See also multinodular goitre</i>	▪ <i>See also multinodular goitre</i>	▪ Summarise: <ul style="list-style-type: none"> - indications for surgery for benign tumours - role of hemithyroidectomy for microcarcinoma - role of total thyroidectomy for malignancy - role of post-operative radioiodine ablation for thyroid cancer - principles of neck dissection for thyroid cancer - manage postoperatively thyroid hormone replacement - manage post-operative complications, including bleeding hypocalcaemia, thyroid storm, respiratory and tracheal problems, post-operative, and infection, recurrent laryngeal nerve palsy, external branch of superior laryngeal nerve palsy 	▪ <i>See also multinodular goitre</i>	▪ <i>See also multinodular goitre</i>

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Thyroid tumours (continued)						
<ul style="list-style-type: none"> ▪ benign ▪ malignant 						
Late SET					<ul style="list-style-type: none"> ▪ Selective lateral lymph node dissection (levels II to V) ▪ Central compartment node dissection (level VI and VII) ▪ Principles of intraoperative neuromonitoring ▪ Principles of surgical management of locally advanced thyroid cancer ▪ <i>See also multinodular goitre</i> 	<ul style="list-style-type: none"> ▪ <i>See also multinodular goitre</i>
Parathyroid tumours and hyperplasia						
Early SET	<ul style="list-style-type: none"> ▪ Understand: <ul style="list-style-type: none"> - normal and abnormal anatomy, embryology histology and physiology of the parathyroids, including calcium homeostasis, parathormone assays, vitamin D homeostasis and familial hypocalciuric hypercalcaemia - pathological spectrum and natural history of primary, secondary and tertiary hyperparathyroidism – including adenoma and hyperplasia and carcinoma - spectrum of sporadic versus MEN I and II syndromes - presentation and natural history 	<ul style="list-style-type: none"> ▪ Review the clinical features in the history: <ul style="list-style-type: none"> - hyperparathyroidism 	<ul style="list-style-type: none"> ▪ Importance of biochemical diagnosis ▪ Carry out serum and urine biochemical diagnosis and exclude other causes of hypercalcemia ▪ Review the relevance of medical imaging (U/S, Nuclear medicine scans, CT) ▪ Understand the role and interpretation of Ultrasound and sestamibi scans, MRI, CT; selective venous sampling, preoperative localisation ▪ Understand the associated general medical conditions including complications of hyperparathyroidism and chronic renal failure 	<ul style="list-style-type: none"> ▪ Indications for surgery ▪ Understand the differences associated with parathyroid exploration in the different situations of primary, secondary, tertiary, and reoperative hyperparathyroidism 		
Mid SET	<ul style="list-style-type: none"> ▪ Knowledge of anatomical sites of ectopic parathyroid glands 	<ul style="list-style-type: none"> ▪ Understand the role of indirect laryngoscopy 		<ul style="list-style-type: none"> ▪ Summarise: <ul style="list-style-type: none"> - non-surgical management of hypercalcemia - management of post-operative hypocalcemia and hungry bone syndrome - complications of surgery - implications of failed parathyroid exploration 	<ul style="list-style-type: none"> ▪ Parathyroidectomy – open and minimally invasive (MIP) ▪ Neck exploration + frozen section including excision adenoma, 31/2 gland excision, total parathyroidectomy +/- autotransplantation 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Parathyroid tumours and hyperplasia (continued)						
Late SET	<ul style="list-style-type: none"> Discuss the likely sites of finding parathyroid glands at neck exploration 				<ul style="list-style-type: none"> Re operative parathyroid surgery Cervical thymectomy 	
Pancreatic endocrine tumours and hyperplasia, neuro-endocrine tumours						
Early SET	<ul style="list-style-type: none"> Discuss the: <ul style="list-style-type: none"> spectrum of sporadic versus MEN I and II syndromes -presentation and natural history pathophysiological effects of neuroendocrine hormone excess pharmacology of somatostatin analogues Outline general pathology of neuroendocrine tumours Detailed understanding of normal, abnormal anatomy, histology and pathology of the endocrine pancreas Syndromes due to neuroendocrine metastasis Paraneoplastic syndromes 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings 	<ul style="list-style-type: none"> Appropriate serum and urine biochemical diagnosis Review the relevance of: <ul style="list-style-type: none"> medical imaging Preoperative endoscopy +/-endoscopic ultrasound Review general medical associated conditions 			
Mid SET			<ul style="list-style-type: none"> Assessment of a pancreatic mass 	<ul style="list-style-type: none"> Summarise: <ul style="list-style-type: none"> principles of preoperative optimisation medical conditions principles of pancreatic surgery intraoperative ultrasound principles of palliation neuroendocrine syndromes (operative, medical, radiological) 	<ul style="list-style-type: none"> Pancreatic tumour enucleation, distal pancreatectomy, pancreatoduodenectomy 	<ul style="list-style-type: none"> Bowel resection for small bowel tumours (carcinoid) Liver biopsy
Late SET					<ul style="list-style-type: none"> Non-anatomical and anatomical liver resection 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Adrenal gland functional abnormalities and tumours, and retro peritoneal tumours						
Early SET	<ul style="list-style-type: none"> ▪ Normal and abnormal anatomy, embryology, histology and physiology the adrenal gland ▪ Discuss the: <ul style="list-style-type: none"> - spectrum of sporadic versus MEN I and II syndromes - presentation and natural history - pathophysiological effects of adrenal cortical or medullary hormone excess 	<ul style="list-style-type: none"> ▪ Review the clinical features in the history and the examination findings including those for: <ul style="list-style-type: none"> - Cushing's syndrome - Conn's Syndrome - Sex Hormone excess - Catecholamine excess 	<ul style="list-style-type: none"> ▪ Review: <ul style="list-style-type: none"> - screening tests - definitive tests - localising tests ▪ Discuss the principles of stimulation and suppression tests ▪ Carry out serum and urine biochemical diagnosis ▪ Review general medical associated conditions 			
Mid SET			<ul style="list-style-type: none"> ▪ Review the relevance of medical imaging for localising 	<ul style="list-style-type: none"> ▪ Summarise/ implement: <ul style="list-style-type: none"> - preoperative optimisation/ blockade of medical condition - assessment for suitability for laparoscopic approach versus open approach - postoperative hormone deficiency syndromes and their management 	<ul style="list-style-type: none"> ▪ Adrenalectomy, including open and laparoscopic anterior, posterior, lateral and abdominal 	
Late SET					<ul style="list-style-type: none"> ▪ Retroperitoneal lymph node dissection and resection of adrenal tumours 	

MODULE TITLE:	GASTROINTESTINAL ENDOSCOPY	7-Nov-2016
DEVELOPED BY:	Elizabeth Dennett, Rowan French, Brian Kirkby.	
Module Rationale and Objectives	<p>Gastrointestinal endoscopy, and the knowledge and skills that this entails, is an integral part of General Surgery. The skilled endoscopist, far from acting as a technician, employs endoscopy in the appropriate situation to guide clinical decisions or improve patient outcomes. The skilled and safe practice of Gastrointestinal Endoscopy, in both diagnostic and therapeutic domains, requires knowledge across a wide range of areas considered elsewhere in the General Surgery Curriculum. Such knowledge is important for safe conduct of procedures, accurate diagnosis, and correct management.</p> <p>Important areas of knowledge and skill relevant to Gastrointestinal Endoscopy include, but are not limited to gastrointestinal anatomy/physiology, pharmacology of sedative medication, gut embryology, gastrointestinal disease including malignant, inflammatory and functional disorders, emergency gastrointestinal presentations, nutrition, audit and quality assurance, and public health issues.</p> <p>By graduation, it is expected that the trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Describe the structure and function of the endoscope and ancillary equipment ▪ Safely administer conscious sedation ▪ Understand and apply principles of electrophysiology as they apply to therapeutic endoscopy ▪ Understand the principles of anti-sepsis as they apply to GI endoscopy ▪ Describe the indications and contra-indications for Gastrointestinal Endoscopy ▪ Perform safe insertion for upper and lower GI endoscopy, including knowledge of troubleshooting problems with insertion ▪ Make accurate diagnosis and demonstrate good lesion recognition ▪ Understand correct therapeutic techniques and begin to employ these safely and accurately ▪ Understand and participate in quality improvement/assurance processes as they apply to GI endoscopy ▪ Demonstrate positive traits in professionalism and communication in the endoscopy suite 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <p>(1) "Gastrointestinal Endoscopy in Practice" Canard, Jean Marc. 2011 Elsevier inc. Available in RACS online library.</p>	
Learning Opportunities and Methods	Basic and advanced practical courses in GI endoscopy where available.	
How this module will be assessed	Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable); PBAs in colonoscopy.	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING		TECHNICAL EXPERTISE
	ANATOMY PHYSIOLOGY PATHOLOGY	BEHAVIOUR	KNOWLEDGE	SKILL
PERI-PROCEDURAL				
Structure and Function of the Endoscope and Ancillary Equipment				
Early - Mid SET		<ul style="list-style-type: none"> ▪ Demonstrates respect for the endoscopes and ancillary equipment ▪ Display awareness of the effect colonoscope movement and manipulation has 	<ul style="list-style-type: none"> ▪ Develops a core understanding of the basic structure of the endoscope which should include knowledge of: <ul style="list-style-type: none"> - Relationship of the lens, washer, lights ounce and channels at the tip - Mechanism by which tip is manipulated - Control of insufflation, washer and irrigation pump - Image controls - Mechanism of action of ancillary equipment such as biopsy forceps, injection needles etc. 	<ul style="list-style-type: none"> ▪ Prepare an endoscopy video processor and endoscope for use without assistance ▪ Develop an effective stance and hand grip to optimise use of controls with the left hand ▪ Identify the site of a blocked channel and correct the blockage ▪ Troubleshoot basic equipment problems during procedure
Sedation				
Early - Mid SET		<ul style="list-style-type: none"> ▪ Work within team environment to deliver safe and effective sedation ▪ Monitors patient comfort and sedation levels, recognise and manage any change in sedation and comfort levels 	<ul style="list-style-type: none"> ▪ Describe risk factors for poor outcome in conscious sedation ▪ Understand the pharmacology, risks and complications of commonly used sedative medication ▪ Understands the role of monitoring and supplemental oxygen in conscious sedation ▪ Describe requirements for safe recovery and discharge 	<ul style="list-style-type: none"> ▪ Undertake a pre-procedural assessment with regards to risks associated with conscious sedation ▪ Delivers skilled titration of sedative medication and reversal agents when sedation is deeper than expected
Principles of Electrosurgery				
Early - Mid SET		<ul style="list-style-type: none"> ▪ Displays awareness of the important of diathermy current and power settings in the context of interventional endoscopy 	<ul style="list-style-type: none"> ▪ Explain: <ul style="list-style-type: none"> - the difference between Monopolar and Bipolar diathermy - the role of a dispersing return electrode and incorporated safety features - capacitive coupling - current leaks - shorting ▪ Describe power settings for cutting and coagulation ▪ Recognise electrical hazards and how to avoid them 	<ul style="list-style-type: none"> ▪ Deploy a diathermy unit checking for safety and electrical integrity ▪ Select appropriate settings on an electrosurgical unit ▪ Deploy and use a snare in a manner that minimises risk to normal surrounding tissues
Infection Control and Safety				
Early - Mid SET		<ul style="list-style-type: none"> ▪ Demonstrates knowledge and application of Standard Precautions ▪ Participates as required in decontamination processes as the apply to endoscopic equipment 	<ul style="list-style-type: none"> ▪ Explain principles and practice of standard precautions, sterilisation, disinfection, and storage ▪ Describe measures to limit transmission of infection relevant to endoscopy 	<ul style="list-style-type: none"> ▪ Appropriate handling of the scope

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING		TECHNICAL EXPERTISE
	ANATOMY PHYSIOLOGY PATHOLOGY	BEHAVIOUR	KNOWLEDGE	SKILL
GASTROSCOPY				
Preparation for Gastroscopy				
Early - Mid SET		<ul style="list-style-type: none"> Ensures appropriate fasting status Chooses appropriate location to perform acute endoscopy to maximise patient safety 	<ul style="list-style-type: none"> Understand department protocols relating to fasting before upper gastrointestinal endoscopy Explain how the sedation plan and patient factors determine the risk of pulmonary aspiration 	<ul style="list-style-type: none"> Assess risk of intra- and post- procedure pulmonary aspiration in an individual patient Gains consent for the procedure in an appropriate process
Gastroscopy Insertion				
Early - Mid SET		<ul style="list-style-type: none"> Utilises good endoscopic insertion technique Appraise patient status throughout and choose appropriate steps resolve patient anxiety or discomfort 	<ul style="list-style-type: none"> Describe an approach to difficult oesophageal intubation Demonstrates knowledge of other areas of potential difficulty 	<ul style="list-style-type: none"> Successful oesophageal intubation <ul style="list-style-type: none"> Key performance indicator > 95%, done under constant direct vision Correctly identify anatomic landmarks, and steer tip accurately towards direction of lumen Complete insertion to second part of duodenum is achieved in majority of cases
Gastroscopy Withdrawal				
Early - Mid SET		<ul style="list-style-type: none"> Uses adequate time and various manoeuvres on withdrawal, to maximise views of all mucosal surfaces 	<ul style="list-style-type: none"> Explain why some areas of the upper digestive tract are challenging to image adequately, and describe how choice of instrument, endoscopic technique or additional measures such as chromoendoscopy or image enhancement can increase sensitivity Demonstrates knowledge of various gastrointestinal pathologies as they relate to endoscopy 	<ul style="list-style-type: none"> Uses tip control to optimise mucosal view in duodenum, minimise blind areas and visualise ampulla Uses distension and retroflexion in stomach to assess areas of mucosa poorly seen in forward viewing position <ul style="list-style-type: none"> Key performance indicator > 95% Inspect the oesophagus on withdrawal in a manner suitable to identify mucosal pathology Makes an assessment of the likely cause of pathology based on close examination of a mucosal surface
Therapeutic Gastroscopy				
Late SET		<ul style="list-style-type: none"> Appropriately assess and counsel a patient on the appropriateness, risks and alternatives of therapeutic interventions including mucosal resection, polypectomy and dilatation Demonstrates good in-procedure decision making with regards to potential therapeutic interventions 	<ul style="list-style-type: none"> Demonstrates knowledge on indications and contraindications for intervention Demonstrates working knowledge of various required tools 	<ul style="list-style-type: none"> Use tip control and positioning of shaft to optimise access to an area of interest Assess the risk of re-bleeding of a patient with peptic ulcer using endoscopic examination and implement an appropriate management plan Demonstrate use of available endoscopic haemostatic techniques to treat or prevent bleeding from submucosal vessels

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING		TECHNICAL EXPERTISE
	ANATOMY PHYSIOLOGY PATHOLOGY	BEHAVIOUR	KNOWLEDGE	SKILL
COLONOSCOPY				
Preparation for Colonoscopy				
Early - Mid SET		<ul style="list-style-type: none"> Fosters a working team environment Participates in surgical checklist procedures Involved in activities to maximise the effectiveness of bowel prep, gain informed consent and reduce procedural risk of the patient 	<ul style="list-style-type: none"> Describe various schedules of bowel preparation and factors that influence their effectiveness Understand advantages and disadvantages of different bowel preparations Describe peri-procedural management of anticoagulant and anti-platelet agents 	<ul style="list-style-type: none"> Describe preparation for colonoscopy to a patient and prescribe appropriately Arranges additional preparation when required
Colonoscopy Insertion				
Late SET		<ul style="list-style-type: none"> Perform digital rectal examination prior to introduction of colonoscope Demonstrate willingness and ability to insert instrument so as to minimise risk and discomfort to patient, and obtain help when needed Appraise patient status throughout and choose appropriate steps resolve patient anxiety or discomfort Select manoeuvres appropriate to anatomic landmarks. Use abdominal pressure and patient position change appropriately to facilitate insertion 	<ul style="list-style-type: none"> Describe how the anatomy of the colon influences the introduction and manipulation of the colonoscope Explain the principles, advantages and limitations of torque steering: inserting the scope using up down and rotation movements alone Demonstrates knowledge of how loops form and techniques to prevent and resolve looping 	<ul style="list-style-type: none"> Maintains a luminal view sufficient to allow safe insertion Correctly identifies the direction of lumen and anatomic landmarks Demonstrate a strategy for passing an acute angle by angulation, withdrawal and timed deflection of the tip, including judicious use of "slide by" manoeuvres Demonstrates use of water injection, minimal insufflation and adequate shaft lubrication Aspirates distended loops and straighten scope shaft, while steering into the lumen to facilitate scope advancement Employs a technique to achieve successful ileal intubation
Colonoscopy Withdrawal				
Late SET		<ul style="list-style-type: none"> Recognises the importance of the withdrawal phase of colonoscopy and obtain help when needed Withdraw instrument, optimising probability of visualising the entire mucosal surface 	<ul style="list-style-type: none"> Understands the features and locations that are associated with greater likelihood of missed lesions Describe measures that may increase polyp detection rate 	<ul style="list-style-type: none"> Use tip control to optimise mucosal view Use washing, position change and aspiration appropriately Utilises double flexure pass when appropriate
Colonoscopy Polypectomy				
Late SET		<ul style="list-style-type: none"> Work in a team using clear instructions Develop a polypectomy technique that minimises risks of complications or recurrence Demonstrates good in-procedure decision making around appropriateness and technique of polypectomy 	<ul style="list-style-type: none"> Understands the nature of polyp histopathology Describe how the histological subtypes, polyps numbers and patient factors influence decisions around polypectomy and surveillance intervals Knows the nature and incidence of complications with polypectomy Discuss the choice of fluid for flat polyp elevation prior to snare polypectomy 	<ul style="list-style-type: none"> Uses tip control and positioning of shaft to optimise working area and view of polyp Inject fluid accurately to the submucosal space in a manner that increases the ease and safety of polypectomy Examines polypectomy defect closely for completeness and risk of perforation Uses adjunctive equipment if necessary to achieve haemostasis and retrieve tissue Deploys endoscopic clips if required to control bleeding or close mucosal defects Performs physical examination if appropriate to detect signs of perforation Retrieve a resected specimen for pathology processing <ul style="list-style-type: none"> Key performance Indicator: 90% of resected polyps retrieved

MODULE TITLE: HEAD & NECK **7-Nov-2016**

DEVELOPED BY: Kerwin Shannon, Richard Turner

REVIEWED BY: Alan Saunder (2010) Michael Donovan, Senarath Edirimanne, Brian Kirkby, Chris Pyke (2013). Michael Donovan, Julie Howle (2016).

Module Rationale and Objectives

General surgeons need to have a thorough knowledge of infections, tumours and lesions of the head and neck and be able to recognise and treat compromise of the upper airway. Trainees are also required to have a high level of knowledge of investigations, differential diagnosis, potential risks and/or complications and appropriate management strategies.

The graduating trainee will be able to:

- describe common surgical pathologies of deep neck space infections, congenital cysts and sinuses of the head and neck, metabolic and neoplastic conditions of salivary glands, and primary and secondary malignancies presenting in the head and neck
- identify and recognise the symptoms and signs of these conditions
- describe and select appropriate diagnostic testing
- identify appropriate treatment options, and their indications and contraindications
- recognise the symptoms of, accurately diagnose, and manage common problems in the head and neck
- select appropriate investigative tools
- adapt their skill in the context of each patient and each procedure
- identify and manage risk
- recognise the need to refer patients to other professionals, including multidisciplinary teams
- communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent)

Anatomy, Physiology, Pathology

Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology, of:

- the head (extracranial)
- the neck (upper aero-digestive tract and soft tissues)

Suggested Reading

Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org

For the Fellowship examination, there are no prescribed texts.

Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.

Learning Opportunities and Methods

If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.

Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.

How this module will be assessed

The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).

Definitions

Operative Management - Knows: Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.

Operative Management - Does: In addition to the above, trainees must be competent at performing the procedure.

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Upper aero-digestive tract neoplasia						
Early SET	<ul style="list-style-type: none"> Describe anatomy of the upper aerodigestive tract Classify neoplasms of the upper aerodigestive tract Describe biological behaviour including patterns of lymphatic spread Discuss epidemiology and risk factors 	<ul style="list-style-type: none"> Recognise symptoms and signs Perform a basic oral, oropharyngeal and cervical node examination 	<ul style="list-style-type: none"> Describe and interpret staging investigations Understand the role of FNAB 	<ul style="list-style-type: none"> Define the role of laryngopharyngoscopy Assess indications/contraindications of open cervical node biopsy (and complications) Discuss the role of multidisciplinary approach to management 		<ul style="list-style-type: none"> Cervical lymph node biopsy
Mid SET				<ul style="list-style-type: none"> Review principles of curative/palliative treatment (surgical and non-surgical): Plan and manage maintenance of airways and nutrition 		<ul style="list-style-type: none"> Open feeding gastrostomy or PEG Tracheostomy
Salivary gland pathology						
▪ tumour						
Early SET	<ul style="list-style-type: none"> Classify salivary neoplasms and biological behaviour 	<ul style="list-style-type: none"> Perform focused examination of parotid and submandibular glands 	<ul style="list-style-type: none"> Understand the role of FNAB Discuss the role of imaging 			
Mid SET				<ul style="list-style-type: none"> Describe indications for surgical treatment and possible complications Describe indications for radiotherapy 	<ul style="list-style-type: none"> Excision of submandibular gland Parotidectomy 	
Salivary gland pathology						
▪ infections						
▪ inflammatory disease						
▪ calculi						
Early SET	<ul style="list-style-type: none"> Describe pathogenesis and pathological complications 	<ul style="list-style-type: none"> Perform focused examination of parotid and submandibular glands 	<ul style="list-style-type: none"> Discuss the role of medical imaging 			
Mid SET		<ul style="list-style-type: none"> Palpate stone in submandibular duct 		<ul style="list-style-type: none"> Describe indications for surgical treatment and possible complications Discuss non-operative therapies Manage the condition 	<ul style="list-style-type: none"> Excision of submandibular gland Submandibular doctotomy and stone extraction 	<ul style="list-style-type: none"> Drainage of acute suppuration
Upper airway foreign body/occlusion/ trauma						
Early SET	<ul style="list-style-type: none"> Describe upper airway anatomy including vocal cords and upper trachea 	<ul style="list-style-type: none"> Diagnose upper airway compromise 	<ul style="list-style-type: none"> Interpret plain X-rays of cervical soft tissues 	<ul style="list-style-type: none"> Identify principles of surgical and non-surgical treatment Describe the role of direct/indirect laryngoscopy 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Upper airway foreign body/occlusion/ trauma (continued)						
Mid SET				▪ Manage the condition	▪ Extracting foreign body	▪ Emergency tracheotomy ▪ Cricothyroidotomy
Cervical infections lymphadenitis/ abscess						
Early SET	<ul style="list-style-type: none"> ▪ Describe pathogenesis ▪ Describe fascial compartments of the neck 	<ul style="list-style-type: none"> ▪ Diagnose abscess formation on examination 	<ul style="list-style-type: none"> ▪ Describe and interpret appropriate imaging ▪ Describe and interpret appropriate microbiology 	<ul style="list-style-type: none"> ▪ Describe indications for surgical treatment and possible complications ▪ Prescribe medical treatment where indicated 		
Mid SET						<ul style="list-style-type: none"> ▪ Incision and drainage of cervical abscess ▪ Emergency tracheotomy
Lumps in the neck						
<ul style="list-style-type: none"> ▪ carotid body tumour (<i>See also Vascular Module</i>) ▪ branchial cyst/sinus ▪ thyroglossal cyst (<i>See also Endocrine Module</i>) ▪ pharyngeal pouch 						
Early SET	<ul style="list-style-type: none"> ▪ Understand the anatomy of the neck ▪ Explain embryological origin of thyroglossal cyst and branchial cyst/sinus ▪ Outline the pathology of carotid body tumours ▪ Outline the aetiology of pharyngeal pouch 	<ul style="list-style-type: none"> ▪ Describe clinical features of thyroglossal cyst, carotid body tumour, branchial cyst/sinus and pharyngeal pouch ▪ Perform a thorough neck examination 				
Mid SET		<ul style="list-style-type: none"> ▪ Formulate differential diagnosis ▪ Diagnose on examination 	<ul style="list-style-type: none"> ▪ Describe and interpret appropriate imaging 	<ul style="list-style-type: none"> ▪ Describe indications and complications of surgical management ▪ Manage the condition 	<ul style="list-style-type: none"> ▪ Excision of branchial cyst ▪ Excision of thyroglossal cyst/ fistula / Sistrunk procedure 	
Parathyroid						
<i>See Endocrine Module</i>						
Head and neck trauma						
<i>See Trauma Module</i>						
<i>See also Skin and Soft Tissue Module</i>						

MODULE TITLE:	SEPSIS & THE CRITICALLY ILL OR COMPROMISED PATIENT	7-Nov-2016
DEVELOPED BY:	Adrian Anthony, Michael Cox, Richard Turner	
REVIEWED BY:	Alan Saunder (2010) Adrian Anthony, Wendy Brown, Sayed Hassen, Michael Cox, Tom Elliott, Greg Keogh, Noel Tait (2013). Richard Bryant, Satish Warriar (2016).	
Module Rationale and Objectives	<p>Sepsis and other critical conditions require informed and decisive action on the part of the surgeon. This module identifies the key areas in which trainees are expected to have expertise in order to be able to minimise infection risks and consequences in critically ill or compromised patients and to respond promptly and appropriately as the need for assessment and management of sepsis in such patients arises. The graduating trainee will be able to:</p> <p>Pathology of sepsis:</p> <ul style="list-style-type: none"> describe common surgical pathologies of sepsis in specific organs or regions describe infectious pathologies likely to be associated with surgically treated diseases describe infectious pathologies associated with medically complex, malnourished and immune suppressed patients <p>Prophylaxis of sepsis:</p> <ul style="list-style-type: none"> display well informed, evidence based team leadership in prophylaxis and management of sepsis in critically ill or compromised patients anticipate and aim to prevent the onset of sepsis and sepsis related complications in surgical patients describe mechanisms for limiting the development and spread of infectious diseases, especially multi-resistant organisms, among critically ill and compromised surgical patients describe evidence-based prophylaxis against development of peri-surgical sepsis <p>Recognition and diagnosis of sepsis and sepsis syndromes:</p> <ul style="list-style-type: none"> apply the CCrISP principles to identify and recognise the symptoms and signs of these conditions describe and select appropriate diagnostic testing select appropriate investigative tools and monitoring techniques <p>Management planning and treatment:</p> <ul style="list-style-type: none"> identify appropriate treatment options, and their indications and contraindications determine the appropriate priorities of care and level of care for patients affected by sepsis demonstrate awareness of the basic pharmacology and principles of antibiotic based therapeutics effectively manage septic complications of operative procedures and the underlying disease process identify the likely causative factor(s) of a patient's critical illness and implement management accordingly prioritise, initiate and coordinate the timely management of critically ill patients accurately identify the risks, benefits and mechanisms of action of various treatment modalities and interventions <p>Ethics and Professional Communications:</p> <ul style="list-style-type: none"> understand the importance of a multidisciplinary approach to the management of critically ill patients recognise the importance of effective communication with other professionals and recognise the need for timely referral and for timely response to requests for surgical review and surgical treatment communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the, anatomy, microbiology, physiology, and pathology, of:</p> <ul style="list-style-type: none"> organ-specific sepsis Systemic Inflammatory Response Syndrome (SIRS)/Multiple Organ Dysfunction Syndrome (MODS) system specific dysfunction (e.g. renal impairment) co-morbidities that may alter management and/or adversely affect outcome 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>Suggested reading:</p> <p>(1) Care of the Critically Ill Surgical Patient (ISBN 9780340810484), 2nd edition, edited by I.D. Anderson.</p> <p>(2) Core Topics in General & Emergency Surgery: A Companion to Specialist Surgical Practice (ISBN 9780702049644), 4th edition, by S. Paterson-Brown.</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>Therapeutic Guidelines for surgical sepsis prophylaxis and for antibiotic therapy of surgical sepsis (available on internet or on most hospital intranets).</p> <p>Skills courses including RACS CCrISP, EMST courses.</p> <p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Assumed Knowledge	<ul style="list-style-type: none"> Normal organ physiology Classification and characteristics of micro-organisms Local and systemic immune responses Physiological responses to pathogens Microbiology of organisms associated with major surgical sepsis including especially surgically relevant cocci, bacilli, clostridia, yeasts and fungi 	

MODULE TITLE:	SEPSIS & THE CRITICALLY ILL OR COMPROMISED PATIENT	7-Nov-2016
DEVELOPED BY:	Adrian Anthony, Michael Cox, Richard Turner	
REVIEWED BY:	Alan Saunder (2010) Adrian Anthony, Wendy Brown, Sayed Hassen, Michael Cox, Tom Elliott, Greg Keogh, Noel Tait (2013). Richard Bryant, Satish Warriar (2016).	
Assumed Knowledge (continued)	<ul style="list-style-type: none"> ▪ Laboratory investigation methods and indications for same ▪ Pharmacology, prescribing and indications for appropriate prophylactic and therapeutic use of for use of antibiotics in the prophylaxis and therapy of surgical sepsis ▪ Principles and practice of routines mitigating against spread of colonisation and invasive sepsis among surgical patients (e.g. 5 moments of hand hygiene) ▪ Principles and practice of antibiotic stewardship in surgical practice 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Critically ill surgical patient e.g.: <ul style="list-style-type: none"> ▪ severe pancreatitis, anastomotic leak ▪ strangulated small bowel / ischaemic colon / perforated small bowel / colon (see also Emergency Surgery Module) ▪ massive haemorrhage (see also Emergency Surgery Module) ▪ Severe cholangitis (See also Upper GI & HPB - Hepatic, Pancreatic & Biliary Module) 						
Early SET	<ul style="list-style-type: none"> ▪ Recognise the spectrum of pathologies responsible for critical illness ▪ Explain the pathophysiology and consequences of: <ul style="list-style-type: none"> - SIRS - MODS - Adult Respiratory Distress Syndrome - shock 	<ul style="list-style-type: none"> ▪ Identify the patient at risk of becoming critically ill ▪ Recognise the clinical features of a critically ill patient and life threatening conditions ▪ Identify and describe the clinical features of the different causes of shock 	<ul style="list-style-type: none"> ▪ Appropriately select and coordinate multimodal assessment as required ▪ Review and interpret available data ▪ Identify and describe scoring systems in relation to critically ill patients 	<ul style="list-style-type: none"> ▪ Organise multidisciplinary management ▪ Identify the appropriate level of care for the patient ▪ Organise resuscitation ▪ Coordinate safe transfer of patient ▪ Employ appropriate monitoring to assess response to resuscitation ▪ Outline the role of pharmacological agents and their complications 	<ul style="list-style-type: none"> ▪ Cricothyroidotomy/tracheostomy 	<ul style="list-style-type: none"> ▪ Establish and maintain emergency airway ▪ Needle thoracostomy / intercostal chest drain ▪ Establish definitive emergency vascular access - central and peripheral
Mid SET				<ul style="list-style-type: none"> ▪ Discuss the procedural details of definitive surgical management where indicated ▪ Explain the role and indications for advanced organ and system support: <ul style="list-style-type: none"> - cardiovascular - respiratory - renal 		
Late SET					<ul style="list-style-type: none"> ▪ Understand surgical strategies in the critically ill patient 	
Gangrene/necrotising fasciitis <i>See Skin & Soft Tissue Module</i>						
Tetanus						
Early SET	<ul style="list-style-type: none"> ▪ Discuss the incidence and describe pathogenesis including microbiology 	<ul style="list-style-type: none"> ▪ Identify the clinical manifestations ▪ Classify the spectrum of presentation 	<ul style="list-style-type: none"> ▪ Select and interpret blood tests, microbiology and imaging investigations 	<ul style="list-style-type: none"> ▪ Establish the principles of immunisation ▪ Recognise early signs and describe the management 	<ul style="list-style-type: none"> ▪ Wound debridement 	
Mid SET				<ul style="list-style-type: none"> ▪ Coordinate multidisciplinary care 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Subphrenic/pelvic/ intra-abdominal abscess						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of abdominal and pelvic cavity Describe the various forms of abscess 	<ul style="list-style-type: none"> Classify the spectrum of presentation, including the clinical signs of sepsis and clinical presentations pertaining to abscesses in various sites in the abdomen 	<ul style="list-style-type: none"> Select and interpret blood tests, microbiology and imaging investigations 	<ul style="list-style-type: none"> Review open/ percutaneous drainage procedures Discuss therapeutic and prophylactic role of antibiotics, including dosage of common antibiotics 		
Mid SET				<ul style="list-style-type: none"> Identify and describe the role for laparotomy/laparostomy, minimally invasive techniques Discuss the procedural details of treatment, including possible complications and how to deal with them 		<ul style="list-style-type: none"> Transrectal drainage Laparotomy/ laparostomy/minimally invasive techniques for drainage of complex abscesses
Psoas abscess						
Early SET	<ul style="list-style-type: none"> Describe pathogenesis, causative organisms, and related disease 	<ul style="list-style-type: none"> Take an appropriate history and perform a focused examination 	<ul style="list-style-type: none"> Select and/or interpret diagnostic/ interventional imaging Interpret results of microbiological specimens 	<ul style="list-style-type: none"> Review open/ percutaneous drainage procedures Discuss the role of antibiotic therapy 		
Mid SET				<ul style="list-style-type: none"> Discuss the procedural details of open drainage 	<ul style="list-style-type: none"> Trans/ Retroperitoneal drainage 	
Intra-abdominal sepsis/peritonitis						
<i>See also Abdominal Wall Module</i>						
<i>See also above: Subphrenic/pelvic/ intra-abdominal abscess</i>						
Early SET	<ul style="list-style-type: none"> Discuss pathogenesis, causative organisms, and related disease 	<ul style="list-style-type: none"> Perform a focused clinical examination Recognise the clinical signs of peritonitis Understand the clinical scenarios that may mask the signs or peritonitis 	<ul style="list-style-type: none"> Select and/or interpret diagnostic/ interventional imaging Interpret microbiological results 	<ul style="list-style-type: none"> Discuss the indications for non-surgical and surgical management Discuss indications for laparostomy and delayed closure Describe the principles of open/ percutaneous and minimally invasive drainage procedures where appropriate 		
Mid SET					<ul style="list-style-type: none"> Laparostomy 	<ul style="list-style-type: none"> Laparotomy for sepsis control

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
The immuno- suppressed patient <i>See Transplantation Module</i>						
Early SET	<ul style="list-style-type: none"> Discuss the basis of humoral and cellular immunity and the factors that modify immunity 	<ul style="list-style-type: none"> Identify the symptoms and signs suggesting sepsis and/or impending decompensation in an immuno-suppressed patient 	<ul style="list-style-type: none"> Select appropriate pathology and imaging investigations to identify sepsis in an immuno-suppressed surgical patient 	<ul style="list-style-type: none"> Enlist appropriate multi-disciplinary input to assist with management 		
Mid SET				<ul style="list-style-type: none"> Discuss the nature and role of operative or non-operative management, where indicated 		
Late SET					<ul style="list-style-type: none"> Understand surgical strategies in the critically ill patient 	
HIV/AIDS and other atypical infections including TB <i>See also above: The immuno-suppressed patient</i>						
Early SET	<ul style="list-style-type: none"> Describe the pathophysiology of immune suppression as it relates to HIV/AIDS Explain the progression of disease 	<ul style="list-style-type: none"> Recognise the spectrum of clinical presentation 	<ul style="list-style-type: none"> Interpret relevant haematological and microbiological tests, such as helper/suppressor cell ratios and viral load Indicate the role for medical imaging where indicated 	<ul style="list-style-type: none"> Describe and explain the role of universal precautions Seek multi-disciplinary input from Microbiology and Infectious Disease specialists regarding operative vs. non-operative management 		
Mid SET						<ul style="list-style-type: none"> Insertion of central venous access with management
The splenectomised patient <i>See also above: The immuno-suppressed patient</i>						
Early SET	<ul style="list-style-type: none"> Discuss the anatomy and physiological role of the spleen Outline the role of the spleen in certain haematological disorders such as hereditary spherocytosis and idiopathic thrombocytopenic purpura Outline the role of the spleen in certain infectious conditions such as infectious mononucleosis and malaria 	<ul style="list-style-type: none"> Perform an abdominal examination to identify splenomegaly 		<ul style="list-style-type: none"> Prescribe appropriate preventive management for overwhelming post-splenectomy infection (OPSI) following splenectomy including antibiotics and immunisation 		
Mid SET	<ul style="list-style-type: none"> Discuss the pathophysiological and clinical consequences of splenectomy 		<ul style="list-style-type: none"> Select appropriate pathology and imaging investigations prior to elective splenectomy 	<ul style="list-style-type: none"> Discuss the indications for elective splenectomy 	<ul style="list-style-type: none"> Laparoscopic elective splenectomy 	<ul style="list-style-type: none"> Open elective splenectomy See also Upper GI/HPB Module

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Post transplantation patients <i>See Transplantation Module</i>						
Nutritional support						
Early SET	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - components of nutrition and their functions - normal fluid, electrolytic and other nutritional requirements - specific nutritional demands associated with different pathologies - complications associated with nutritional replacement - how nutrition influences outcome 	<ul style="list-style-type: none"> ▪ Identify the patient at risk of nutritional deficiencies ▪ Recognise the symptoms and signs related to nutritional deficiencies ▪ Identify patients who have specific nutritional requirements 	<ul style="list-style-type: none"> ▪ Select and interpret appropriate laboratory tests to assess nutrition 	<ul style="list-style-type: none"> ▪ Appraise the role of nutritional support in the management of surgical pathologies ▪ Coordinate multidisciplinary approach to management ▪ Differentiate the various routes for nutritional support 		
Mid SET			<ul style="list-style-type: none"> ▪ Select and interpret appropriate laboratory tests to formulate nutritional support 	<ul style="list-style-type: none"> ▪ Explain the indications for enteral and parenteral nutritional routes and the associated complications ▪ Monitor response to nutritional support and adjust accordingly ▪ Describe techniques to establish routes for administering nutrition ▪ Understand pathophysiology of re-feeding syndrome 		<ul style="list-style-type: none"> ▪ Feeding gastrostomy/ jejunostomy (open, endoscopic, and laparoscopic) ▪ Vascular access for nutrition (including surgical and radiological implantable and tunnelled devices)
Other medical system disease						
Early SET	<ul style="list-style-type: none"> ▪ Recognise the impact on effective management of surgical patients of comorbidities 	<ul style="list-style-type: none"> ▪ Quantify and classify the risk factors of comorbidities 		<ul style="list-style-type: none"> ▪ Classify the patient according to ASA grading system and be able to accurately determine patient status ▪ Coordinate (and lead) multidisciplinary teams 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Acute pain control						
Early SET	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - pathophysiology of acute pain - the causes of pain in the surgical patient - the effect of pain on various physiological functions 	<ul style="list-style-type: none"> ▪ Identify the patient likely to have pain ▪ Recognise and assess pain using a scoring system ▪ Recognise abnormal behaviour in response to pain 	<ul style="list-style-type: none"> ▪ Select and interpret investigations to determine the cause of pain 	<ul style="list-style-type: none"> ▪ Implement preventive measures ▪ Discuss the role of pain control in patient outcome ▪ Liaise with an acute pain service to assist management ▪ Prescribe and monitor response to pharmacological agents and adjust accordingly ▪ Implement multimodal therapy for pain control ▪ Describe complications associated with analgesic therapy ▪ Differentiate the preferred route(s) for administering analgesia 		
Patients on specific medications: Anticoagulant, Immunomodulators, Oncological agents						
Early SET	<ul style="list-style-type: none"> ▪ Recognise the impact of various pharmacological agents on different patients ▪ Understand the management of anticoagulants 		<ul style="list-style-type: none"> ▪ Order and interpret appropriate investigations as required 	<ul style="list-style-type: none"> ▪ Select and adjust surgical practice according to risk ▪ Coordinate multidisciplinary teams ▪ Understand which patients on anticoagulation / antiplatelets require interim cover ▪ Establish a perioperative plan to manage patients on anticoagulants 		

MODULE TITLE:	SKIN & SOFT TISSUE	7-Nov-2016
DEVELOPED BY:	Adrian Anthony, Michael Cox, Richard Turner	
REVIEWED BY:	Alan Saunder (2010) Adrian Anthony, Wendy Brown, Sayed Hassen, Michael Cox, Noel Tait (2013). Andrew Thompson (2016).	
Module Rationale and Objectives	<p>Skin cancer is increasing in prevalence, and if undiagnosed or untreated can be lethal. Infections of the skin and soft tissue require early identification and prompt management. General surgery trainees are required to become competent in accurately identifying conditions that require surgery, and those which are best treated by other means.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of benign and malignant skin lesions, and the various types of skin and soft tissue infections. ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnoses and treat commonly encountered conditions of the skin and soft tissues ▪ select appropriate investigative tools ▪ adapt their skill in the context of each patient and each procedure ▪ identify and manage risk ▪ recognise the need to refer patients to other professionals ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology and pathology of the skin and subcutaneous tissues.</p> <p>In addition, the trainee should know:</p> <ul style="list-style-type: none"> ▪ regional surgical anatomy of body surfaces ▪ histology of the skin and appendages ▪ principles of wound healing and cosmesis 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Assumed Knowledge	<ul style="list-style-type: none"> ▪ Anatomy, histology and physiology of the integument ▪ Anatomy of subcutaneous spaces and structures ▪ Anatomy and physiology of skeletal muscle and associated neuro-lympho-vascular structures ▪ The wound healing process 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE		JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -	
Skin cancer <ul style="list-style-type: none"> ▪ basal cell carcinoma ▪ squamous cell carcinoma ▪ intra-epithelial carcinoma ▪ Merkel cell tumour ▪ Melanoma (See also Surgical Oncology Module) 							
Early SET	<ul style="list-style-type: none"> ▪ Types of skin cancer and their biological behaviour ▪ Epidemiology/risk factors ▪ Principles of wound healing ▪ Principles of cosmesis: Langer's lines ▪ Anatomy of cervical, axillary and inguinal lymph node basins 	<ul style="list-style-type: none"> ▪ Perform appropriate physical examination ▪ Identify typical appearances of specific lesions 	<ul style="list-style-type: none"> ▪ Perform and interpret results of: <ul style="list-style-type: none"> - punch biopsy - excision biopsy ▪ Discuss indications/contraindications of these biopsy methods ▪ Interpret skin surface microscopy 	<ul style="list-style-type: none"> ▪ Indications for operative treatment, procedural details, and potential complications ▪ Non-operative primary treatments 		<ul style="list-style-type: none"> ▪ Excision of skin cancer and wound closure using direct suturing 	
Mid SET			<ul style="list-style-type: none"> ▪ Select and describe relevant staging investigations 	<ul style="list-style-type: none"> ▪ Principles of advanced reconstructive techniques ▪ Discuss the indications and principles of managing regional lymph nodes ▪ Discuss possible complications of surgical treatments and how to manage them 	<ul style="list-style-type: none"> ▪ Block dissection of regional lymph nodes 	<ul style="list-style-type: none"> ▪ Excision of skin cancer and wound closure using: <ul style="list-style-type: none"> - cutaneous flaps - full-thickness/split skin grafts ▪ Sentinel lymph node biopsy 	
Benign skin and subcutaneous lesions <ul style="list-style-type: none"> ▪ Nevus ▪ Solar keratosis ▪ Papilloma/wart ▪ Seborrheic keratosis ▪ Lipoma ▪ Sebaceous cyst ▪ Ganglion ▪ Keloid and hypertrophic scar 							
Early SET	<ul style="list-style-type: none"> ▪ Histological features and biological behaviour of specific lesions ▪ Principles of wound healing ▪ Principles of cosmesis: Langer's lines 	<ul style="list-style-type: none"> ▪ Identify the typical appearance and examination findings of specific lesions 	<ul style="list-style-type: none"> ▪ Employ and interpret appropriate ancillary investigations as indicated: <ul style="list-style-type: none"> - skin surface microscopy - punch biopsy - incision biopsy - excision 	<ul style="list-style-type: none"> ▪ Indications for and complications of biopsy or excision ▪ Indications for non-surgical treatments ▪ Principles of excision and closure, including possible complications 		<ul style="list-style-type: none"> ▪ Simple excision of lesion ▪ Diathermy ablation/curettage (warts) 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Ingrown toenail						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of a finger or toe: <ul style="list-style-type: none"> digital artery and nerves nail matrix Describe the pathogenesis 	<ul style="list-style-type: none"> Identify typical appearance and examination findings Identify risk factors for complications 		<ul style="list-style-type: none"> Describe preventative measures Discuss principles and indications of non-surgical and surgical management Discuss details of surgical management 		<ul style="list-style-type: none"> Nail avulsion Wedge resection of nail
Mid SET						<ul style="list-style-type: none"> Zadek's operation
Cellulitis						
Soft tissue abscess						
Wound infection						
Early SET	<ul style="list-style-type: none"> List likely pathogens Summarise pathogenesis of cellulitis and abscess formation Define risk factors for wound infection 	<ul style="list-style-type: none"> Take a history and accurately interpret examination findings Clinical features and risk factors for necrotising infections 	<ul style="list-style-type: none"> Employ and interpret microbiological investigations as appropriate Medical imaging modalities where indicated 	<ul style="list-style-type: none"> Discuss principles and indications of non-surgical and surgical management Discuss details of surgical management 		<ul style="list-style-type: none"> Incision and drainage of abscess Wound debridement
Synergistic soft tissue infections e.g.:						
<ul style="list-style-type: none"> Fournier's gangrene gas gangrene necrotising fasciitis, etc. 						
Early SET	<ul style="list-style-type: none"> Define and describe pathogenic mechanisms List likely pathogens Define risk factors Explain the role in systemic inflammatory response syndrome 	<ul style="list-style-type: none"> Take a history and accurately interpret examination findings Recognise and identify the critically ill patient 	<ul style="list-style-type: none"> Interpret microbiological investigations as appropriate Employ and interpret imaging modalities as appropriate 	<ul style="list-style-type: none"> Implement and evaluate response to resuscitation Discuss principles and indications of non-surgical and surgical management Organise multidisciplinary approach to management 		
Mid SET				<ul style="list-style-type: none"> Discuss principles of surgical management 	<ul style="list-style-type: none"> Reconstructive techniques 	<ul style="list-style-type: none"> Extensive wound debridement/ amputation Defunctioning colostomy (as indicated)
Late SET					<ul style="list-style-type: none"> Advanced reconstructive techniques 	
Hidradenitis suppurativa						
Early SET	<ul style="list-style-type: none"> Discuss pathogenesis and natural history of the condition 	<ul style="list-style-type: none"> Interpret history and examination findings 		<ul style="list-style-type: none"> Discuss principles and indications of non-surgical and surgical management 		<ul style="list-style-type: none"> Incision and drainage
Mid SET				<ul style="list-style-type: none"> Discuss procedural details of surgical management 	<ul style="list-style-type: none"> Reconstructive techniques where indicated 	<ul style="list-style-type: none"> Excision

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Hand Infections						
Early SET	<ul style="list-style-type: none"> Anatomy of hand spaces 	<ul style="list-style-type: none"> Interpret history and examination findings Recognise implications of deep space infections 	<ul style="list-style-type: none"> Employ use of microbiology, imaging and blood tests 	<ul style="list-style-type: none"> Discuss principles and indications of non-operative and operative management, including antibiotic rationale Plan aftercare including rehabilitation 		
Mid SET				<ul style="list-style-type: none"> Discuss procedural details of surgical management 	<ul style="list-style-type: none"> Incision and drainage of hand and finger spaces 	
Chronic leg ulcer/ pressure ulcers <i>See also Vascular Module</i>						
Early SET	<ul style="list-style-type: none"> Discuss pathogenesis and aetiological factors Describe arterial and venous anatomy of the leg 	<ul style="list-style-type: none"> Take a history and accurately interpret examination findings Perform, calculate and interpret Doppler assessment of ankle-brachial index 	<ul style="list-style-type: none"> Use and interpret investigations as indicated 	<ul style="list-style-type: none"> Discuss principles and indications of non-surgical and surgical management, including preventive measures Discuss procedural details of surgical management 		<ul style="list-style-type: none"> Wound debridement Split skin grafting
Late SET					<ul style="list-style-type: none"> Flap repair (as indicated) 	
High risk foot (diabetic/ neuropathic) <i>See also Vascular Module</i>						
Early SET	<ul style="list-style-type: none"> Anatomy of the foot Aetiological factors Microbiology: likely pathogens (where relevant) 	<ul style="list-style-type: none"> Take a history and accurately interpret examination findings 	<ul style="list-style-type: none"> Use and interpret investigations as indicated 	<ul style="list-style-type: none"> Discuss principles and indications of non-surgical and surgical management, including preventive measures 		<ul style="list-style-type: none"> Incision and drainage of suppuration
Mid SET				<ul style="list-style-type: none"> Discuss procedural details of surgical management Coordinate multi-disciplinary care 	<ul style="list-style-type: none"> Major limb amputations 	<ul style="list-style-type: none"> Wound debridement Local amputations
Pilonidal sinus/ abscess						
Early SET	<ul style="list-style-type: none"> Describe pathogenesis and aetiology 	<ul style="list-style-type: none"> Take a history and accurately interpret examination findings 	<ul style="list-style-type: none"> Employ medical imaging where appropriate 	<ul style="list-style-type: none"> Discuss principles and indications of non-surgical and surgical management, including preventive measures Discuss procedural details of surgical management Appraise the use of various wound care techniques including vacuum dressings 		<ul style="list-style-type: none"> Incision and drainage of abscess Excision and marsupialisation

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Pilonidal sinus/ abscess (continued)						
Mid SET					▪ Surgical management of Pilonidal sinus	▪ Excision and primary closure with or without a flap
Hyperhidrosis						
Early SET	<ul style="list-style-type: none"> ▪ Describe the normal physiology and histology of sweat glands ▪ Discuss the anatomy of the sympathetic nervous system ▪ Explain the pathophysiology of focal/generalised primary/secondary hyperhidrosis 	<ul style="list-style-type: none"> ▪ Obtain a focused history including with respect to location of sweating and possible causes of secondary hyperhidrosis 		<ul style="list-style-type: none"> ▪ Discuss the principles and indications of non-surgical and surgical management 		
Mid SET				<ul style="list-style-type: none"> ▪ Discuss the procedural details of surgical management including possible complications 	<ul style="list-style-type: none"> ▪ Endoscopic thoracic sympathectomy ▪ Lumbar sympathectomy 	
Carpal tunnel syndrome						
Early SET	<ul style="list-style-type: none"> ▪ Describe anatomy of hand and wrist, with particular reference to median nerve ▪ Define pathogenesis and contributing conditions 	<ul style="list-style-type: none"> ▪ Take a history and accurately interpret examination findings ▪ Differentiate between other diagnoses 	<ul style="list-style-type: none"> ▪ Order and interpret nerve conduction studies 	<ul style="list-style-type: none"> ▪ Discuss principles and indications of non-surgical and surgical management 		
Mid SET				<ul style="list-style-type: none"> ▪ Discuss procedural details of surgical management 		<ul style="list-style-type: none"> ▪ Carpal tunnel release
Other peripheral nerve entrapments						
Early SET	<ul style="list-style-type: none"> ▪ Discuss the regional anatomy of the ulnar nerve and lateral cutaneous nerve of the thigh, as well as their sensory and/or motor functions and points at which they may become entrapped 	<ul style="list-style-type: none"> ▪ Obtain a focused history of the condition ▪ Perform an examination of the sensory and motor functions of the relevant nerve 	<ul style="list-style-type: none"> ▪ Request nerve conduction or electromyographic studies where appropriate 	<ul style="list-style-type: none"> ▪ Discuss the options and indications for non-surgical and surgical management 		
Mid SET	<ul style="list-style-type: none"> ▪ Discuss the neuralgia post inguinal hernia repair 	<ul style="list-style-type: none"> ▪ Ilioinguinal nerve damage ▪ Genitofemoral nerve damage 		<ul style="list-style-type: none"> ▪ Outline the procedural details of surgical management, including possible complications 	<ul style="list-style-type: none"> ▪ Ulnar neurolysis ▪ Other neurolysis 	
Late SET					<ul style="list-style-type: none"> ▪ Exploration of Guyon's canal ▪ Decompressive surgery for pronator syndrome 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Peripheral nerve injuries						
Early SET	<ul style="list-style-type: none"> Discuss the regional anatomy, sensory and motor functions of peripheral nerves that are commonly injured Demonstrate understanding of the pathogenetic mechanisms and natural history of nerve injury 	<ul style="list-style-type: none"> Obtain a focused history, including the mechanism and circumstances of the injury Perform an examination of the sensory and motor functions of the relevant nerve 		<ul style="list-style-type: none"> Outline preventive measures for peripheral nerve injuries on the operating table Discuss the principles of primary nerve repair for acute injuries 		
Mid SET	<ul style="list-style-type: none"> Appreciate sites of potential iatrogenic nerve injury 				<ul style="list-style-type: none"> Acute primary nerve repair 	

MODULE TITLE:	SMALL BOWEL	7-Nov-2016
DEVELOPED BY:	Graham Cullingford, Alf Deacon, Sayed Hassen	
REVIEWED BY:	Arend Merrie, Elizabeth Dennett (2010). Nigel Barwood, Matthew Croxford, Elizabeth Dennett, John Hansen, Paul Hollington, Michael Warner, Christopher Young (2013). Andrew Moot, Michael Warner (2016).	
Module Rationale and Objectives	<p>A general surgeon is required to have a thorough understanding of normal anatomy and physiology, as well as pathophysiology, investigations, differential diagnosis and surgical and non-surgical management of small intestinal disorders. It is important that general surgeons maintain a current understanding of the most appropriate time and manner of intervention.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ Describe normal & abnormal anatomy of duodenum, jejunum, and ileum and their blood supply and lymphatic drainage ▪ describe common surgical pathologies of duodenum, jejunum, and ileum ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnose and manage pathological conditions that pertain to the duodenum, jejunum, and ileum including referral to other specialists where indicated ▪ select appropriate investigative tools ▪ adapt their skill in the context of each patient and each procedure ▪ identify and manage risk ▪ recognise the need to refer patients to other professionals ▪ convey bad news to patients in a way that conveys sensitivity to the patient's social, cultural and psychological needs ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology of:</p> <ul style="list-style-type: none"> ▪ peritoneal cavity ▪ small bowel – digestion and absorption; immune and endocrine functions; motility 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p> <p>Recommended reading:</p> <ol style="list-style-type: none"> (1) Core Topics in General & Emergency Surgery: A Companion to Specialist Surgical Practice (ISBN 9780702049644), 5th edition, by S. Paterson-Brown. (2) Colorectal Surgery: A Companion to Specialist Surgical Practice (ISBN-13: 9780702049651), 5th edition by R.K.S. Phillips & S Clark. 	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Assumed Knowledge	<ul style="list-style-type: none"> ▪ Anatomy and embryology of the small intestine ▪ Functional physiology of the small intestine 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Small bowel obstruction (SBO)						
Early SET	<ul style="list-style-type: none"> Describe the embryology and anatomy of the small bowel Discuss the aetiologies Describe the pathophysiological changes associated with SBO Recognise and describe complications 	<ul style="list-style-type: none"> Assess and differentiate the clinical symptoms and signs Differentiate the signs of strangulation 	<ul style="list-style-type: none"> Define the role of laboratory investigations and medical imaging of SBO 	<ul style="list-style-type: none"> Review the indications and principles of non-operative management Define the indications for operative management Management of acute postoperative obstruction 		
Mid SET	<ul style="list-style-type: none"> Explain the anatomy of internal herniation 	<ul style="list-style-type: none"> Diagnose acute postoperative obstruction vs. ileus 	<ul style="list-style-type: none"> Discuss the role of investigations to distinguish post-operative ileus from obstruction 	<ul style="list-style-type: none"> Define the indications for resection Role of second look laparotomy When to defunction Management of recurrent SBO Management of SBO in the patient with advanced malignancy 	<ul style="list-style-type: none"> Laparoscopy for SBO 	<ul style="list-style-type: none"> Laparotomy Division of adhesions Bowel resection/ bypass
Intussusception						
Early SET	<ul style="list-style-type: none"> Discuss the aetiologies Describe the pathophysiology 			<ul style="list-style-type: none"> Management of Intussusception 		
Mid SET						<ul style="list-style-type: none"> Small bowel resection
"Foreign bodies" in the GI tract						
Early SET	<ul style="list-style-type: none"> Describe classification 	<ul style="list-style-type: none"> Define symptoms and signs and potential complications 	<ul style="list-style-type: none"> Radiology Endoscopy 			
Mid SET				<ul style="list-style-type: none"> Define indications for surgical intervention Management of foreign bodies Gallstone ileus 		<ul style="list-style-type: none"> Enterotomy and closure
Duodenal adenoma and carcinoma						
Early SET	<ul style="list-style-type: none"> Discuss the anatomy of the duodenum 	<ul style="list-style-type: none"> Discuss presentation 				
Mid SET	<ul style="list-style-type: none"> Discuss the natural history of duodenal carcinoma 		<ul style="list-style-type: none"> Discuss and interpret modalities for diagnosis and staging 	<ul style="list-style-type: none"> Discuss the surgical options for treatment 		
Late SET					<ul style="list-style-type: none"> Endoscopic duodenal stenting Surgical resection 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Duodenal diverticula						
Mid SET	<ul style="list-style-type: none"> Discuss the anatomy and complications 			<ul style="list-style-type: none"> Discuss the potential complications 	<ul style="list-style-type: none"> Duodenal diverticulectomy 	
Duodenal obstruction						
Early SET	<ul style="list-style-type: none"> Discuss the anatomy and embryology of the duodenum Discuss the aetiologies Discuss the pathophysiology 			<ul style="list-style-type: none"> Discuss the aetiology and management of electrolytic imbalance 		
Mid SET						<ul style="list-style-type: none"> Open gastrojejunostomy Duodeno-jejunostomy
Late SET					<ul style="list-style-type: none"> Laparoscopic gastrojejunostomy 	
Small bowel ischaemia						
<ul style="list-style-type: none"> acute chronic <i>See also Vascular Module</i>						
Early SET	<ul style="list-style-type: none"> Discuss the aetiologies Discuss the pathophysiology 	<ul style="list-style-type: none"> Assess clinical symptoms and signs 	<ul style="list-style-type: none"> Discuss and define role of medical imaging, lab investigations, enteroscopy / capsule endoscopy 			
Mid SET				<ul style="list-style-type: none"> Discuss management of both acute and chronic Multidisciplinary management of autoimmune SB arteritis Describe specific therapies 	<ul style="list-style-type: none"> Revascularisation Embolectomy 	<ul style="list-style-type: none"> Resection
Small bowel neoplasia/tumours						
Early SET	<ul style="list-style-type: none"> List the types and describe presentation 	<ul style="list-style-type: none"> Assess the clinical symptoms and signs 				
Mid SET			<ul style="list-style-type: none"> Define the role and interpretation of endoscopy and imaging 	<ul style="list-style-type: none"> Describe the principles of tumour assessment and treatment Role of diagnostic/therapeutic laparoscopy Multidisciplinary management Describe specific therapies 		<ul style="list-style-type: none"> Diagnostic laparoscopy Bowel resection/ bypass Mesenteric nodal resection
Late SET					<ul style="list-style-type: none"> Laparoscopic therapy 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Small bowel bleeding						
Early SET	<ul style="list-style-type: none"> Describe the aetiology and pathology 	<ul style="list-style-type: none"> Recognise the clinical presentations Demonstrate the ability to assess the patient with a massive bleed 		<ul style="list-style-type: none"> Design a plan of investigation and subsequent treatment for occult bleeding Discuss treatment for massive GI bleed, including a thorough knowledge of transfusion requirements and assessment of haemodynamic stability 		
Mid SET			<ul style="list-style-type: none"> Define the role and interpretation of endoscopy and imaging 	<ul style="list-style-type: none"> Understand the role of endovascular management 		<ul style="list-style-type: none"> Bowel resection
Late SET					<ul style="list-style-type: none"> On table enteroscopy 	
Meckel's diverticulum						
Early SET	<ul style="list-style-type: none"> Describe abnormality including the embryology and anatomy 	<ul style="list-style-type: none"> Recognise the different clinical presentations 	<ul style="list-style-type: none"> Define the role of medical imaging 	<ul style="list-style-type: none"> Discuss the role and techniques of resection Discuss the assessment and management of the incidental finding of a Meckel's diverticulum 		
Mid SET						<ul style="list-style-type: none"> Meckel's diverticulectomy Small bowel resection
Late SET					<ul style="list-style-type: none"> Laparoscopic Meckel's diverticulectomy 	
Small bowel fistula						
Early SET	<ul style="list-style-type: none"> Define the pathological abnormalities Describe the physiological effects of an enteric fistula at different levels 	<ul style="list-style-type: none"> Assess the clinical presentation 	<ul style="list-style-type: none"> Establish the role of medical imaging and laboratory investigations 	<ul style="list-style-type: none"> Describe the principles of management including: <ul style="list-style-type: none"> resuscitation fluid and electrolyte management nutrition sepsis control skin control 		
Mid SET				<ul style="list-style-type: none"> Timing of surgery Surgical options 	<ul style="list-style-type: none"> Management of open abdomen 	<ul style="list-style-type: none"> Small bowel resection Defunctioning Jejunostomy/Ileostomy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Inflammatory conditions of the small bowel <i>See also Colorectal Module</i>						
Early SET	<ul style="list-style-type: none"> Describe the pathology of inflammatory conditions of the small bowel 	<ul style="list-style-type: none"> Recognise and differentiate inflammatory bowel disease affecting the small intestine Be aware of possible differential diagnosis for small bowel Crohn's disease Recognise complications of IBD 	<ul style="list-style-type: none"> Define the role and interpretation of endoscopy and imaging 	<ul style="list-style-type: none"> Principles of medical management Discuss nutritional support Indications for surgical intervention 		
Mid SET				<ul style="list-style-type: none"> When to defunction 	<ul style="list-style-type: none"> Laparoscopic ileocolic resection 	<ul style="list-style-type: none"> Small bowel resection Ileocolic resection
Late SET					<ul style="list-style-type: none"> Laparoscopic assisted small bowel resection Strictureoplasty 	
Infectious disorders of the small bowel						
Early SET	<ul style="list-style-type: none"> Describe the microbiology, pathophysiology and pathology 	<ul style="list-style-type: none"> Differentiate infectious disorders from inflammatory conditions 	<ul style="list-style-type: none"> Role of laboratory investigations 	<ul style="list-style-type: none"> Principles of multidisciplinary management 		
Mid SET		<ul style="list-style-type: none"> Recognise complications requiring surgical intervention 				<ul style="list-style-type: none"> Small bowel resection
Diverticulosis of the small intestine						
Early SET	<ul style="list-style-type: none"> Describe the aetiology Describe complications 	<ul style="list-style-type: none"> Recognise significance of diverticulosis in clinical presentation Recognise the clinical features of malabsorption syndromes 	<ul style="list-style-type: none"> Define the role and interpretation of endoscopy and imaging 	<ul style="list-style-type: none"> Indications for surgical intervention 		
Mid SET						<ul style="list-style-type: none"> Small bowel resection Diverticulectomy
Intestinal failure (including post Bariatric bypass) <i>See also Sepsis Module (Nutrition)</i>						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of the gastrointestinal tract Describe the functions of the small intestine Understand the causes and classification of intestinal failure Complications of long-term TPN 	<ul style="list-style-type: none"> Identify the symptoms and signs 	<ul style="list-style-type: none"> Outline the basic routine and the essential tests to establish a diagnosis Interpret the investigations 	<ul style="list-style-type: none"> Outline the methods of management Understand the principles of nutritional support - enteral & parenteral 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Intestinal failure (including post Bariatric bypass) (continued)						
Mid SET				<ul style="list-style-type: none"> ▪ Discuss the role of enzymatic replacement therapy ▪ Indications and contraindications for small bowel transplantation 		<ul style="list-style-type: none"> ▪ Insertion of a tunnelled central venous line for long-term TPN
Malabsorption syndromes						
Early SET	<ul style="list-style-type: none"> ▪ Describe pathologies causing malabsorption 	<ul style="list-style-type: none"> ▪ Nutritional assessment and clinical syndromes 	<ul style="list-style-type: none"> ▪ Laboratory ▪ Radiological ▪ Gastroenterological investigations 	<ul style="list-style-type: none"> ▪ Nutritional and metabolic support ▪ Pharmacological management ▪ Antibiotic management 		
Radiation enteritis						
Early SET	<ul style="list-style-type: none"> ▪ Define the range of acute and chronic pathologies that follow radiation therapy 	<ul style="list-style-type: none"> ▪ Discuss clinical presentation and complications 	<ul style="list-style-type: none"> ▪ Outline the basic routine and the essential tests to establish a diagnosis 	<ul style="list-style-type: none"> ▪ Discuss nutritional support 		
Mid SET				<ul style="list-style-type: none"> ▪ Discuss indications for surgical intervention 		
Small bowel trauma						
<i>See Trauma Module</i>						
Other small bowel problems including functional bowel disease and slow transit						
Early SET	<ul style="list-style-type: none"> ▪ Describe slow transit 		<ul style="list-style-type: none"> ▪ Transit studies 	<ul style="list-style-type: none"> ▪ Outline the pharmacological, dietary and psychological options in management 		

MODULE TITLE:	SURGICAL ONCOLOGY	7-Nov-2016
DEVELOPED BY:	Bruce Mann, Meron Pitcher, Chris Pyke	
REVIEWED BY:	Jeremy Tan, Alan Saunder (2010) Michael Donovan, Senarath Edirimanne, Brian Kirkby, Chris Pyke (2013). Richard Bryant, Satish Warriar (2016).	
Module Rationale and Objectives	<p>A general surgeon is required to have a thorough understanding of surgical oncology. It is important that general surgeons maintain a current understanding of the most appropriate timing and manner of intervention. The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of melanoma and soft tissue sarcoma ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnose and manage pathological conditions that pertain to surgical oncology including referral to other specialists where indicated ▪ select appropriate investigative tools ▪ adapt their skill in the context of each patient and each procedure ▪ identify and manage risk ▪ recognise the need to refer patients to other professionals ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the general principles of various aspects of cancer management, including:</p> <ul style="list-style-type: none"> ▪ cancer screening ▪ cancer diagnosis ▪ cancer staging ▪ multidisciplinary care ▪ adjuvant therapies ▪ cancer follow-up ▪ palliative care 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable. Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Fundamentals of cancer biology						
Early SET	<ul style="list-style-type: none"> Describe aetiology and epidemiology Describe mechanisms of metastasis 	<ul style="list-style-type: none"> Understand local versus systemic manifestations of malignant disease 	<ul style="list-style-type: none"> Appreciate order of investigations to diagnose malignant disease 	<ul style="list-style-type: none"> Appreciate principles of treatment modalities for cancer 		
Principles of screening for malignancy						
Early SET	<ul style="list-style-type: none"> Issues in population screening, including bias Principles of ethical screening 	<ul style="list-style-type: none"> Discuss screening results with patients/families 	<ul style="list-style-type: none"> Describe subsequent pathology of investigation following screening 	<ul style="list-style-type: none"> Interpretation of results: <ul style="list-style-type: none"> false positives false negatives 		
Mid SET	<ul style="list-style-type: none"> Know current screening programs and data supporting their use 					
Familial cancer syndromes including:						
<ul style="list-style-type: none"> FAP HNPCC BRCA1,2 Li Fraumeni Neurofibromatosis MEN syndrome 						
Mid SET	<ul style="list-style-type: none"> Understand molecular basis 	<ul style="list-style-type: none"> Ability to take a family history Recognise possible familial cancer syndromes 		<ul style="list-style-type: none"> Principles of genetic counselling and testing Principles of risk management 		
Late SET				<ul style="list-style-type: none"> Indications for preventive surgery 		
Carcinoma including breast, colon, oesophageal, gastric, pancreatic, skin, thyroid						
<i>See also individual Modules - tumours</i>						
Early SET	<ul style="list-style-type: none"> Understanding the molecular biology of the tumour 		<ul style="list-style-type: none"> Understand requirements of standardised histology reporting 	<ul style="list-style-type: none"> Understanding intent of treatment and terminology 		
Mid SET		<ul style="list-style-type: none"> Discuss clinical staging 	<ul style="list-style-type: none"> Discuss appropriate imaging investigations to enhance staging 	<ul style="list-style-type: none"> Immunotherapy Systemic chemotherapy Regional chemotherapy Radiotherapy Vaccine options and delivery thereof Biological therapy Intent of therapy – downstaging vs neoadjuvant vs adjuvant vs definitive vs palliative 	<ul style="list-style-type: none"> Regional lymphadenectomy 	<ul style="list-style-type: none"> Regional nodes

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Carcinoma including breast, colon, oesophageal, gastric, pancreatic, skin, thyroid (continued)						
<i>See also individual Modules - tumours</i>						
Mid SET (continued)				<ul style="list-style-type: none"> Understand options for curative intent treatment for metastatic disease 		
Late SET					<ul style="list-style-type: none"> Define adequate oncologic resection 	
Melanoma						
Early SET	<ul style="list-style-type: none"> Describe pathology of premalignant lesions Understand and describe Clarke's levels and Breslow's thickness 	<ul style="list-style-type: none"> Describe clinical features of premalignant lesions Describe clinical features of malignant melanoma 				
Mid SET			<ul style="list-style-type: none"> Role of imaging and biopsy options 	<ul style="list-style-type: none"> Principles of multidisciplinary management Follow-up of melanoma patients Understand the rationales for systemic therapy Principles of management of local, regional and distant recurrence 	<ul style="list-style-type: none"> Regional node dissection 	<ul style="list-style-type: none"> Appropriate resection +/- skin grafting Sentinel node biopsy
Late SET					<ul style="list-style-type: none"> Isolated limb infusion/perfusion 	
Sarcoma						
Early SET	<ul style="list-style-type: none"> Describe aetiology 	<ul style="list-style-type: none"> Appropriate history and examination Differential diagnosis of soft tissue tumours 				
Mid SET			<ul style="list-style-type: none"> Imaging Staging Principles of biopsy 	<ul style="list-style-type: none"> Multidisciplinary management Recognise possibility of Soft Tissue Sarcoma (STS) Formulating a plan for diagnosis and treatment Principles of limb preservation 		
Late SET					<ul style="list-style-type: none"> Limb sacrifice and reconstruction 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Sarcoma – Retroperitoneal <i>See also Endocrine Module - Adrenal</i>						
Early SET	<ul style="list-style-type: none"> Understand the regional anatomy of the retroperitoneum Understand the pathology and natural history of benign, borderline and malignant primary tumours of the retroperitoneum Understand the pathology of tumours which metastasise to the retroperitoneum Molecular biology of tumours including the role of molecular targeted therapy 	<ul style="list-style-type: none"> Appropriate history and examination 	<ul style="list-style-type: none"> Role of imaging and biopsy options and tests to exclude non-sarcoma Role of imaging 	<ul style="list-style-type: none"> Multidisciplinary management Understand the role of radiotherapy 	<ul style="list-style-type: none"> Radical resection of retroperitoneum Reconstruction 	
Metastatic disease of unknown primary						
Early SET	<ul style="list-style-type: none"> Knowledge of mode of spread and likely anatomical distribution of metastases of various primary tumours Immunohistochemistry differentiation 	<ul style="list-style-type: none"> Understanding of probability of potential primary sites based on location of metastases and patient symptomatology 	<ul style="list-style-type: none"> Understanding of order of investigations and diagnostic yield of investigations to elucidate primary site 	<ul style="list-style-type: none"> Principles of active treatment versus palliative intent Role of palliative resection/surgery 		
Mid SET				<ul style="list-style-type: none"> Role of systemic therapy Principles of disease monitoring 		<ul style="list-style-type: none"> Open biopsy
Lymphatic malignancies						
Early SET	<ul style="list-style-type: none"> Describe anatomy of lymphatic basins and related structures Understanding of the broad categorisation of lymphoma 	<ul style="list-style-type: none"> Differential diagnosis of lymphadenopathy 	<ul style="list-style-type: none"> Role of FNA/ core/ excisional biopsy 	<ul style="list-style-type: none"> Multidisciplinary care 		<ul style="list-style-type: none"> Lymph node excision and specimen handling
Mid SET					<ul style="list-style-type: none"> Laparoscopic biopsy 	
Vascular access <i>See also Vascular Module</i>						
Early SET	<ul style="list-style-type: none"> Describe anatomy of subclavian and jugular veins 			<ul style="list-style-type: none"> Recognise choice of most appropriate site Recognise risks and complications Describe options for long-term vascular access 		<ul style="list-style-type: none"> Removal of above devices

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Vascular access (continued) <i>See also Vascular Module</i>						
Mid SET						<ul style="list-style-type: none"> ▪ Insertion of subcutaneous venous access port/ Hickman catheter (open and percutaneous) ▪ Management of complications
Malignant ascites/ pleural effusions <ul style="list-style-type: none"> ▪ Peritoneal malignancy ▪ Pseudomyxoma ▪ Mesothelioma 						
Early SET	<ul style="list-style-type: none"> ▪ Describe pathophysiology of ascites and effusions 	<ul style="list-style-type: none"> ▪ Appropriate history and the examination 	<ul style="list-style-type: none"> ▪ Review the clinical tests, laboratory tests, and medical imaging techniques 	<ul style="list-style-type: none"> ▪ Management of unexpected operative finds ▪ Indications for surgery ▪ Palliation for malignant ascites/pleural effusion 		
Mid SET				<ul style="list-style-type: none"> ▪ Role of hyperthermic intraperitoneal chemotherapy 	<ul style="list-style-type: none"> ▪ Denver shunt 	
Late SET				<ul style="list-style-type: none"> ▪ Multidisciplinary care adhering to current guidelines 		
Principles of adjuvant therapy for malignant disease <i>See also individual Modules</i>						
Principles of follow-up for malignant disease <i>See also individual Modules</i>						
Early SET	<ul style="list-style-type: none"> ▪ Describe general principles that are common to the management of various solid tumours ▪ Describe specific issues with common cancers 					
Multidisciplinary care <i>See also individual Modules</i>						
Early SET		<ul style="list-style-type: none"> ▪ Appropriate history and the examination ▪ Recognise the psychosocial impact 		<ul style="list-style-type: none"> ▪ Understand how to break bad news 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Multidisciplinary care (continued)						
Mid SET				<ul style="list-style-type: none"> ▪ Timing and sequence of treatment ▪ Coordination of treatment and follow-up ▪ Consensus and conflict resolution ▪ Communication in a team and sequential follow-up 		
Palliative care and pain management						
Early SET	<ul style="list-style-type: none"> ▪ Describe pathophysiology of pain ▪ Illustrate pain pathways 	<ul style="list-style-type: none"> ▪ Appropriate history and the examination 		<ul style="list-style-type: none"> ▪ Formulate a step-wise progression of techniques for pain management and nausea management ▪ Pressure care ▪ Nutrition ▪ Psychological/pastoral ▪ End-of-life decision making/advanced health directives 		

MODULE TITLE:	TRANSPLANTATION	7-Nov-2016
DEVELOPED BY:	Daryl Wall, Tom Wilson	
REVIEWED BY:	Alan Saunder (2010) Michael Fink, Alan Saunder, Kellee Slater, Tom Wilson (2013). Kellee Slater (2016).	
Module Rationale and Objectives	<p>A general surgeon is expected to have an understanding of the anatomy, physiology, pathophysiology, investigations and differential diagnosis of organ failure. The surgeon should maintain a current understanding of indications for the provision of and the procedures of organ transplantation to overcome organ failure (in particular, liver, kidney, pancreas and small bowel). The general surgeon should be aware of the implications for management of patients with organ failure presenting with general surgical conditions. The general surgeon should be capable of participating in multi-organ donation. The general surgeon should also be prepared for and capable of caring for the characteristic complications of organ transplantation that includes serious sepsis and malignancy.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe the causes, risk factors for, and effects of organ failure ▪ identify and recognise the symptoms and signs of the diseases that lead to organ failure and of the development of organ failure ▪ describe and select appropriate investigations, diagnostic strategies and describe the diagnostic tests that may be required ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnose and manage pathological conditions that lead to liver failure, renal failure, diabetes and intestinal failure and be able to provide management, advice and referral for transplantation where indicated ▪ advise on the appropriate investigative procedures ▪ remain current with respect to the care of the patient with incipient or established organ failure ▪ refer patient for consultation with appropriate other professions 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology of the kidney liver, small bowel and pancreas.</p> <p>Trainees should know the pathological processes that lead to:</p> <ul style="list-style-type: none"> ▪ liver failure ▪ renal failure ▪ intestinal failure ▪ diabetes mellitus 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, the following text is recommended:</p> <p>(1) Transplantation Surgery: Companion to Specialist Surgical Practice (ISBN 9780702021466), 7th edition, by J.L. Forsythe.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p> <p>SET trainees should seek all opportunities open to them, to attend multi-organ procurements. The anatomical exposure is a valuable experience.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Renal failure						
<ul style="list-style-type: none"> ▪ acute ▪ chronic 						
Early SET	<ul style="list-style-type: none"> ▪ Describe the anatomy of the kidney and urinary tract ▪ Describe the function of the kidney ▪ Describe the causes and prevention of renal failure 	<ul style="list-style-type: none"> ▪ Identify the symptoms and signs: <ul style="list-style-type: none"> - acute - chronic 	<ul style="list-style-type: none"> ▪ Outline the basic routine and the essential tests to identify: <ul style="list-style-type: none"> - cause - effects - associated diseases ▪ Interpret the investigations 	<ul style="list-style-type: none"> ▪ Outline the methods of management: <ul style="list-style-type: none"> - acute - chronic ▪ Outline the requirements for consent for both donor and recipient procedures 	<ul style="list-style-type: none"> ▪ Placement of venous dialysis catheter 	
Mid SET	<ul style="list-style-type: none"> ▪ Review the implications of operating on patients with renal failure 			<ul style="list-style-type: none"> ▪ Vascular access and peritoneal dialysis: <ul style="list-style-type: none"> - indications - contraindications - procedural requirements - complications ▪ Outline the contraindications to renal transplantation ▪ Evaluate the options for kidney donation ▪ Outline the management of general surgical problems presenting in patients with renal failure (including referral to appropriate specialists) 	<ul style="list-style-type: none"> ▪ Placement of peritoneal dialysis catheter 	
Late SET					<ul style="list-style-type: none"> ▪ Multi-organ donation ▪ Living donor ▪ Kidney donation: <ul style="list-style-type: none"> - laparoscopic - open ▪ Renal transplantation ▪ AV fistula and management of complications; See also Vascular Module 	
Acute rejection following renal transplantation						
Early SET	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - immunology of HLA matching - cytotoxic cross match - immunosuppression - process of rejection 	<ul style="list-style-type: none"> ▪ Identify the symptoms and signs 	<ul style="list-style-type: none"> ▪ Identify the essential tests to identify the rejection episode 			
Mid SET					<ul style="list-style-type: none"> ▪ Renal biopsy and complications ▪ Transplant nephrectomy 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Tertiary hyperpara-thyroidism						
<i>See also Endocrine Module</i>						
Early SET	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - onset of hyperpara-thyroidism in renal failure - consequences 	<ul style="list-style-type: none"> ▪ Identify the symptoms and signs 	<ul style="list-style-type: none"> ▪ Outline the essential tests to prove the nature of the hyperpara-thyroidism 	<ul style="list-style-type: none"> ▪ Identify: <ul style="list-style-type: none"> - indications - contraindications - complications of parathyroidectomy 		
Mid SET		<ul style="list-style-type: none"> ▪ Describe the prevention of hyperpara-thyroidism 		<ul style="list-style-type: none"> ▪ Describe the influence of renal transplantation on the presence of hyperpara-thyroidism 	<ul style="list-style-type: none"> ▪ Parathyroidectomy associated with renal failure 	
Late SET					<ul style="list-style-type: none"> ▪ Outline: <ul style="list-style-type: none"> - success rate - follow-up of parathyroidectomy in renal failure - procedure of parathyroid transplantation 	
Brain death/ Donation after cardiac death (DCD)						
Early SET	<ul style="list-style-type: none"> ▪ Describe the likely sequences that lead to the development of brain death 	<ul style="list-style-type: none"> ▪ Identify the criteria for brain death and how these criteria are completed 	<ul style="list-style-type: none"> ▪ Identify the essential tests to evaluate relevant organ function ▪ Identify tests that are required to ensure that transplanting of the organ will not place the recipient at risk 			
Late SET					<ul style="list-style-type: none"> ▪ Operation of multi-organ donation 	
Malignancy in transplantation						
Early SET	<ul style="list-style-type: none"> ▪ Describe the underlying disorders that predispose transplant recipients to multiple malignancies 	<ul style="list-style-type: none"> ▪ Identify the symptoms and signs ▪ Recommend appropriate screening 	<ul style="list-style-type: none"> ▪ Outline the appropriate screening tests to identify likely malignancies in transplant recipients 			
Mid SET				<ul style="list-style-type: none"> ▪ Outline the appropriate management of the common malignancies associated with transplantation ▪ Describe procedures that may be carried out by general surgeons caring for transplant recipients 		
Late SET					<ul style="list-style-type: none"> ▪ Identify procedures that could require a referral for specialist support 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Liver failure						
<ul style="list-style-type: none"> ▪ acute ▪ chronic 						
Early SET	<ul style="list-style-type: none"> ▪ Describe the anatomy of the liver and biliary tract ▪ Describe the functions of the liver ▪ Describe the causes and prevention of liver failure ▪ Describe the pathophysiology of ascites and portal hypertension 	<ul style="list-style-type: none"> ▪ Identify the symptoms and signs <ul style="list-style-type: none"> - acute - chronic 	<ul style="list-style-type: none"> ▪ Outline the routine investigations of causes and status of liver failure 	<ul style="list-style-type: none"> ▪ Outline the management of: <ul style="list-style-type: none"> - chronic liver failure - ascites - portal hypertension 		<ul style="list-style-type: none"> ▪ Abdominal paracentesis
Mid SET				<ul style="list-style-type: none"> ▪ Outline the indications for liver transplantation ▪ Outline the management of general surgical problems presenting in patients with liver failure (including referral to appropriate specialists) 	<ul style="list-style-type: none"> ▪ Upper GI endoscopy and interventions for bleeding 	<ul style="list-style-type: none"> ▪ Laparoscopic assessment of the liver, including ultrasound
Late SET					<ul style="list-style-type: none"> ▪ Interventions for portal hypertension ▪ Surgical procedure of liver transplantation 	
Pancreatic endocrine failure						
Early SET	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - anatomy - functions of islets of Langerhans - causes and prevention of diabetes mellitus 	<ul style="list-style-type: none"> ▪ Identify the symptoms and signs of diabetes mellitus and its end organ complications 	<ul style="list-style-type: none"> ▪ Outline: <ul style="list-style-type: none"> - basic routine and essential tests to identify the cause of diabetes mellitus - long-term effects of insulin dependent diabetes mellitus ▪ Interpret the investigations 			
Mid SET				<ul style="list-style-type: none"> ▪ Outline the methods of management: <ul style="list-style-type: none"> - advanced complications - renal failure ▪ Indications and contraindications for pancreas transplantation 		
Late SET					<ul style="list-style-type: none"> ▪ Multi-organ donation 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Short bowel syndrome						
<i>See also Small Bowel Module</i>						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of the gastrointestinal tract Describe the functions of the small intestine List the causes of short bowel syndrome 	<ul style="list-style-type: none"> Identify the symptoms and signs 	<ul style="list-style-type: none"> Outline the basic routine and the essential tests to establish a diagnosis Interpret the investigations 			
Mid SET				<ul style="list-style-type: none"> Outline the methods of management Discuss nutritional support Discuss the role of enzymatic replacement therapy Indications and contraindications for small bowel transplantation 	<ul style="list-style-type: none"> Insertion of a Hickman line for long-term TPN 	
Late SET					<ul style="list-style-type: none"> Multi-organ donation 	
Operating on the immunosuppressed/ post transplantation patient						
Early SET	<ul style="list-style-type: none"> Describe processes of immuno-compromise in transplant recipients 					
Mid SET			<ul style="list-style-type: none"> Outline pre-operative preparation for operations on transplants recipients 	<ul style="list-style-type: none"> Outline principles of management in operations on immuno-compromised patients 		

MODULE TITLE:	TRAUMA	7-Nov-2016
DEVELOPED BY:	Zsolt Balogh, Peter Danne, Daryl Wall, Graeme Campbell, Philip Truskett (reviewed and commented by Frank Plani)	
REVIEWED BY:	Alan Saunder (2010) Ian Campbell, Li Hsee, Michael Rodgers, Emma Secomb, Graham Stewart (2013). Priscilla Martin, Richard Turner (2016).	
Module Rationale and Objectives	<p>The general surgeon is an integral part of the Trauma Team. By their very nature, these patients require attention from a competent and confident practitioner. It is therefore imperative that during training all trainees have sufficient knowledge and experience to be able to fulfil this role.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ understand the mechanisms of injury and the patterns of injury that may result from both blunt and penetrating trauma, ▪ describe common surgical pathologies that will result from trauma ▪ describe the pathophysiology of shock, acute brain injury, respiratory failure, sepsis, renal failure, multi organ failure, and burns ▪ identify appropriate treatment options, and their indications and contraindications ▪ participate in a trauma team including team leader role ▪ safely and effectively assess and resuscitate the injured patient ▪ implement the principles of EMST/ATLS, CCrISP, and DSTC ▪ effectively manage the care of patients with trauma, including multiple system trauma ▪ identify and manage risk in an environment of complexity and uncertainty ▪ appropriately adjust the way they communicate with patients to accommodate cultural and linguistic differences ▪ work in collaboration with members of an interdisciplinary team where appropriate ▪ recognise the need to refer patients to other professionals ▪ understand the need for early initiation of rehabilitation ▪ effectively use resources to balance patient care and systemic demands ▪ in acute circumstances, the consenting process may require conforming to state legislation ▪ communication and collaboration with other surgical specialties ▪ clear understanding of the potential disaster, humanitarian and military responsibilities of general surgeons ▪ disaster planning ▪ epidemiology and prevention ▪ trauma quality improvement, benchmarking and audit ▪ trauma systems and resources allocation 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology, of:</p> <ul style="list-style-type: none"> ▪ head and neck ▪ spine ▪ limbs ▪ thorax ▪ abdomen ▪ pelvis 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, the following texts are recommended:</p> <p>(1) Trauma (ISBN 9780071717847), 7th edition, by D. Feliciano, K. Mattox, and E. Moore.</p> <p>(2) Anatomic Exposures in Vascular Surgery (ISBN 9780781741019), 2nd edition, by R.J. Valentine and G.G. Wind.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles including the Journal of Trauma and Injury, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>Trainees will have completed the requirements of the EMST program. Participation in the EMST Refresher course will be encouraged.</p> <p>It is recommended that trainees participate in the Definitive Surgical Trauma Care (DSTC) Course, which is available in most regions and New Zealand. The course is available for Trainees in the last two (2) years of training.</p> <p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Assumed Knowledge	<ul style="list-style-type: none"> ▪ Trainees should have a good understanding of relevant regional surgical anatomy ▪ Understand the basic patterns of various type of trauma ▪ Resource availability in multi-system injured patients 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Initial trauma management: Resuscitative phase - ED						
Early SET	<ul style="list-style-type: none"> Recognition/ anticipation of immediately and potentially life threatening situations based on injury mechanism, anatomical location and patient physiology 	<ul style="list-style-type: none"> Primary and Secondary survey according to EMST 	<ul style="list-style-type: none"> Define the role of imaging and laboratory investigations 	<ul style="list-style-type: none"> Implementation of EMST principles of initial management and stabilisation of major trauma patients Coordination of care with other specialties and disciplines Interaction with patients and family members: Communication/ Counselling 	<ul style="list-style-type: none"> Basic airway management techniques DPL principles FAST Principles of damage control laparotomy Laparostomy 	<ul style="list-style-type: none"> Vascular access Central venous access Intra osseous puncture and access Intercostal catheter Splinting of extremities Control of external haemorrhage Pelvic binding (stabilisation) Cricothyroidotomy Nasopharyngeal packing Clear cervical spine appropriately
Mid SET		<ul style="list-style-type: none"> Triage in multiple casualties 		<ul style="list-style-type: none"> Leadership of trauma team Ability to triage trauma patients presenting simultaneously Decision on transport and definitive treatment priorities Indications and initiation of massive transfusion protocol Indications of angioembolisation Principle of damage control resuscitation and surgery 	<ul style="list-style-type: none"> Emergency thoracotomy 	<ul style="list-style-type: none"> FAST Damage control laparotomy Laparostomy
Late SET				<ul style="list-style-type: none"> Triage training Disaster management Overwhelming injury policies 	<ul style="list-style-type: none"> Retroperitoneal exposure (great vessels) 	<ul style="list-style-type: none"> Emergency thoracotomy
Ongoing ICU management: Definitive care phase						
Early SET	<ul style="list-style-type: none"> Definition and pathophysiology of traumatic shock, ischaemia reperfusion injury, post injury SIRS, sepsis and MOF, nutrition, compartment syndromes, burn care 	<ul style="list-style-type: none"> Perform Tertiary survey Ability to perform focused assessment of the organ systems based on clinical examination, vital parameters, laboratory data and the required level of organ support 	<ul style="list-style-type: none"> Interpretation of daily routine chest x-ray Ability to indicate and interpret focused imaging required based on clinical assessment Interpret compartment pressure measurements and know the indications for treatment 	<ul style="list-style-type: none"> Formulate a coordinated management plan based on clinical assessment Attention to prevention of common post injury complications 		<ul style="list-style-type: none"> Compartment pressure measurement

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Ongoing ICU management: Definitive care phase (continued)						
Mid SET				<ul style="list-style-type: none"> Leadership role in multidisciplinary team of specialists and prioritise management based on the need of the trauma patient Understand management of SIRS and MOF Understanding the ICU principles of second day resuscitation – optimisation of haemodynamics, core rewarming, correction of coagulopathy 	<ul style="list-style-type: none"> Enteral feeding access 	<ul style="list-style-type: none"> Laparostomy (open abdomen) and its management Tracheo(s)tomy Limb fasciotomy
Late SET						<ul style="list-style-type: none"> Staged abdominal closure
Daily ward management: Definitive care phase ward and rehabilitation						
Early SET		<ul style="list-style-type: none"> Ability to perform daily focused assessment for the management of post injury/postoperative patients Recognise the need for other specialty involvement Ability to perform comprehensive tertiary survey 	<ul style="list-style-type: none"> Daily examinations based on the patient condition 	<ul style="list-style-type: none"> Comprehensive discharge planning including rehabilitation and follow up Attention to prevention of common post-injury complications Recognition of minor injuries resulting in significant impairment if left untreated 		<ul style="list-style-type: none"> Principles of wound/drain care
Mid SET				<ul style="list-style-type: none"> Coordinate multi-disciplinary treating team Nutritional management post-injury 		<ul style="list-style-type: none"> Tracheo(s)tomy care
Skin/Soft Tissues						
Early SET	<ul style="list-style-type: none"> Wound healing Pathophysiology of necrosis/ischaemia Pathophysiology of burns 	<ul style="list-style-type: none"> Assessment and description of wounds Body cavity penetration Distal neuro-vascular assessment Viability assessment of soft tissues Burn assessment Fluid resuscitation in severe burn patients Inhalation injuries 	<ul style="list-style-type: none"> Relevant investigations for foreign bodies and body cavity penetration; See also abdomen, chest Investigation for injury to deeper neurovascular, aerodigestive, bone and joint structures 	<ul style="list-style-type: none"> Management priorities of acute traumatic wounds depending on mechanism, location and contamination Initial management principles of severe burns Anticipation and recognition of wound complications 	<ul style="list-style-type: none"> Surgical airway 	<ul style="list-style-type: none"> Wound exploration Wound debridement Foreign body removal (use of image intensifier) Wound closure or open management based on the nature of the soft tissue injury Split skin grafting VACC therapy applications and limitations

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Skin/Soft Tissues (continued)						
Mid SET				<ul style="list-style-type: none"> Advanced soft tissue management decisions: identifying the need for specialist involvement Wound management in specific areas 	<ul style="list-style-type: none"> Wound management in specific areas 	<ul style="list-style-type: none"> Escharotomy Local flap coverage
Blast injuries						
Early SET	<ul style="list-style-type: none"> Understanding the unique patterns of blast trauma Pathophysiology of blast injury 	<ul style="list-style-type: none"> Assessment and description of wounds Identify life threatening injuries Initiate initial resuscitation Assess tetanus immunization status Identify possible exposures to toxins, chemicals or radiological 	<ul style="list-style-type: none"> Relevant investigations for barotrauma, penetrating, blunt and burn injuries 			<ul style="list-style-type: none"> Lavage and debride contaminated wounds Intercostal catheters
Mid SET		<ul style="list-style-type: none"> Mass casualty triaging Resource allocations Co-ordinate multidisciplinary team efforts 		<ul style="list-style-type: none"> As per initial resuscitation phase and identify life threatening injuries Management of contaminated wounds Management of severe burns Air embolism 	<ul style="list-style-type: none"> Attend to life threatening injuries 	<ul style="list-style-type: none"> Surgical airway Thoracotomy Emergency laparotomy Haemorrhage control Escharotomy in burns
Head/Brain						
Early SET	<ul style="list-style-type: none"> The relevant anatomy and physiology of the CNS The pathophysiology of increased intracranial pressure 	<ul style="list-style-type: none"> Detailed neurological assessment and documentation of trauma patients The recognition of typical presentations Recognition of concussion syndrome 	<ul style="list-style-type: none"> Basic Indications and interpretation of neurotrauma imaging Cognitive function assessment for management of head injury 	<ul style="list-style-type: none"> The initial management of potential head injured patient The recognition of raised ICP and monitoring of this Priorities and timeframes of intervention Recognition the need of specialist involvement 	<ul style="list-style-type: none"> Extra dural drainage 	<ul style="list-style-type: none"> Control of severe bleeding from scalp lacerations Nasal packing
Mid SET				<ul style="list-style-type: none"> Decision making about priorities of head injury in polytrauma scenario Ongoing management principles of brain injury 	<ul style="list-style-type: none"> Control of severe maxilla-facial bleeding 	<ul style="list-style-type: none"> Definitive wound management of head/face/orbit wounds
Late SET					<ul style="list-style-type: none"> For rural practice: craniotomy and craniectomy 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Face/Neck						
Early SET	<ul style="list-style-type: none"> Anatomy regions of the neck Describe Zones I, II and III of the neck 	<ul style="list-style-type: none"> Clinical assessment of the face Recognition of signs of vascular, airway, nerve, pharyngeal/ oesophageal injury 	<ul style="list-style-type: none"> Indication and interpretation of x-ray, CT, angiography, endoscopy, contrast studies depending the zone of injury and patient condition 	<ul style="list-style-type: none"> The indications for surgical exploration Involvement of other subspecialty surgeons Blunt cerebrovascular injury 	<ul style="list-style-type: none"> Surgical airway 	
Mid SET				<ul style="list-style-type: none"> Selective management strategy based on the zone of injury Principles of angioembolisation <ul style="list-style-type: none"> Level I Level II Principles of: <ul style="list-style-type: none"> tracheoscopy pharyngoscopy oesophagoscopy bronchoscopy 	<ul style="list-style-type: none"> Access and vascular control in Zone I and III Repair of carotid injury Repair of oesophageal injury Surgical exploration of Zone II 	<ul style="list-style-type: none"> Surgical airway
Spine						
Early SET	<ul style="list-style-type: none"> Anatomy and physiology of spine and spinal cord Pathophysiology of primary and secondary cord injury Common spine injury patterns 	<ul style="list-style-type: none"> Ability to perform safe log-roll and immobilization Maintenance of spinal precautions Detailed peripheral neurological exam, level determination and documentation 	<ul style="list-style-type: none"> The need and priorities for imaging depending on the patient condition The advantages and limitations of imaging tests Recognition of "unstable" spinal fracture 	<ul style="list-style-type: none"> The ability to 'clear the spine' safely in straightforward scenarios 		<ul style="list-style-type: none"> Application of spine immobilisation devices
Mid SET				<ul style="list-style-type: none"> Decision on transfer and the management priorities of spine injuries in polytrauma scenario 	<ul style="list-style-type: none"> Application of tongs 	
Chest						
Early SET	<ul style="list-style-type: none"> Anatomy and Physiology of thoracic wall and thoracic organs The pathophysiology of immediately and potentially life threatening conditions in the chest 	<ul style="list-style-type: none"> Focused clinical examination of the chest/torso for a blunt and penetrating trauma patient 	<ul style="list-style-type: none"> Interpretation of chest x-ray (recognition of life threatening conditions) Indication for further imaging Clear understanding of penetrating chest trauma workup 	<ul style="list-style-type: none"> Recognising the need for urgent lifesaving interventions (decompression, chest tube insertion), indicating the need for thoracotomy Involving cardiothoracic surgery as required 	<ul style="list-style-type: none"> ED resuscitative thoracotomy 	<ul style="list-style-type: none"> Chest tube insertion

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Chest (continued)						
Mid SET				<ul style="list-style-type: none"> ▪ Prioritisation of chest injuries in polytrauma scenario ▪ Decision on advanced imaging, timing of aortic tear management ▪ Selective management of penetrating chest trauma ▪ Management of blunt thoracic aortic rupture ▪ Tracheobronchial injury ▪ Pulmonary contusion ▪ Management of retained haemothorax 	<ul style="list-style-type: none"> ▪ Diaphragmatic repair from the abdomen ▪ Pericardial window (extra-peritoneal vs. intra-peritoneal) ▪ Diaphragmatic repair from chest 	
Late SET					<ul style="list-style-type: none"> ▪ Vascular control in the chest ▪ Periclavicular approaches for the thoracic outlet ▪ Repair simple cardiac wounds ▪ Thoracoscopy, thoracotomy ▪ VATS 	<ul style="list-style-type: none"> ▪ Diaphragmatic repair from the abdomen
Abdomen						
Early SET	<ul style="list-style-type: none"> ▪ Up to date knowledge of penetrating and blunt abdominal trauma mechanism, injury probabilities ▪ Relevant trauma surgical anatomy of abdominal organs ▪ Physiology and pathophysiology of abdominal organs ▪ Abdominal organ injury scaling (AAST) 	<ul style="list-style-type: none"> ▪ Abdominal/torso assessment in blunt and penetrating trauma ▪ Interpretation of clinical signs in the context of abdominal trauma and other injuries (urgency, importance) 	<ul style="list-style-type: none"> ▪ Indication and interpretation of FAST, plain abdominal x-ray and CT scan ▪ Contrast and endoscopic studies ▪ Up to date knowledge of each tests sensitivity specificity and operator dependency 	<ul style="list-style-type: none"> ▪ Indications and timing of trauma laparotomy ▪ Decision making in isolated blunt and penetrating abdominal trauma ▪ Indications and limitations of local wound exploration and laparoscopy in penetrating trauma 		<ul style="list-style-type: none"> ▪ Local wound exploration

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Abdomen (continued)						
Mid SET				<ul style="list-style-type: none"> ▪ Indications for selective and non-operative management ▪ Priorities of abdominal injuries in polytrauma patients "Damage control" principles ▪ Sound knowledge of which organs can be resected and in what extent, which arteries and veins can be ligated at what level without and with (specifically what) consequences ▪ Role of embolisation 	<ul style="list-style-type: none"> ▪ Exploration of the retroperitoneum – left and right medial visceral rotation manoeuvres ▪ Control of major vessels 	<ul style="list-style-type: none"> ▪ Damage control laparotomy ▪ Temporary abdominal closure ▪ Trauma laparoscopy ▪ Control of the environment, preparation and execution ▪ Systematic approach ▪ Haemorrhage and contamination control ▪ Anatomical liver packing ▪ Pringle manoeuvre ▪ Splenectomy ▪ Repair resection hollow viscus injury
Late SET					<ul style="list-style-type: none"> ▪ Major abdominal vascular repair ▪ Vascular isolation of the liver ▪ Splenic and kidney salvage techniques ▪ Exploration of the retroperitoneum – left and right medial visceral rotation manoeuvres 	
Pelvis						
Early SET	<ul style="list-style-type: none"> ▪ Knowledge of relevant pelvic musculo-skeletal and visceral anatomy and physiology ▪ Basic classification of pelvic fractures 	<ul style="list-style-type: none"> ▪ Pelvic examination, leg length, springing, deformity, perineal examination, rectal examination ▪ Neuro-vascular assessment 	<ul style="list-style-type: none"> ▪ Pelvic x-ray interpretation ▪ Pelvic CT interpretation (injury to the posterior and anterior ring, contrast blush, pelvic organ injuries) ▪ Indications and interpretation of urethrogram, cystogram and pelvic angiography 	<ul style="list-style-type: none"> ▪ Recognition and initiation of the management of haemodynamically unstable pelvic fracture patients ▪ The role of abdominal clearance, pelvic binding, packing, external and internal fixation and angiography 		<ul style="list-style-type: none"> ▪ Application of pelvic binder
Mid SET				<ul style="list-style-type: none"> ▪ Decision making on the need and priorities of techniques at the basic column (left) ▪ Priorities in associated abdominal injuries and polytrauma ▪ Open pelvic fracture management ▪ Role of temporary pelvic fixation 		<ul style="list-style-type: none"> ▪ Trauma laparotomy
Late SET				<ul style="list-style-type: none"> ▪ Urethrogram 	<ul style="list-style-type: none"> ▪ Pre-peritoneal packing for pelvic traumas 	<ul style="list-style-type: none"> ▪ Pelvic packing

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Extremities						
Early SET	<ul style="list-style-type: none"> ▪ Relevant anatomy of extremities ▪ The pathophysiology of limb threatening injuries ▪ Grading of open fractures 	<ul style="list-style-type: none"> ▪ Basic trauma focused musculo-skeletal assessment including the neurovascular status ▪ Recognition of hard and soft signs of vascular injuries ▪ Ankle-brachial Index 	<ul style="list-style-type: none"> ▪ The indication, timing and interpretation of skeletal radiology 	<ul style="list-style-type: none"> ▪ Initiation of the management of limb threatening injuries ▪ Tetanus and antibiotic prophylaxis ▪ Early involvement other specialties 		<ul style="list-style-type: none"> ▪ Realignment ▪ Splinting ▪ Washout and debridement of open wounds ▪ Compartment pressure measurement
Mid SET				<ul style="list-style-type: none"> ▪ Decision making of viability of limbs in conjunction with other relevant specialties ▪ The priorities of damage control or definitive management of extremity injuries in polytrauma scenarios ▪ Tourniquet 	<ul style="list-style-type: none"> ▪ Vascular exploration and control on extremities 	<ul style="list-style-type: none"> ▪ Amputations ▪ Fasciotomy

MODULE TITLE:	UPPER GI & HPB - BARIATRIC/OBESE PATIENTS	7-Nov-2016
DEVELOPED BY:	Chris Christophi, Mark Smithers	
REVIEWED BY:	Tom Wilson, Michael Donovan (2010) Adrian Anthony, Simon Bann, Wendy Brown, Sayed Hassen, Michael Cox, Noel Tait (2013). Wendy Brown (2016).	
Module Rationale and Objectives	<p>A general surgeon is required to have a thorough understanding of normal anatomy and physiology, as well as pathophysiology, investigations, differential diagnosis and surgical and non-surgical management of abdominal disorders. It is important that general surgeons maintain a current understanding of the most appropriate time and manner of intervention. It is also important that they keep abreast of the most current developments in investigative and surgical procedures.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of the foregut and associated structures ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnose and manage pathological conditions that pertain to the foregut ▪ effectively manages patients ▪ maintains skills and learns new skills ▪ analyses their own clinical performance for consistent improvement ▪ recognise the need to refer patients to other professionals ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery for the morbidly obese patient in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology and pathology, of:</p> <ul style="list-style-type: none"> ▪ foregut 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Assumed Knowledge	<ul style="list-style-type: none"> ▪ Nutrition ▪ Endocrinology of obesity/metabolic syndrome ▪ Psychological aspects of obese patients 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
MORBID OBESITY						
Early SET	<ul style="list-style-type: none"> Describe the pathophysiology of obesity and understand concept of the weight homeostat Describe the long term natural history of obesity and associated co-morbidities, and the effects of weight loss on these co-morbidities 	<ul style="list-style-type: none"> Describe the classification of obesity 	<ul style="list-style-type: none"> Define the role of laboratory investigations and imaging specific to the morbidly obese patient undergoing any surgical procedure Define the laboratory investigations that assist in the diagnosis of the causes and complications of obesity 			<ul style="list-style-type: none"> Gastric band deflation
Mid SET				<ul style="list-style-type: none"> Describe the specific management of a morbidly obese patient undergoing a surgical procedure Describe the management of a patient who is to have an anti-obesity operation Describe the principles for selection of a patient for obesity surgery Recognise the life threatening early and late complications of bariatric surgery and their management Recognise short and long term complications and sequelae of anti-obesity surgery 		<ul style="list-style-type: none"> Removal of Gastric Band (open or laparoscopic) in emergency situations Management of internal hernia after gastric bypass in emergency situations
Late SET					<ul style="list-style-type: none"> Options for managing complications 	

MODULE TITLE:	UPPER GI & HPB - HEPATIC, PANCREATIC & BILIARY	7-Nov-2016
DEVELOPED BY:	Chris Christophi, Mark Smithers	
REVIEWED BY:	Tom Wilson, Michael Donovan (2010) Adrian Anthony, Simon Bann, Adam Bartlett, Wendy Brown, Tom Elliott, Sayed Hassen, Michael Cox, Noel Tait (2013). Vijayaragavan Muralidharan (2016).	
Module Rationale and Objectives	<p>A general surgeon is required to have a thorough understanding of normal anatomy and physiology, as well as pathophysiology, investigations, differential diagnosis and surgical and non-surgical management of abdominal disorders. It is important that general surgeons maintain a current understanding of the most appropriate time and manner of intervention. It is also important that they keep abreast of the most current developments in investigative and surgical procedures.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of the foregut and associated structures ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnose and manage pathological conditions that pertain to the foregut ▪ effectively manages patients ▪ maintains skills and learns new skills ▪ analyses their own clinical performance for consistent improvement ▪ recognise the need to refer patients to other professionals ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology and pathology, of:</p> <ul style="list-style-type: none"> ▪ foregut 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>Suggested readings:</p> <p>(1) Hepatobiliary and Pancreatic Surgery: A Companion to Specialist Surgical Practice (ISBN 9780702030147), 4th edition (or later), edited by O.J. Garden.</p> <p>(2) Blumgart's Surgery of the Liver, Biliary Tract and Pancreas (ISBN 9781437714548), 5th edition (or later), by W.R. Jarnagin and L.H. Blumgart.</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Assumed Knowledge	<ul style="list-style-type: none"> ▪ Embryology of the liver, pancreas and bilio-pancreatic tract ▪ Anatomy and physiology of the liver, biliary tract, pancreas 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
HEPATIC						
Primary liver malignancy						
<ul style="list-style-type: none"> ▪ HCC ▪ cholangiocarcinoma ▪ others 						
Early SET	<ul style="list-style-type: none"> ▪ Describe the embryology, anatomy, and physiology of the liver ▪ Describe the aetiology, pathology, and staging 	<ul style="list-style-type: none"> ▪ Describe the clinical presentation 	<ul style="list-style-type: none"> ▪ Define the role of medical imaging and laboratory investigations 			
Mid SET	<ul style="list-style-type: none"> ▪ Describe the common anatomical variations of the liver 		<ul style="list-style-type: none"> ▪ Determine the degree of hepatic dysfunction 	<ul style="list-style-type: none"> ▪ Patient and family counselling ▪ Understand the aims of treatment ▪ Staging ▪ Describe and evaluate the various methods of treatment 		<ul style="list-style-type: none"> ▪ Staging Laparoscopy
Late SET			<ul style="list-style-type: none"> ▪ Establish the operability of the lesion ▪ Assessment of portal hypertension ▪ Assessment of future liver remnant (FLR) 	<ul style="list-style-type: none"> ▪ Improving future liver remnant (FLR) ▪ Prevention of post-operative liver failure ▪ Post treatment surveillance 	<ul style="list-style-type: none"> ▪ Liver resection in patient with cirrhosis ▪ Intra Operative US ▪ Laparoscopic Liver Biopsy in Cirrhosis 	
Liver metastases						
Early SET	<ul style="list-style-type: none"> ▪ Describe the pathology and staging 	<ul style="list-style-type: none"> ▪ Demonstrate the clinical assessment of the patient with suspected liver metastasis 				
Mid SET			<ul style="list-style-type: none"> ▪ Outline the role of staging techniques including: <ul style="list-style-type: none"> - Cross sectional imaging - Functional imaging - Laparoscopy - Laparoscopic IOUS ▪ Determine factors for operability 	<ul style="list-style-type: none"> ▪ Patient and family counselling ▪ Understand the principles of treating metastatic disease ▪ Selection and pre-operative preparation of patient ▪ Outline the multi-disciplinary approach to treatment 		<ul style="list-style-type: none"> ▪ Staging laparoscopy ▪ Staging at laparotomy
Late SET			<ul style="list-style-type: none"> ▪ Assessment of future liver remnant (FLR) 	<ul style="list-style-type: none"> ▪ Improving future liver remnant (FLR) ▪ Prevention of post-operative liver failure ▪ Post treatment surveillance 	<ul style="list-style-type: none"> ▪ Principles of hepatic mobilisation, localisation of the tumour and dissection of the liver ▪ Intra Operative US 	<ul style="list-style-type: none"> ▪ Laparoscopic Liver Biopsy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Incidental liver lesions						
<ul style="list-style-type: none"> ▪ adenoma ▪ FNH ▪ haemangioma ▪ non-parasitic cysts 						
Early SET	<ul style="list-style-type: none"> ▪ Differentiate between the various pathologies ▪ Describe the natural history of each entity 	<ul style="list-style-type: none"> ▪ Describe the clinical presentation and assessment 				
Mid SET			<ul style="list-style-type: none"> ▪ Define the role of medical imaging and laboratory investigations ▪ Understand the strengths and weakness of investigations 	<ul style="list-style-type: none"> ▪ Establish which lesions need further management and/or referral for further investigations or treatment ▪ Role of long term surveillance ▪ Risk stratification of tumours ▪ Role of immune-histochemical and genetic profiling of biopsies 		<ul style="list-style-type: none"> ▪ Evaluation at open operation ▪ Laparoscopic liver biopsy
Late SET					<ul style="list-style-type: none"> ▪ Principles of hepatic mobilisation, localisation of the tumour and dissection of the liver ▪ Intra Operative US 	
Liver infections						
<ul style="list-style-type: none"> ▪ abscess pyogenic ▪ parasitic ▪ others 						
Early SET	<ul style="list-style-type: none"> ▪ Describe the aetiology and pathological features including microbiology 	<ul style="list-style-type: none"> ▪ Describe the clinical symptoms and signs 	<ul style="list-style-type: none"> ▪ Define the role of medical imaging and laboratory investigations 	<ul style="list-style-type: none"> ▪ Describe the medical and surgical management of each condition 		
Mid SET				<ul style="list-style-type: none"> ▪ Role of percutaneous drainage ▪ Role for surgical drainage 		
Portal hypertension						
Early SET	<ul style="list-style-type: none"> ▪ Classification of portal hypertension ▪ Describe the aetiology and pathophysiology ▪ Classification of severity of liver disease (Childs-Pugh) 	<ul style="list-style-type: none"> ▪ Demonstrate the clinical assessment of a patient with acute or chronic liver disease and portal hypertension 	<ul style="list-style-type: none"> ▪ Define the endoscopic, laboratory and radiological assessments 	<ul style="list-style-type: none"> ▪ Describe the management of a patient with acute or chronic liver disease in relation to peri-operative care and portal hypertension ▪ Describe the principles of management: <ul style="list-style-type: none"> - medical - radiological - surgical management - endoscopic 	<ul style="list-style-type: none"> ▪ Operative strategies for patient with portal hypertension 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Portal hypertension (continued)						
Late SET					▪ Management of variceal bleeding	
Ascites						
Early SET	▪ Describe the aetiology and associated pathologies causing ascites	▪ Describe the clinical symptoms and signs	▪ Define the role of medical imaging and laboratory investigations ▪ Interpretation of ascitic tap	▪ Describe the principles of radiological, medical and surgical management ▪ Medical and paracentesis for symptom management	▪ Impact of ascites on abdominal surgery	
Mid SET					▪ Operative management of patient with ascites	
Hepatic trauma <i>See also Trauma Module</i>						
Early SET	▪ Describe aetiology and the patterns of injury ▪ Define the subsequent complications of blunt and penetrating trauma ▪ Define the natural history of each type of injury	▪ Demonstrate the clinical assessment of the trauma patient with liver injury	▪ Define the role of medical imaging and laboratory investigations	▪ Describe the principles of management: - radiological - operative		
Mid SET			▪ Describe the CT grading of liver injuries	▪ Describe the principles of management of liver injury ▪ Describe the principles of management: - non-operative - operative	▪ Understand the principles of use of various haemostatic agents ▪ Understand the role of low CVP anaesthesia in liver injuries	▪ Laparotomy ▪ Assessment of severity of injury ▪ Methods to obtain haemostasis including packing a liver injury for referral/transfer
Hepatic Failure (Acute & Chronic)						
Early SET	▪ Describe the definitions of acute and chronic liver failure ▪ Understand the aetiology of acute and chronic liver failure	▪ Demonstrate the clinical assessment of patients with liver failure	▪ Define the investigations to determine the aetiology ▪ Determine assessment of liver failure			
Mid SET				▪ Describe the principles of management of acute and chronic liver failure	▪ Methods to achieve haemostasis	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
BILIARY						
Gallstone disease						
Early SET	<ul style="list-style-type: none"> Describe the aetiology of biliary stone disease and the complications 	<ul style="list-style-type: none"> Describe and differentiate the clinical features and signs 	<ul style="list-style-type: none"> Understand the role, limitations and complications of investigations and treatment options 			
Mid SET	<ul style="list-style-type: none"> Describe the common anatomical variations of the biliary tree Describe the common anatomical variations of the hepatic vasculature 		<ul style="list-style-type: none"> Understanding of the role, limitations and complications of endoscopic retrograde cholangiopancreatography Understanding of the role, limitations and complications of transcystic bile duct exploration 	<ul style="list-style-type: none"> Describe and evaluate the management, including all complications 		<ul style="list-style-type: none"> Cholecystectomy for uncomplicated and complicated disease, including performance of operative cholangiography Open exploration of the common bile duct Laparoscopic transcystic exploration of the common bile duct
Late SET					<ul style="list-style-type: none"> Laparoscopic exploration of the common bile duct 	<ul style="list-style-type: none"> Open cholecystectomy including techniques for the "difficult" gall bladder
Gall bladder polyp						
Early SET	<ul style="list-style-type: none"> Describe the aetiology and the pathology Describe the natural history of the causes 	<ul style="list-style-type: none"> Describe the symptoms and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 			
Mid SET			<ul style="list-style-type: none"> Risk stratification 	<ul style="list-style-type: none"> Describe the principles of management: <ul style="list-style-type: none"> non-operative operative 		<ul style="list-style-type: none"> Laparoscopic cholecystectomy
Late SET					<ul style="list-style-type: none"> Role of laparoscopic IOUS 	
Gallbladder carcinoma/ cholangiocarcinoma						
Early SET	<ul style="list-style-type: none"> Describe the pathology and staging 	<ul style="list-style-type: none"> Describe and differentiate the clinical features and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 			
Mid SET				<ul style="list-style-type: none"> Patient and family counselling Describe the assessment, staging and management Define the role of resection Outline the mechanism of palliation of jaundice when present 	<ul style="list-style-type: none"> Laparoscopic assessment Laparoscopic IOUS 	<ul style="list-style-type: none"> Staging laparoscopy Laparoscopic liver biopsy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Benign biliary bile duct /strictures injuries						
Early SET	<ul style="list-style-type: none"> Describe the aetiology of benign biliary strictures Describe the mechanism for bile duct injuries Describe the classification of bile duct injuries 	<ul style="list-style-type: none"> Describe and differentiate the clinical symptoms and signs 				
Mid SET	<ul style="list-style-type: none"> Define the risk factors for injury Describe the common anatomical variations of the biliary tree Describe the common anatomical variations of the hepatic vasculature 	<ul style="list-style-type: none"> Describe the clinical features of an injury in the post-operative period 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations Define the role of medical imaging, endoscopic and laboratory investigations peri-operatively 	<ul style="list-style-type: none"> Describe the assessment and management of injuries and stricture Describe the outcomes Outline the role of follow-up Describe the assessment and management of a bile duct injury recognised 	<ul style="list-style-type: none"> Roux-en-Y hepatico-jejunostomy 	<ul style="list-style-type: none"> Intra-operative <ul style="list-style-type: none"> recognition call for help or drain and refer Postoperative <ul style="list-style-type: none"> recognition laparoscopic or open drainage and refer
Late SET				<ul style="list-style-type: none"> Describe associated vascular injuries and consequences 		
Choledochal anomalies						
Mid SET	<ul style="list-style-type: none"> Describe the pathology and the classification 	<ul style="list-style-type: none"> Describe and differentiate the clinical symptoms and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 	<ul style="list-style-type: none"> Describe the principles of management 		
Late SET					<ul style="list-style-type: none"> Biliary resection Roux-en-Y hepatico-jejunostomy 	
PANCREATIC						
Acute pancreatitis						
Early SET	<ul style="list-style-type: none"> Describe the embryology, anatomy, and physiology of the exocrine pancreas Define the aetiology Describe the pathophysiology of the changes associated with acute pancreatitis Describe and explain the pathology of the complications 	<ul style="list-style-type: none"> Define the clinical symptoms and signs Define the risk stratification 	<ul style="list-style-type: none"> Describe and evaluate the indicators of severity 	<ul style="list-style-type: none"> Describe the principles of management of the acute episode 		
Mid SET		<ul style="list-style-type: none"> Describe the presentation of the complications 	<ul style="list-style-type: none"> Define the role of imaging in diagnosis, staging, severity, and assessment of complications 	<ul style="list-style-type: none"> Role of ERCP Define the assessment and treatment of the complications: <ul style="list-style-type: none"> general pancreas specific 	<ul style="list-style-type: none"> Percutaneous necrosectomy 	<ul style="list-style-type: none"> Operative recognition of acute pancreatitis Percutaneous abscess drainage

SET LEVEL	MEDICAL EXPERTISE		JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -	
Acute pancreatitis (continued)							
Late SET				<ul style="list-style-type: none"> Role of EUS for diagnosis and therapeutic roles 	<ul style="list-style-type: none"> Open, laparoscopic and endoscopic cysto-gastrostomy Open necrosectomy Laparoscopic necrosectomy 		
Chronic pancreatitis							
Early SET	<ul style="list-style-type: none"> Define the aetiology 						
Mid SET	<ul style="list-style-type: none"> Describe the pathophysiology of the changes associated with chronic pancreatitis Describe and explain the complications 	<ul style="list-style-type: none"> Define the clinical symptoms and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations Assessment of exocrine and endocrine deficiencies 	<ul style="list-style-type: none"> Describe the role of medical radiological, endoscopic and surgical treatment options for general constitutional and pancreas specific problems 			
Late SET			<ul style="list-style-type: none"> Differentiate pancreatic mass in chronic pancreatitis 	<ul style="list-style-type: none"> Chronic pain management Nutritional management 	<ul style="list-style-type: none"> Pancreatico-jejunostomy Distal pancreatectomy Role for splenic preservation 		
Periampullary and ductal pancreatic carcinoma							
Early SET	<ul style="list-style-type: none"> Describe the pathology and staging Describe and evaluate the pathophysiological changes associated with obstructive jaundice 	<ul style="list-style-type: none"> Define the clinical symptoms and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 	<ul style="list-style-type: none"> Outline the multidisciplinary approaches to management 			
Mid SET			<ul style="list-style-type: none"> Outline the role of endoscopic ultrasound 	<ul style="list-style-type: none"> Patient and family counselling Define assessment for resectability pre-operatively and intra-operatively Describe the principles of pancreatic resection 	<ul style="list-style-type: none"> Biliary-enteric anastomosis and gastro-enterostomy 	<ul style="list-style-type: none"> Laparoscopic staging 	
Late SET					<ul style="list-style-type: none"> Pancreatic-duodenectomy Distal pancreatectomy 	<ul style="list-style-type: none"> Gastro-enterostomy 	
Pancreatic cysts & Cystic tumours trauma							
Early SET	<ul style="list-style-type: none"> Describe the pathology and staging 	<ul style="list-style-type: none"> Define the clinical symptoms and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 				

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Pancreatic cysts & Cystic tumours trauma (continued)						
Mid SET		<ul style="list-style-type: none"> Define the natural history Risk stratification 	<ul style="list-style-type: none"> Outline the role of endoscopic ultrasound Understand interpretation of FNA and cyst fluid biochemistry 	<ul style="list-style-type: none"> Define the principles of: <ul style="list-style-type: none"> Risk stratification and conservative management Role of surgical intervention Role of endoscopic intervention 	<ul style="list-style-type: none"> Pancreatic duodenectomy Distal pancreatectomy 	<ul style="list-style-type: none"> Laparoscopic staging
Late SET						<ul style="list-style-type: none"> Gastro-enterostomy
Other pancreatic tumours including: <i>See also Endocrine Module</i>						
<ul style="list-style-type: none"> endocrine tumours incidental tumours 						
Early SET	<ul style="list-style-type: none"> Describe the pathology and staging 	<ul style="list-style-type: none"> Define the clinical symptoms and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 			
Mid SET			<ul style="list-style-type: none"> Outline the role of endoscopic ultrasound 	<ul style="list-style-type: none"> Define the principles of: <ul style="list-style-type: none"> resectability medical management control of systemic symptoms Risk stratification and conservative management 	<ul style="list-style-type: none"> Pancreatic duodenectomy Distal pancreatectomy 	
Pancreatic-duodenal trauma						
<i>See also Trauma Module</i>						
Early SET	<ul style="list-style-type: none"> Describe the patterns of injury 		<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 			
Mid SET	<ul style="list-style-type: none"> Define the classification for duodenal and pancreatic trauma 	<ul style="list-style-type: none"> Define the clinical findings and assessment in suspected pancreatico-duodenal trauma 		<ul style="list-style-type: none"> Define the principles of: <ul style="list-style-type: none"> assessment non-operative management operative assessment and management 	<ul style="list-style-type: none"> Techniques for repair of a duodenal injury/± pancreatic injury Assess the extent of injury at laparotomy 	<ul style="list-style-type: none"> Damage control Laparotomy
Late SET					<ul style="list-style-type: none"> Distal pancreatectomy 	
ERCP complications						
Mid SET	<ul style="list-style-type: none"> Define the types of complications <ul style="list-style-type: none"> haemorrhage perforation cholangitis pancreatitis 	<ul style="list-style-type: none"> Define the clinical findings and assessment of post ERCP complications 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 	<ul style="list-style-type: none"> Describe the principles of management 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
SPLEEN AND HAEMOPOIETIC SYSTEM						
Splenic trauma						
Early SET	<ul style="list-style-type: none"> Describe the embryology, anatomy, and physiology of the spleen Describe the patterns and classification of injury 	<ul style="list-style-type: none"> Describe the clinical assessment of splenic trauma 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 	<ul style="list-style-type: none"> Describe the principles of management including: <ul style="list-style-type: none"> resuscitation non-operative operative (conservative and resection) 		
Mid SET	<ul style="list-style-type: none"> Describe the complications of splenectomy 					<ul style="list-style-type: none"> Trauma splenectomy
Late SET					<ul style="list-style-type: none"> Understand the principles of use of various haemostatic agents Splenorrhaphy 	
ITP/other indications for splenectomy						
Early SET	<ul style="list-style-type: none"> Describe the pathophysiology of ITP 		<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 			
Mid SET	<ul style="list-style-type: none"> Describe the indications for elective splenectomy 			<ul style="list-style-type: none"> Describe the principle of pre-operative management Describe the principles of the follow-up care 	<ul style="list-style-type: none"> Laparoscopic splenectomy 	<ul style="list-style-type: none"> Elective splenectomy for a normal sized spleen
Massive spleen						
Early SET	<ul style="list-style-type: none"> Describe the causes (infective vs. non-infective) 	<ul style="list-style-type: none"> Describe the clinical features 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations 	<ul style="list-style-type: none"> Describe the principle of pre-operative management 		
Mid SET				<ul style="list-style-type: none"> Describe the indications for splenectomy 		
Late SET					<ul style="list-style-type: none"> Splenectomy for massive spleen 	
Lymph nodes including lymphoma						
Early SET	<ul style="list-style-type: none"> Describe the aetiology and associated pathologies causing lymphadenopathy 	<ul style="list-style-type: none"> Describe the clinical symptoms and signs 	<ul style="list-style-type: none"> Define the role of medical imaging and laboratory investigations Define the role of cytology 	<ul style="list-style-type: none"> Describe the principle of pre-operative assessment Define the role of lymph node biopsy 		<ul style="list-style-type: none"> Open node biopsy; <ul style="list-style-type: none"> cervical axillary femoral
Mid SET					<ul style="list-style-type: none"> Laparoscopic abdominal nodal biopsy See also Surgical Oncology Module 	<ul style="list-style-type: none"> Open abdominal nodal biopsy

MODULE TITLE:	UPPER GI & HPB - OESOPHAGO-GASTRIC	7-Nov-2016
DEVELOPED BY:	Chris Christophi, Mark Smithers	
REVIEWED BY:	Tom Wilson, Michael Donovan (2010) Adrian Anthony, Simon Bann, Wendy Brown, Jon Gani, Sayed Hassen, Michael Cox, Noel Tait (2013). Simon Bann, Sayed Hassen (2016).	
Module Rationale and Objectives	<p>A general surgeon is required to have a thorough understanding of normal anatomy and physiology, as well as pathophysiology, investigations, differential diagnosis and surgical and non-surgical management of abdominal disorders. It is important that general surgeons maintain a current understanding of the most appropriate time and manner of intervention. It is also important that they keep abreast of the most current developments in investigative and surgical procedures.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of the foregut and associated structures ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ diagnose and manage pathological conditions that pertain to the foregut ▪ effectively manages patients ▪ maintains skills and learns new skills ▪ analyses their own clinical performance for consistent improvement ▪ recognise the need to refer patients to other professionals ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology and pathology, of:</p> <ul style="list-style-type: none"> ▪ foregut 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Assumed Knowledge	<ul style="list-style-type: none"> ▪ Embryology, anatomy and physiology of the foregut 	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
OESOPHAGUS						
Gastro-oesophageal reflux (GOR) disease and Hiatus hernia/paraoesophageal hernia						
Early SET	<ul style="list-style-type: none"> Describe embryology, anatomy, and physiology of the oesophagus Describe manometric associations 	<ul style="list-style-type: none"> Assess and differentiate the clinical symptoms 				
Mid SET	<ul style="list-style-type: none"> Describe complications including stricture, respiratory symptoms and Barrett's Describe acute of presentation of strangulated Hiatus hernia 		<ul style="list-style-type: none"> Outline the role of: <ul style="list-style-type: none"> gastroscopy manometry 24 Hr pH studies barium swallow 	<ul style="list-style-type: none"> Review the principles of non-operative/medical management Establish: <ul style="list-style-type: none"> indications options complications of operative management 		<ul style="list-style-type: none"> Endoscopic assessment of GOR
Late SET				<ul style="list-style-type: none"> Management of incarcerated Hiatus hernia 	<ul style="list-style-type: none"> Laparoscopic/ open fundoplication 	
Oesophageal strictures:						
<ul style="list-style-type: none"> peptic and corrosive strictures Schatzki ring and webs 						
Early SET	<ul style="list-style-type: none"> Describe the lesion and aetiology when known 	<ul style="list-style-type: none"> Assess the clinical symptoms 				
Mid SET			<ul style="list-style-type: none"> Analyse the role of gastroscopy and barium swallow 	<ul style="list-style-type: none"> Implement the principles of non-operative, endoscopic and operative management 		<ul style="list-style-type: none"> Endoscopic assessment of the stricture Endoscopic dilatation
Oesophageal malignancies						
Early SET	<ul style="list-style-type: none"> Describe the aetiology and pathology Identify prognostic factors 	<ul style="list-style-type: none"> Recognise the clinical presentations Examine and assess the clinical staging Medical assessment 	<ul style="list-style-type: none"> Define the role of gastroscopy Define the role of radiological investigations 	<ul style="list-style-type: none"> Outline the multi-disciplinary approach to management 		
Mid SET				<ul style="list-style-type: none"> Define the methods of palliation Patient and family counselling Outline management of the post-resection functional problems Outline management of high grade dysplasia 	<ul style="list-style-type: none"> Resection/reconstruction options Palliative stenting 	<ul style="list-style-type: none"> Endoscopic diagnosis and assessment Feeding jejunostomy Laparoscopic staging
Other tumours						
Early SET	<ul style="list-style-type: none"> Describe other benign tumours of the oesophagus 	<ul style="list-style-type: none"> Recognise the clinical presentations 	<ul style="list-style-type: none"> Define the role of gastroscopy, EUS, medical imaging 	<ul style="list-style-type: none"> Define the management of these tumours 		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Other tumours (continued)						
Mid SET					▪ Endoscopic diagnosis and assessment	
Motility disorders						
Early SET	▪ Define the pathological abnormalities	▪ Describe the clinical presentation	▪ Describe the role of gastroscopy, barium swallow, and manometry			
Mid SET				▪ Describe the principles of management of the relevant conditions	▪ Endoscopic assessment and management options	
Late SET					▪ Laparoscopic Heller's myotomy	
Oesophageal varices						
Early SET	▪ Knowledge of the aetiology and associated pathology					
Mid SET		▪ Differentiate the clinical features of a variceal bleeding from other causes of upper GI bleeding ▪ Define the extent of underlying liver disease	▪ Describe the role of gastroscopy ▪ Describe the laboratory assessment of the severity of the associated liver disease	▪ Outline the various forms of treatment: - endoscopic assessment and therapies - radiological stenting (TIPPS) - operative shunts ▪ Management of the underlying liver disease		▪ Endoscopic assessment
Oesophageal foreign bodies						
Early SET	▪ Define the pathological abnormalities	▪ Assess the clinical presentation	▪ Differentiate the role of gastroscopy and medical imaging	▪ Describe the endoscopic therapies and the management of complications (perforation) ▪ Define the follow-up management		
Mid SET						▪ Endoscopic assessment and removal
Oesophageal perforation						
Early SET	▪ Describe the aetiology and associated pathology	▪ Describe the clinical presentation	▪ Define the role of medical imaging and laboratory investigations	▪ Define the diagnosis and describe the principles of therapy: - options to treat the injury - management of the associated sepsis		

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Oesophageal perforation (continued)						
Mid SET				<ul style="list-style-type: none"> Outline assessment of appropriate transfer to specialist centre 		
Late SET					<ul style="list-style-type: none"> Operative repair, endoscopic stenting 	
STOMACH						
Peptic ulcers (gastric and duodenal)						
Early SET	<ul style="list-style-type: none"> Describe embryology, anatomy, and physiology of the stomach and duodenum (foregut component) Describe the pathophysiology of benign peptic ulcer disease Recognise and review the complications: <ul style="list-style-type: none"> bleeding perforation stricture 	<ul style="list-style-type: none"> Describe and differentiate the clinical symptoms and signs Outline assessment of patients with complications 	<ul style="list-style-type: none"> Define the role of gastroscopy: <ul style="list-style-type: none"> elective emergency Investigations relevant to Helicobacter Pylori 	<ul style="list-style-type: none"> Define the medical management of uncomplicated peptic ulcers, including Helicobacter eradication Define the techniques used to treat bleeding peptic ulcers 		
Mid SET				<ul style="list-style-type: none"> Summarise the principles of management of complications: <ul style="list-style-type: none"> bleeding perforation stricture 		<ul style="list-style-type: none"> Endoscopic assessment: <ul style="list-style-type: none"> elective emergency Management of complications (open/lap/endo) operations): <ul style="list-style-type: none"> bleeding perforation stricture difficult duodenum
Late SET						<ul style="list-style-type: none"> Techniques of endoscopic haemostasis
Gastric carcinoma						
Early SET	<ul style="list-style-type: none"> Describe pathophysiology and the pathological staging 	<ul style="list-style-type: none"> Describe and differentiate the clinical symptoms and signs of gastric carcinoma and other upper GI conditions 	<ul style="list-style-type: none"> Define the role of gastroscopy, imaging, and staging laparoscopy in the assessment 	<ul style="list-style-type: none"> Outline the multi-disciplinary management Selection and pre-operative patient preparation 	<ul style="list-style-type: none"> Total or subtotal gastrectomy and oesophago-gastrectomy Radical distal gastrectomy 	
Mid SET				<ul style="list-style-type: none"> Describe the role of palliative surgical procedures Patient and family counselling 		<ul style="list-style-type: none"> Endoscopic and laparoscopic staging Gastro-enterostomy Feeding jejunostomy

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Other gastric tumours e.g. GIST						
<i>See also Surgical Oncology Module</i>						
Early SET	<ul style="list-style-type: none"> Describe the pathology 	<ul style="list-style-type: none"> Define the clinical symptoms and signs 				
Mid SET			<ul style="list-style-type: none"> Outline the role of gastroscopy and medical imaging 	<ul style="list-style-type: none"> Describe the principles of management 		<ul style="list-style-type: none"> Endoscopic assessment Local gastric resection or distal gastrectomy (lap/open)
Late SET				<ul style="list-style-type: none"> Aware of role of adjuvant, neoadjuvant and palliative therapies 		<ul style="list-style-type: none"> Laparoscopic and open wedge gastrectomy

MODULE TITLE:	ARTERIAL, VENOUS & LYMPHATIC SYSTEMS	7-Nov-2016
DEVELOPED BY:	David Adams, Alan Saunder, Ivan Thompson	
REVIEWED BY:	Alan Saunder (2010) Michael Fink, Damien Mosquera, Alan Saunder, Kellee Slater, Tom Wilson (2013). Gabriella Vasica (2016).	
Module Rationale and Objectives	<p>The general surgeon is expected to be able to assess and manage commonly occurring vascular diseases that can occur as a single entity, or as a co-morbidity or complication associated with other diseases. They also expected to be able to recognise the need and appropriate time to refer such patients to other professionals.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> ▪ describe common surgical pathologies of atherosclerosis, acute ischaemia and reperfusion injury, aneurysmal disease, systemic complications of diabetic disease, venous insufficiency, and thrombosis ▪ identify and recognise the symptoms and signs of these conditions ▪ describe and select appropriate diagnostic testing ▪ identify appropriate treatment options, and their indications and contraindications ▪ recognise, assess and treat any common vascular conditions likely to be encountered in consultative general surgical practice ▪ dissect and expose the abdominal aorta and all major peripheral blood vessels ▪ select appropriate investigative tools and monitoring techniques in a cost-effective and useful manner recognising risks and complications of their use ▪ appraise and interpret investigative imaging against patient's needs ▪ understand risks and benefits of common vascular medications ▪ recognise which conditions to refer on to a specialised vascular service ▪ acknowledge their own limitations ▪ communicate information to patients (and their family) about procedures, outcomes, and risks associated with surgery in ways that encourage their participation in informed decision making (consent) 	
Anatomy, Physiology, Pathology	<p>Trainees should have thorough knowledge of the normal embryology, anatomy, physiology, and pathology, of:</p> <ul style="list-style-type: none"> ▪ arterial ▪ venous ▪ lymphatic systems 	
Suggested Reading	<p>Trainees who are preparing to sit the Generic and Clinical Examinations need to refer to the recommended reading list on the RACS website at www.surgeons.org</p> <p>For the Fellowship examination, there are no prescribed texts.</p> <p>Trainees are expected to keep abreast of the current literature, including textbooks, journal articles, consensus guidelines and other on-line resources.</p>	
Learning Opportunities and Methods	<p>If state-based and/or local hospital courses/meetings are available, trainees are strongly advised to avail themselves of these opportunities. This also includes practising procedures on simulation equipment where applicable.</p> <p>Trainees are encouraged to present their research at national and/or accredited regional training days, in order to fulfil the research requirement.</p> <p>Trainees are encouraged to gain exposure to vascular surgery when available.</p>	
How this module will be assessed	<p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>	
Definitions	<p><i>Operative Management - Knows:</i> Trainees are required to be familiar with the indications, benefits and limitations of the procedure; trainees should be able to describe the relevant operative techniques involved in performing the procedure; trainees are encouraged to at least observe and preferably assist in these procedures.</p> <p><i>Operative Management - Does:</i> In addition to the above, trainees must be competent at performing the procedure.</p>	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Acute ischaemia						
Early SET	<ul style="list-style-type: none"> Outline pathological causes of acute ischemia Describe the local and systemic effects of acute ischemia Outline mechanisms of trauma that lead to vascular injury and/or haemorrhage 	<ul style="list-style-type: none"> Identify the medical conditions that contribute to or arise from vascular disease Recognising when it is safe to manage conservatively, at least initially Appreciate clinical assessments of limb viability and the features of compartment syndrome requiring urgent intervention 	<ul style="list-style-type: none"> Review the relevance of non-invasive and invasive imaging Recognise which limbs require prompt treatment and no investigation 	<ul style="list-style-type: none"> Implement emergency treatment 		<ul style="list-style-type: none"> Fasciotomy <ul style="list-style-type: none"> - leg
Mid SET	<ul style="list-style-type: none"> Outline the anatomical points of access for treatment of acute ischemia Understand the mechanisms of reperfusion phenomena 			<ul style="list-style-type: none"> Formulate multimodality therapy including: <ul style="list-style-type: none"> - medical - radiological - surgical treatment Recognise indications and complications of thrombolysis 	<ul style="list-style-type: none"> Appreciate the role of endovascular treatment including thrombolysis Embolectomy: <ul style="list-style-type: none"> - brachial - femoral 	
Peripheral vascular disease (chronic)						
Early SET	<ul style="list-style-type: none"> Outline causes and anatomical distribution of arterial lesions causing chronic ischaemia 	<ul style="list-style-type: none"> Identify vascular risk factors, differential diagnoses, and conditions arising from vascular disease Review the clinical features in the history and the examination findings including ABPI 	<ul style="list-style-type: none"> Appreciate relative roles of non-invasive versus invasive imaging Review appropriate investigations to plan risk factor management 	<ul style="list-style-type: none"> Advocate correction of personal risk factors of lifestyle change to improve results of all treatment 		
Mid SET	<ul style="list-style-type: none"> Outline the local pathological sequelae of chronic ischaemia and appreciate the systemic conditions that contribute to the chronic limb ischemia 	<ul style="list-style-type: none"> Be able to take a comprehensive history and examination of all arterial risk factors 		<ul style="list-style-type: none"> Formulate multimodality therapy including: <ul style="list-style-type: none"> - medical - radiological - surgical treatment Recognise indications for conservative versus interventional treatment Differentiate between radiological and surgical options and discuss their limitations 	<ul style="list-style-type: none"> Peripheral vascular reconstruction/ bypass procedures Dissection and isolation of vessels in the groin Arterial anastomosis Arteriotomy closure 	<ul style="list-style-type: none"> Below knee amputation Above knee amputation

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Aneurysmal disease						
Early SET	<ul style="list-style-type: none"> ▪ Recognise the common sites of aneurysmal disease ▪ Outline pathological basis of abdominal aortic aneurysmal disease ▪ Review pathophysiological sequelae of aneurysmal disease ▪ Differentiate between true and false aneurysm 	<ul style="list-style-type: none"> ▪ Identify and recognise the symptoms, signs, and differential diagnoses of ruptured intra abdominal aneurysm ▪ Assess for presence of peripheral aneurysm 	<ul style="list-style-type: none"> ▪ Review the relevance of non-invasive and invasive imaging 	<ul style="list-style-type: none"> ▪ Justify screening for aortic aneurysm 		
Mid SET	<ul style="list-style-type: none"> ▪ Outline anatomical and pathophysiological features that may exclude aneurysmal repair 	<ul style="list-style-type: none"> ▪ Identify the clinical characteristics and complications of aneurysms that require treatment 		<ul style="list-style-type: none"> ▪ Discuss/describe: <ul style="list-style-type: none"> - indications for treatment of AAA - management of incidentally identified aneurysm - impact of concomitant medical conditions on management in elective and emergent situations - endoluminal and open techniques for AAA repair ▪ Define role of conservative management of AAA ▪ Formulate the management AAA in the presence of other intra-abdominal pathologies ▪ Complications of AAA repair: <ul style="list-style-type: none"> - colonic ischaemia 	<ul style="list-style-type: none"> ▪ Exposure of aorta and Common iliac arteries 	
Late SET					<ul style="list-style-type: none"> ▪ Repair of AAA ▪ Clamp neck of AAA 	
Diabetic vascular disease						
Early SET	<ul style="list-style-type: none"> ▪ Outline the pathophysiological effects of diabetes on the vascular system and the foot 	<ul style="list-style-type: none"> ▪ Review the clinical presentation of diabetic foot disease including: <ul style="list-style-type: none"> - ulceration - digital gangrene - sepsis ▪ Discuss the application and limitation of ABPI in diabetic disease ▪ Aggressive approach to diabetic foot care, importance of early recognition of at risk and prevention 	<ul style="list-style-type: none"> ▪ Review the relevance of non-invasive and invasive imaging 	<ul style="list-style-type: none"> ▪ Describe: <ul style="list-style-type: none"> - general medical management of diabetes - care of diabetic foot/limb - indications for and level of amputation - multidisciplinary approach to diabetic foot disease 	<ul style="list-style-type: none"> ▪ Role of primary closure versus secondary healing 	<ul style="list-style-type: none"> ▪ Digital amputations

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Diabetic vascular disease (continued)						
Mid SET	<ul style="list-style-type: none"> Describe the relative effect of neuropathy versus vasculopathy 	<ul style="list-style-type: none"> Recognise clinical features of diabetic neuropathy 		<ul style="list-style-type: none"> Revascularisation procedures Role of "off-loading" strategies 	<ul style="list-style-type: none"> Appreciate appropriate application of Negative Pressure Wound Therapy (NPWT) Transmetatarsal amputations 	
Vascular access						
Early SET	<ul style="list-style-type: none"> Outline the anatomy of vessels used for central vascular access (venous only) 	<ul style="list-style-type: none"> Evaluate access site suitability 	<ul style="list-style-type: none"> Assess clinical tests for adequacy of blood supply and describe the place of imaging 	<ul style="list-style-type: none"> Protection of future vascular access sites 		<ul style="list-style-type: none"> Central line insertion
Mid SET	<ul style="list-style-type: none"> Outline the anatomy of arteries and veins used for haemodialysis access 	<ul style="list-style-type: none"> Clinical testing of access sites 		<ul style="list-style-type: none"> Review indications for establishing vascular access Discuss the relative merits of vascular versus peritoneal dialysis techniques; See also Transplant Module Discuss the complications of access procedures and their management 	<ul style="list-style-type: none"> Arterio-venous anastomosis Portacath and/or Hickman's insertion (including complications of CVL insertion) 	
Late SET					<ul style="list-style-type: none"> Arterio venous graft access techniques 	
Venous disease (including varicose veins)						
Early SET	<ul style="list-style-type: none"> Outline the underlying causes Describe the anatomy of the deep, superficial and perforating venous systems Define the pathophysiology of venous ulceration 	<ul style="list-style-type: none"> Review the clinical features in the history and the examination findings Appreciate the limitations of clinical assessment Exclude concomitant arterial disease 	<ul style="list-style-type: none"> Discuss the role of duplex in assessing venous disease ABIs in venous ulcer assessment 	<ul style="list-style-type: none"> List and evaluate the modalities available for treatment of varicose veins Discuss the role of compression therapy in venous disease Review various operative techniques Consider non vascular aetiologies of ulceration; See also Skin & Soft Tissue Module 	<ul style="list-style-type: none"> Varicose vein surgery 	
Mid SET				<ul style="list-style-type: none"> Explain/perform the treatment of complications of chronic venous stasis 		
Late SET					<ul style="list-style-type: none"> Operations for recurrent varicose veins 	

SET LEVEL	MEDICAL EXPERTISE	JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -
Thrombo-embolic disease (DVT and PE)						
Early SET	<ul style="list-style-type: none"> Outline pathophysiology of VTE Summarise the causes of hypercoagulable states 	<ul style="list-style-type: none"> Review the clinical features of lower limb DVT Describe presentation of axillary vein thrombosis Australasian guidelines on prevention and treatment of DVT/PE Contraindications to anticoagulation and how this is managed 	<ul style="list-style-type: none"> Review the place of medical imaging and relevant laboratory investigations 	<ul style="list-style-type: none"> Evaluate methods of thromboprophylaxis and risk assessment/stratification of DVT formation Describe: <ul style="list-style-type: none"> emergency treatment indications for anticoagulation and thrombolysis Evaluate the role of radiological intervention and surgery for DVT 		
Superficial thrombophlebitis						
Early SET	<ul style="list-style-type: none"> Outline pathophysiology Summarise the cause of hypercoagulable states 	<ul style="list-style-type: none"> Review the clinical features of lower limb SVT 	<ul style="list-style-type: none"> Review the place of medical imaging and relevant laboratory investigations 	<ul style="list-style-type: none"> Discuss management options 	<ul style="list-style-type: none"> High saphenous ligations 	
Mesenteric ischaemia						
<ul style="list-style-type: none"> acute chronic 						
Early SET	<ul style="list-style-type: none"> Outline relevant anatomy, and pathophysiology 	<ul style="list-style-type: none"> Differentiate the clinical features of acute and chronic mesenteric ischaemia 	<ul style="list-style-type: none"> Review laboratory investigations and place of medical imaging 	<ul style="list-style-type: none"> Review the: <ul style="list-style-type: none"> importance of early recognition recognition of associated medical conditions medical and surgical therapy options 	<ul style="list-style-type: none"> Laparotomy <ul style="list-style-type: none"> resection of nonviable bowel 	
Late SET					<ul style="list-style-type: none"> Mesenteric embolectomy/ revascularisation procedures 	<ul style="list-style-type: none"> Role of secondary laparotomy Laparotomy Resection of nonviable bowel
Vascular trauma						
Early SET	<ul style="list-style-type: none"> Describe the anatomy of vessels most vulnerable to trauma, including iatrogenic 	<ul style="list-style-type: none"> Recognise common patterns of vascular injury Differentiate hard and soft signs of vascular injury 	<ul style="list-style-type: none"> Indications for investigations, combination injures Interpret relevant investigations Recognise relevance or timing of investigations versus immediate surgery 			

SET LEVEL	MEDICAL EXPERTISE		JUDGEMENT / CLINICAL DECISION MAKING			TECHNICAL EXPERTISE	
	ANATOMY PHYSIOLOGY PATHOLOGY	CLINICAL ASSESSMENT	INVESTIGATIONS	PRINCIPLES OF MANAGEMENT	OPERATIVE MANAGEMENT - KNOWS -	OPERATIVE MANAGEMENT - DOES -	
Vascular trauma (continued)							
Mid SET				<ul style="list-style-type: none"> Outline methods of vascular repair Describe an approach to stab injuries to neck, groin and upper limbs Appraise approaches to and management of thoracic injuries including widened mediastinum 	<ul style="list-style-type: none"> Exposure of major abdominal vessels 		
Lymphatic disease							
Early SET	<ul style="list-style-type: none"> Delineate normal anatomy, embryology and function 						
Mid SET	<ul style="list-style-type: none"> Identify the etiology and pathogenesis of lymphodema and lymphocele Understand microbiology of cellulitis in lymphedematous limbs 	<ul style="list-style-type: none"> Assessment and differential diagnosis of the swollen limb, especially the unilateral 		<ul style="list-style-type: none"> Describe conservative management options and prevention; See also Breast Module Manage complications of lymphatic disease, especially cellulitis 			
Variant anatomy and non-anatomical reconstruction							
Mid SET	<ul style="list-style-type: none"> Describe common vascular anomalies and their surgical relevance 			<ul style="list-style-type: none"> Explain the surgical implications of non-anatomic reconstruction 			

SET in Paediatric Surgery
Expected Minimum Performance
Technical Expertise and Judgement Competencies for Abdominal Wall, Hernias and Inguinoscrotal Conditions.

This template is a guide to the minimum level of competency for technical expertise and clinical judgement for different levels of training for SET in Paediatric Surgery.

The template is divided into three sections.

The first section is for **perioperative management and non-operative assessment of conditions**. It is expected a trainee would develop competency in diagnosis and peri-operative management of paediatric surgical conditions before developing an equivalent level of technical competency in the performance of the associated operative procedures.

The second section is the **procedural and technical expertise** expected at different levels of training (operative competency). During Mid SET a paediatric surgical trainee would be expected to achieve levels of competency at a **C** and **D** level for most common paediatric surgical conditions. Complex paediatric surgical procedural competency would be further developed in Senior SET.

The third section covers those **procedures that would be desirable to achieve competency in and/or are highly sub-specialised**. The trainee should be cognisant of the role and indications for these procedures in treatment regimes as well as the steps and complications involved in their performance.

The template should be used in conjunction with the appropriate curriculum module in SET in paediatric surgery. The template refers to *paediatric surgical conditions and presentations*.

This template is used as a guide in the overall assessment of progress of competency attainment for individual trainees in: application of knowledge to clinical situations; judgment in case management; interpretation of investigations; clinical diagnosis; and operative performance. These are assessed during day to day work and as a component of work-based assessments such as case based discussions, mini-CEX, MOUSE, 360°, quarterly trainee evaluation assessments, ward rounds and case presentations.

Key for levels of competence is:

- A.** Has basic knowledge of condition or procedure
- B.** Can act under full supervision
- C.** Can act under moderate supervision
- D.** Can act independently – with remote supervision
- E.** Can act as a supervisor and/or as safe independent professional with appropriate consultation as part of surgical team.
- F.** This category is intended for those procedures/conditions for which it is usual for a paediatric surgeon to provide care with assistance of a colleague or within a tertiary sub-specialised paediatric surgery unit.

Non operative Assessment and Perioperative Management of Conditions

- A. Has basic knowledge of condition
- B. Presents and discusses cases fully with consultant or senior registrar and is instructed on further management and investigations.
- C. Presents and discusses cases with consultant or senior registrar, but rarely needs correction or instruction on further management.
- D. Discusses case with consultant and starting to take lead responsibility on the case management. Consultant confident in registrar's management and diagnostic accuracy.
- E. Fully able to manage and investigate condition appropriately (as per D), has leadership role in case and can supervise junior colleague in management.
- F. Fully able to coordinate investigations and manage condition (as per D). Will appropriately consult with sub-specialty surgical and medical units

Non operative Assessment and Perioperative Management of Conditions	SET 1	End Early SET	MID	SET	SENIOR	SET
Umbilical lesions and hernias	B		C	D	E	E
Femoral Hernia	A	B	C	D	E	E
Inguino-scrotal masses	B		C	D	E	E
Testicular anomalies including maldescent	B		C	D	E	E
Simple Ventral abdominal wall hernias	A		B	C	D	E
Congenital abdominal wall defects	A		B	C	D	E

Demonstrate proficiency in safely carrying out the following procedures

- A. Has basic knowledge of procedure
- B. Performs procedure under full supervision or is being actively instructed in procedure as part of training process.
- C. Performs procedure with supervision and needs assistance for more difficult cases.
- D. Consultant will be available to come in and assist, or will confidently supervise un-scrubbed.
- E. Can perform as a safe independent professional and may supervise and instruct junior colleagues in procedure.
- F. Active senior participant in surgical procedure as part of a sub-specialty surgical team.

Demonstrate proficiency in safely carrying out the following procedures	SET 1	End Early SET	MID	SET	SENIOR	SET
Umbilical Hernia Repair	B	B	C	D	E	E
Epigastric Hernia repair	B	B	C	D	E	E
Treatment Umbilical Granuloma	B	B	C	D	E	E
Inguinal Herniotomy	B	B	C	D	D	E
Inguinal hernia repair	A	B	C	D	D	E
Femoral Hernia repair	A	B	C	D	D	E
Jaboulay procedure	A	B	C	D	D	E
Orchidopexy including staged	B	B	C	D	E	E
Excision of vitellointestinal duct remnants	A		B	C	D	E
Excision of urachal remnants	A		B	C	D	E
Primary Closure Gastroschisis	A		B	B	C	D
Primary Closure Exomphalos	A		B	B	C	D
Management Silo and staged reduction congenital abdominal wall defect	A		B	B	C	D
See other modules eg Urology, Neonatal and Skin.						

Discuss Procedures (Desirable or sub-specialised procedures)

- A.
- B.
- C.
- D. Can outline appropriate operative plans and options.
- E.
- F. Can describe detailed appropriate management plans and operative approaches and techniques due to own experience and observations as active participant in surgical team in similar cases.

Discuss Procedures	SET 1	End Early SET	MID	SET	SENIOR	SET
Complex abdominal wall reconstruction		A		D		F

Module Title:	ABDOMINAL WALL, HERNIA AND INGUINO-SCROTAL CONDITIONS	Date: May 2013
Module Rationale and Competencies	<p>A paediatric surgeon is required to have a thorough understanding of normal anatomy, physiology, pathophysiology, investigations, differential diagnosis and operative and non operative management of conditions of the ventral abdominal wall and Inguinoscrotal region of children. It is important that paediatric surgeons maintain a current understanding of the most appropriate time and manner of intervention. A paediatric surgeon must at all times have knowledge of their obligation in regard to consent and guardianship.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> • Diagnose and manage pathological conditions that pertain to the ventral abdominal wall and Inguinoscrotal region. • Communicate information to patients and their family about procedures, potentialities and risks associated with surgery in ways that encourage their participation in informed decision making including antenatal counselling • Select appropriate investigative tools. • Adapt their skill in the context of each patient for each procedure. • Identify and manage risk. • Recognise the need to refer patients to other professionals. 	
Embryology	<p>The embryology of the:</p> <ul style="list-style-type: none"> • Formation of the abdominal cavity and ventral abdominal wall, and its relationship to the gastrointestinal tract, including the vitello-intestinal tracts. • Descent of the testis. 	
Anatomy	<p>Trainees should have a thorough knowledge of the anatomy of the:</p> <ul style="list-style-type: none"> • Ventral abdominal wall and umbilicus, including the obliterated umbilical vessels and urachus. • Inguinoscrotal region including genitalia and gonads 	
Suggested Reading	Refer to Paediatric Surgery reading list available on the College website.	
Learning Opportunities, Resources and Methods	Annual Scientific Congress of ANZAPS, Critical Appraisal Tasks, Directed Online Group Studies, MOUSE, Trainees should attend public and private outpatients and operating sessions at every opportunity and participate in the decision-making process as well as the operative procedure and peri-operative care, Compulsory courses.	
How this unit will be assessed	<p>Fellowship examination, written papers. Trainee evaluation forms and logbooks. Paediatric Anatomy and Paediatric Pathophysiology Examination.</p> <p>The level of competence in application of knowledge to clinical situations, judgment in case management, interpretation of investigations and clinical diagnosis will be assessed during day to day work and as a component of work-based assessments such as case based discussions, mini-CEX, MOUSE, 360°, quarterly trainee evaluation assessments, ward rounds and case presentations. This curriculum module should be read in conjunction with the appropriate template of Expected Performance Technical Expertise and Judgement Competencies. (Paediatric Surgery Abdominal Wall, Hernia and Inguinoscrotal Conditions)</p>	

The use of the following key will define in which areas the trainee should have be competent in knowledge of basic paediatric surgery science and application of knowledge to relevant situations at the end of the SET level.

End EARLY SET

End MID SET

SENIOR SET

Extended explanation of levels of technical competencies key :

- A.**
- B. *Non - operative management:*** Presents and discusses fully with consultant or senior registrar and is instructed on further management and investigations.
Operative management: performs procedure under full supervision or is being actively instructed on procedure as part of training process.
- C. *Non – operative management:*** Presents and discusses with consultant or senior registrar, but rarely needs correction or instruction on further management.
Operative management: Performs procedure with supervision and needs assistance for more difficult cases.
- D. *Non-operative management:*** Discusses case with consultant and starting to take lead responsibility on the case management. Consultant confident in registrar's management and diagnostic accuracy.
Operative management: Consultant will be available to come in and assist, or will confidently supervise un-scrubbed.
Discuss Procedures: Can outline appropriate operative plans and options.
- E. *Non-operative management:*** Fully able to manage and investigate condition appropriately and can supervise junior colleague in management.
Operative management: Can supervise and instruct junior colleague.
Discuss Procedures: Can describe detailed appropriate management plans and operative approaches and techniques due to own experience and observations as active participant in surgical team in similar cases.
- F.** This category is intended for those procedures/conditions for which it is usual for a paediatric surgeon to provide care with assistance of a colleague or within a tertiary sub-specialised paediatric surgery unit.
Non-operative management: Fully able to coordinate investigation and management of condition. Will appropriately consult sub-specialty surgical and medical units.
Operative Management: Active senior participant in surgical procedure as part of a sub-specialty surgical team.
Discuss procedures: Can describe detailed appropriate management plans and operative approaches and techniques due to own experience and observations as active participant in surgical team in similar cases.

ABDOMINAL WALL, HERNIA AND INGUINO-SCROTAL CONDITIONS					Operative management/competency	
Disease process	Pathology/Pathophysiology	Clinical assessment	Investigations	Principles of Management	Essential	Desirable
Umbilical hernia	Explain the embryology and anatomy of the umbilicus. Describe the natural history of umbilical hernia untreated.	Interpret examination findings.		Explain the timing and nature of treatment of umbilical hernia.	Repair of umbilical hernia.	
Epigastric hernia	Describe the anatomy of epigastric hernia and explain how epigastric hernia produces symptoms.	Interpret examination findings.		Describe the management options and indications for surgical repair.	Repair of epigastric hernia.	
Umbilical discharge	Explain the causes of umbilical discharge and the embryological basis of each.	Distinguish the different causes of a discharging umbilicus.	Describe the indications for imaging a discharging umbilicus.	Write an algorithm for the management of a moist of discharging umbilicus.	Resection of persistent vitello-intestinal tract and urachal remnants.	
Inguinal hernia	Describe the anatomy of the inguinal region, including the relationship of the structures within the spermatic cord. Classify groin hernias. Describe the embryology of the processes vaginalis and testicular descent. Explain the significance of an absent vas or a gonad in a hernial sac.	Identify the clinical features of reducible and irreducible inguinal hernias. Distinguish the causes of an irreducible groin lump.		Describe the indications and timing of surgical repair. Discuss indications for use of mesh.	Demonstrate ability to reduce an incarcerated inguinal hernia. Uncomplicated Inguinal herniotomy. Complicated Inguinal herniotomy	
Femoral hernia	Describe the anatomy of the femoral canal.	Distinguish a femoral hernia from an inguinal hernia.		Describe the operative procedure to repair a femoral hernia.	Femoral hernia repair.	
Hydrocele	Describe the anatomy and embryology of the inguinoscrotal region and why hydroceles may occur.	Interpret examination findings in complete range of presentations.		Describe the natural history of hydrocele & relate to the timing of operative management.	Inguinal herniotomy. Jaboulay procedure	

ABDOMINAL WALL, HERNIA AND INGUINO-SCROTAL CONDITIONS					Operative management/competency	
Disease process	Pathology/Pathophysiology	Clinical assessment	Investigations	Principles of Management	Essential	Desirable
Gastroschisis See Neonatal module	<p>Explain the embryology and anatomy of the relationship of the gut to the abdominal wall.</p> <p>Describe the physiological processes which influence management of gastroschisis, including temperature, intra-abdominal pressure, sepsis and gut function.</p> <p>Explain when and how gastroschisis occurs. List the associated anomalies that may occur.</p>	Interpret examination findings and clinical identification of complicated gastroschisis (for example associated atresia).	Describe the antenatal features found on investigation and how they may provide prognostic information.	Describe the significance of antenatal diagnosis on perinatal management. Explain the justification and physiological basis for pre-operative management. Know management of patient with antenatal diagnosis and the principles of early postnatal management, including transfer/transport of the infant. Review the surgical options for primary repair and clinical identification of complicated gastroschisis (for example associated atresia).	<p>Surgical closure of gastroschisis and surgical management of complicated gastroschisis.</p> <p>Primary repair.</p> <p>Describe indicators that enable primary repair.</p> <p>Understand the use of a silo and the timing of removal of silo with closure.</p> <p>Know options other than primary repair and silo.</p>	
Exomphalos See Neonatal Module	<p>Explain the embryology and anatomy of the abdominal cavity.</p> <p>List the conditions that may be associated with exomphalos.</p>	Interpret examination findings. List the clinical features that determine the	Describe the antenatal features found on investigation and how they may provide prognostic	Describe the advice to be given to parents at the time of antenatal diagnosis. Know the principles	<p>Primary closure.</p> <p>Staged Closure.</p>	

ABDOMINAL WALL, HERNIA AND INGUINO-SCROTAL CONDITIONS					Operative management/competency	
Disease process	Pathology/Pathophysiology	Clinical assessment	Investigations	Principles of Management	Essential	Desirable
Exomphalos continued		immediate postnatal management.	information. List and justify immediate postnatal investigations and their implications.	and complications of post natal management including non-operative, staged and primary closure procedures.		
Maldescended Testis	Explain the embryology of gonadal development including descent of testis and associated anomalies of embryological development.	Correctly differentiate clinically between absent, retractile and maldescended testis. Examine for associated anomalies. Describe position and size of palpable testis.	Describe investigations appropriate to the clinical management of mal- descended and absent testis. Discuss inappropriate and limitations of investigations of this condition.	Describe the natural history, timing of surgery, long term outcomes and complications for the complete range of presentations. Discuss management of intra-abdominal testis including late presentations.	Orchidopexy Staged orchidopexy	

SET in Paediatric Surgery
Expected Minimum Performance
Technical Expertise and Judgement Competencies for Tumours occurring in Childhood.

This template is a guide to the minimum level of competency for technical expertise and clinical judgement for different levels of training for SET in Paediatric Surgery.

The template is divided into three sections.

The first section is for **perioperative management and non-operative assessment of conditions**. It is expected a trainee would develop competency in diagnosis and peri-operative management of paediatric surgical conditions before developing an equivalent level of technical competency in the performance of the associated operative procedures.

The second section is the **procedural and technical expertise** expected at different levels of training (operative competency). During Mid SET a paediatric surgical trainee would be expected to achieve levels of competency at a **C** and **D** level for most common paediatric surgical conditions. Complex paediatric surgical procedural competency would be further developed in Senior SET.

The third section covers those **procedures that would be desirable to achieve competency in and/or are highly sub-specialised**. The trainee should be cognisant of the role and indications for these procedures in treatment regimes as well as the steps and complications involved in their performance.

The template should be used in conjunction with the appropriate curriculum module in SET in paediatric surgery. The template refers to *paediatric surgical conditions and presentations*.

This template is used as a guide in the overall assessment of progress of competency attainment for individual trainees in: application of knowledge to clinical situations; judgment in case management; interpretation of investigations; clinical diagnosis; and operative performance. These are assessed during day to day work and as a component of work-based assessments such as case based discussions, mini-CEX, MOUSE, 360°, quarterly trainee evaluation assessments, ward rounds and case presentations.

Key for levels of competence is:

- A.** Has basic knowledge of condition or procedure
- B.** Can act under full supervision
- C.** Can act under moderate supervision
- D.** Can act independently – with remote supervision
- E.** Can act as a supervisor and/or as safe independent professional with appropriate consultation as part of surgical team.
- F.** This category is intended for those procedures/conditions for which it is usual for a paediatric surgeon to provide care with assistance of a colleague or within a tertiary sub-specialised paediatric surgery unit.

NON OPERATIVE ASSESSMENT and PERIOPERATIVE MANAGEMENT of Conditions

- A. Has basic knowledge of condition
- B. Presents and discusses cases fully with consultant or senior registrar and is instructed on further management and investigations.
- C. Presents and discusses cases with consultant or senior registrar, but rarely needs correction or instruction on further management.
- D. Discusses case with consultant and starting to take lead responsibility on the case management. Consultant confident in registrar's management and diagnostic accuracy.
- E. Fully able to manage and investigate condition appropriately (as per D), has leadership role in case and can supervise junior colleague in management.
- F. Fully able to coordinate investigations and manage condition (as per D). Will appropriately consult with sub-specialty surgical and medical units

Non operative Assessment and Perioperative Management of Conditions	SET 1	End Early SET	MID	SET	SENIOR	SET
Enlarged cervical lymph node	A	B	C	D	D	E
Ovarian torsion	A	B	C	D	D	E
Gonadal tumours	A	B	C	D	D	F
Rhabdomyosarcoma /soft tissue tumours	A	B	B	C	D	F
Neuroblastoma	A	B	B	C	D	F
Wilms Tumour	A	B	B	C	D	F
Mesoblastic nephroma	A	B	B	C	D	F
Lymphoma including mediastinal	A	B	B	C	D	F
Teratoma	A	B	B	C	D	F
Hepatic masses in childhood	A	B	B	C	D	F
Pancreatic Tumours	A	B	B	C	D	F

Demonstrate proficiency in safely carrying out the following procedures

- A. Has basic knowledge procedure
- B. Performs procedure under full supervision or is being actively instructed in procedure as part of training process.
- C. Performs procedure with supervision and needs assistance for more difficult cases.
- D. Consultant will be available to come in and assist, or will confidently supervise un-scrubbed.
- E. Can perform as a safe independent professional and may supervise and instruct junior colleagues in procedure.
- F. Active senior participant in surgical procedure as part of a sub-specialty surgical team.

Demonstrate proficiency in safely carrying out the following procedures	SET 1	End Early SET	MID	SET	SENIOR	SET
Biopsy of tumour	A	B	C	C	D	F
Insertion Central Venous Catheters with or without implanted access devices	A	B	C	C	D	E
Cervical node excision	A	B	B	C	D	E
Excision testicular tumour	A	A	B	C	D	E
Complete excision neuroblastoma	A	A	B	B	C	F
Radical Nephrectomy	A	A	B	B	C	F
Nephron sparing surgery	A	A	B	B	C	F
Excision sacrococcygeal teratoma	A	A	A	B	B	C
Anatomic resection of hepatic lesions	A		A	B	B	B
See other modules incl Thoracic (eg regarding pulmonary resections), Skin and Abdominal Modules (eg laparotomy, resections and pancreatic surgery)						
Discuss Procedures (Desirable or sub-specialised procedures)						
<ul style="list-style-type: none"> D. Can outline appropriate operative plans and options. F. Can describe detailed appropriate management plans and operative approaches and techniques due to own experience and observations as active participant in surgical team in similar cases. 						
Discuss Procedures	SET 1	End Early SET	MID	SET	SENIOR	SET
Chest wall PNET tumour			B		D	F
Bilateral Wilms Tumour			B		D	F
Caval involvement Wilms tumour			B		D	F

MODULE TITLE: TUMOURS OCCURRING IN CHILDHOOD	Date: March 2013
Module Rationale and Objectives	<p>A paediatric surgeon is required to have a broad knowledge of all childhood solid tumours to be an effective member of a multidisciplinary oncology team in the diagnosis, investigation, treatment and long-term care of children with solid tumours. A paediatric surgeon will exhibit professionalism in only performing those procedures for which they are competently trained. A paediatric surgeon must at all times have knowledge of their obligation in regard to consent and guardianship.</p> <p><u>The Graduating Trainee will be able to:</u></p> <ul style="list-style-type: none"> • Recognise and describe the use of multidisciplinary treatment in paediatric oncology. • Define the roles of a surgeon in the diagnosis and management of various childhood solid tumours. • Demonstrate an understanding of tumour biology and behaviour. • Discuss the short and long term effects of multi-modality, in particular, operative treatment. • Adapt their skill in the context of each patient and each procedure. • Recognise the need to refer patients to other surgical specialists. • Identify the future needs of the patients based on knowledge of the likely outcome of management and long-term prognosis. • Discuss with the family and patient the long-term effects (for example on puberty, fertility, growth and development) of various treatment modalities. • Obtaining informed consent for treatment and participation in clinical trial. • Evaluate the cost-benefit and risks of various modalities of treatment. <p>Participate in critical analysis of and discussion of controversies in management.</p>
Embryology	<p>The embryology of:</p> <ul style="list-style-type: none"> • The germinal layers of foetal development. • The development of neural crest cells and the sympathetic nervous system. • Solid organogenesis (for example, liver, kidney, gonads).
Anatomy	<p>Trainees should have thorough knowledge of:</p> <ul style="list-style-type: none"> • The vascular anatomy of the solid viscera affected by the neoplastic process. • The lymphatic drainage of the solid viscera affected by the neoplastic process. • The anatomical relationship of the involved viscera with surrounding structures.
Suggested Reading	<p>Refer to Paediatric Surgery reading list available on the College website, and also Trainees will be expected to keep abreast with current literature including reports from international study groups.</p>
Learning Opportunities, Resources & Methods	<p>Annual Scientific Congress of ANZAPS, Critical Appraisal Tasks, Directed Online Group Studies, MOUSE, Trainees should attend public and private outpatients and operating sessions at every opportunity and participate in the decision-making process as well as the operative procedure and peri-operative care, Compulsory courses. Multidisciplinary solid tumors clinical meetings.</p>
How this unit will be assessed	<p>Fellowship Examinations. Trainee evaluation forms and logbooks. Paediatric Anatomy and Paediatric Pathophysiology Examination. The level of competence in application of knowledge to clinical situations, judgment in case management, interpretation of investigations and clinical diagnosis will be assessed during day to day work and as a component of work-based assessments such as case based discussions, mini-CEX, MOUSE, 360", quarterly trainee evaluation assessments, ward rounds and case presentations. This curriculum module should be read in conjunction with the appropriate template of Expected Performance Technical Expertise and Judgement Competencies. (Tumours occurring in Childhood)</p>

The use of the following key will define in which areas the trainee should have to be competent in knowledge of basic paediatric surgery science and application of knowledge to relevant situations at the end of the SET level.

End EARLY

End MID SET

SENIOR SET

Extended explanation of levels of technical competencies key :

- A.** Has basic knowledge of condition or procedure
 - B.** *Non - operative management:* Presents and discusses fully with consultant or senior registrar and is instructed on further management and investigations.
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 - C.** *Non – operative management:* Presents and discusses with consultant or senior registrar, but rarely needs correction or instruction on further management.
Operative management: Performs procedure with supervision and needs assistance for more difficult cases.
 - D.** *Non-operative management:* Discusses case with consultant and starting to take lead responsibility on the case management. Consultant confident in registrar's management and diagnostic accuracy.
Operative management: Consultant will be available to come in and assist, or will confidently supervise un-scrubbed.
Discuss Procedures: Can outline appropriate operative plans and options.
 - E.** *Non-operative management:* Fully able to manage and investigate condition appropriately and can supervise junior colleague in management.
Operative management: Can supervise and instruct junior colleague.
Discuss Procedures: Can describe detailed appropriate management plans and operative approaches and techniques due to own experience and observations as active participant in surgical team in similar cases.
 - F** This category is intended for those procedures/conditions for which it is usual for a paediatric surgeon to provide care with assistance of a colleague or within a tertiary sub-specialised paediatric surgery unit.
Non-operative management: Fully able to coordinate investigation and management of condition. Will appropriately consult sub-specialty surgical and medical units.
Operative Management: Active senior participant in surgical procedure as part of a sub-specialty surgical team.
Discuss procedures: Can describe detailed appropriate management plans and operative approaches and techniques due to own experience and observations as active participant in surgical team in similar cases.
-

TUMOURS OCCURRING IN CHILDHOOD					Operative management / competency	
Disease process	Pathology / Pathophysiology	Clinical assessment	Investigations	Principles of management	Essential	Desirable
<p>Soft tissue tumours and Rhabdomyosarcoma</p> <p>See Skin Module</p>	<p>Describe the histological subtypes of rhabdomyosarcoma and their prognostic implications</p> <p>Recognise the different tumour types in specific sites (e.g. pelvic, head & neck) and for different age groups and relate to clinical prognosis and tumour behaviour</p> <p>List a classification of soft tissue tumours of childhood including PNET and fibromatosis groups.</p>	<p>Identify the signs and symptoms of tumours arising from specific sites</p> <p>Differentiate benign and malignant soft tissue masses</p>	<p>Use and evaluate results from appropriate haematological, biochemical and medical imaging modalities</p> <p>Discuss the methods of obtaining tissue for histological diagnosis and role of various tests performed on biopsy tissue (including immuno-histochemistry, electron microscopy and cytogenetics)</p>	<p>Work with a multidisciplinary oncology team in developing a management plan</p> <p>Identify the role and contribution of a surgeon in the management of these tumours</p> <p>Recognise the role of adjuvant chemotherapy and radiotherapy</p>	<p>Biopsy of tumour using needle and open techniques</p> <p>Perform local excision of tumours</p> <p>Participate in multi-specialties surgical team for operation on tumours involving specific sites (e.g. bladder, vagina) when appropriate</p>	<p>Perform major reconstructive operation after tumour excision</p>
<p>Neuroblastoma</p>	<p>Explain the origin of neuroblastoma and the potential sites of their manifestation</p> <p>Describe the genetics and histological features and their prognostic implications</p> <p>List the metabolic tumour by-products</p>	<p>Recognise the variable presentations of neuroblastoma</p> <p>Differentiate neuroblastoma from other masses</p> <p>Describe the symptoms and signs associated with variable presentations of neuroblastoma</p>	<p>Employ the appropriate haematological, biochemical, genetic tests and imaging modalities available for the diagnosis and staging of neuroblastoma</p> <p>Identify the results of investigations with prognostic significance</p>	<p>Identify the role and contribution of a surgeon in a multidisciplinary oncology team in developing a management plan</p> <p>Participate in providing the family with accurate information on the likely outcome, prognosis and implications of</p>	<p>Biopsy of tumour using needle and open techniques</p> <p>Discuss the assessment of the limitations and extent of excision of neuroblastoma arising from specific sites (e.g. tumour encasing mesenteric vessels)</p>	

TUMOURS OCCURRING IN CHILDHOOD					Operative management / competency	
Disease process	Pathology / Pathophysiology	Clinical assessment	Investigations	Principles of management	Essential	Desirable
Neuroblastoma cont.	Describe the staging criteria and recognise the influence of age on prognosis Discuss the maturation process seen in neuroblastomas (natural and post-treatment)	Define the clinical staging	Discuss the methods of obtaining tissue for histological diagnosis and role of various tests performed on biopsy tissue (including immuno-histochemistry, electron microscopy and cytogenetics)	neuroblastoma Summarise the basic principles and roles of chemotherapy, radiotherapy, autologous transplantation and radical surgery in children with neuroblastoma Evaluate the differences between the international treatment protocols for neuroblastoma	Perform the surgical procedures employed in the excision of neuroblastoma arising from various sites (e.g. thoracic, abdominal)	
Nephroblastoma (Wilms tumour) & Mesoblastic nephroma	Describe the pathogenesis of Wilms tumour and its histological subtypes Identify the genetic mutation in and the various syndromes associated with the development of Wilms tumour Describe the prognostic implications of nephrogenic rests in patients with and without Wilms tumours.	Differentiate Wilms tumour from other abdominal masses Employ early detection strategy in syndromes associated with Wilms tumour Identify relevant symptoms and signs (e.g. haematuria, acute varicocoele) Define the clinical staging	Employ and interpret appropriate imaging modalities for the diagnosis and staging of Wilms tumour Assess the presence and extent of tumour thrombus in renal vein, IVC and right atrium	Identify the role and contribution of a surgeon in a multidisciplinary oncology team in developing a management plan Discuss the place of tumour biopsy prior to definitive excision Describe the role of operative treatment for Wilms tumour and mesoblastic nephroma.	Assess the primary operability of unilateral and bilateral Wilms tumours Perform the surgical procedures employed in the excision of unilateral renal tumour and the sampling of relevant lymph nodes Dealing with caval and atrial extension of Wilms tumour or participate in management of this scenario with other	Perform the surgical procedures employed in managing bilateral Wilms tumours (eg partial nephrectomies)

TUMOURS OCCURRING IN CHILDHOOD					Operative management / competency	
Disease process	Pathology / Pathophysiology	Clinical assessment	Investigations	Principles of management	Essential	Desirable
Nephroblastoma (Wilms tumour) & Mesoblastic nephroma cont	Identify the pathological features of mesoblastic nephroma and its prognostic implications			<p>Discuss the role of adjuvant chemotherapy and radiotherapy</p> <p>Evaluate the differences between the international treatment protocols for Wilms tumour</p> <p>Participate in providing the family with accurate information on the likely outcome, prognosis and implications.</p>	<p>surgical specialists.</p> <p>Perform resection of pulmonary metastases</p>	
Gonadal tumours	<p>Describe the classification of germ cell tumours of the testis and ovary</p> <p>List other benign and malignant gonadal tumours</p>	<p>Recognise the symptoms and signs of gonadal tumours</p> <p>Identify the hormonal effects of certain gonadal tumours</p> <p>Identify evidence of metastases</p>	<p>Use appropriate haematological, biochemical, histological and imaging modalities in the diagnosis and staging of malignant gonadal tumours</p> <p>Use and interpret appropriate tumour markers</p>	<p>Identify the role and contribution of a surgeon in a multidisciplinary oncology team in developing a management plan</p> <p>Discuss the role of adjuvant chemotherapy and radiotherapy.</p> <p>Participate in providing the family and patient with accurate information on the likely outcome, prognosis and implications</p>	<p>Use appropriate technique in the inguinal exploration and operation for potentially malignant testicular tumours</p> <p>Perform the surgical procedures employed in the excision of gonadal tumours and lymph node metastases Including laparoscopic approaches.</p>	

TUMOURS OCCURRING IN CHILDHOOD					Operative management / competency	
Disease process	Pathology / Pathophysiology	Clinical assessment	Investigations	Principles of management	Essential	Desirable
Lymphoma	Describe the histological classification of lymphomas	Identify the symptoms and signs(including constitutional)of lymphomas arising from various sites Recognise the acuity of symptoms with lymphomas arising in the mediastinum Define the clinical staging	Use and evaluate results from appropriate haematological, biochemical, histological and imaging modalities for the diagnosis and staging of lymphomas	Work with a multidisciplinary oncology team in developing a management plan Identify the operative procedures employed in the management of lymphomas Recognise the roles of chemotherapy and radiotherapy	Biopsy of tumour using needle and open techniques Perform operative procedures required to relieve gastrointestinal complications associated with abdominal lymphomas	Mediastinoscopy for biopsy of mediastinal lymphoma
Teratoma/ Sacrococcygeal teratoma	Explain the embryologic origin of teratoma List the sites where teratoma may develop Describe the histological features of mature, immature and malignant teratoma	Identify the symptoms and signs of teratomas arising from specific sites	Use and interpret results of appropriate imaging modalities Use and interpret specific serum tumour markers	Discuss the role of adjuvant chemotherapy	Describe and perform the surgical procedures employed in the excision of teratoma, in particular, sacrococcygeal teratoma Participate in multi-specialties surgical team for operation on teratoma involving specific sites	
Hepatic & Pancreatic tumours	List primary tumours arising from the liver and pancreas Describe the histological features of hepatoblastoma	Identify the signs and symptoms of tumour arising from the liver or the pancreas Recognise the circulatory and haematological	Use and evaluate results from appropriate haematological, biochemical and imaging modalities	Describe the role and contribution of a surgeon in development of the management plan when working in a multidisciplinary	Perform the surgical procedures employed in the treatment of hepatic and pancreatic	Perform major hepatic resection including multi-segmentectomy

TUMOURS OCCURRING IN CHILDHOOD					Operative management / competency	
Disease process / Procedure	Pathology / Pathophysiology	Clinical assessment	Investigations	Principles of management	Essential	Desirable
Hepatic & Pancreatic tumours cont.	Classify the tumours of the pancreas	effects of benign vascular hepatic lesions in children Recognise the clinical entity of Persistent Hyperinsulinaemic Hypoglycaemia of Infancy	Use of serum tumour markers	Oncology team Recognise the role of non-operative treatment modalities in hepatic and pancreatic tumours	Tumours of specific nature, in conjunction with other surgical specialists when appropriate	
Hamartomas (excluding congenital vascular anomalies)	Define a hamartoma Describe the histological features of various types of hamartomas (e.g. hamartoma of infancy, mesenchymal hamartoma)	Identify the symptoms and signs of hamartomas arising from specific sites	Use of imaging modalities in the diagnosis of hamartomas Discuss the role of histological diagnosis	Recognise the role of operative and non-operative management of hamartomas Identify the need to consult other specialists	Biopsy of tumour using needle and open techniques Perform the excision of hamartomas	
Central venous access (CVL)		Recognise clinical evidence of SVC or IVC obstruction and other complications of CVL access devices.	Use of imaging modalities in the assessment of the patency of central venous system and site placement for CVL access	Work with a multidisciplinary team in developing a management plan in regard to the timing and various forms of central venous access devices. Participate in consenting the family and patient on the implications and complications of CVL	Perform operation to provide central venous access by percutaneous or open techniques	
Percutaneous biopsy				Use of imaging modalities to guide biopsy	Learn to use various percutaneous needle biopsy instruments	Use of ultrasound imaging technique

MODULAR CURRICULUM PORTFOLIO

Surgical Education and Training



Urology



Updated September 2013
(Review due September 2015)
(Examination resources updated – July 2016)

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INTRODUCTION

The objective of this portfolio assessment and curriculum booklet is to lay out transparently, the expectations and objectives of the SET Program in Urology. This is a working document that is expected to change over time as scientific and social advances are made.

The original curriculum was the result of over 2 years of effort by members of the USANZ. The curriculum committee was a subcommittee of the executive, and was chaired by Peter Royce with a committee including Andrew Brooks, Peter Heathcote, Bill Lynch, Lawrie Hayden, Mohamed Khadra, Frank Gardiner, Simon Bariol (then Trainee Rep), David Barr (then USANZ CEO), Anne Ellison (RACS) and Wendy Crebbin (RACS). The committee sought to describe not only the scientific and clinical content of a safe urologist's knowledge base, but also the communication and behavioral characteristics. The document was reviewed by the 2013 Board of Urology in consultation with relevant SAG delegates.

The final examination in Urology will be broadly drawn from this curriculum but does assess the assimilation of this knowledge base into clinical practice.

Instead of presenting the curriculum as a series of objectives, it is presented here as a portfolio. This portfolio allows the trainee and trainer to document the training process together and to be able to chart ongoing coverage of the curriculum. It is important that the trainee has read access to this portfolio and that there is a broad plan to sign off on topics, competencies and characteristics as they are acquired.

The portfolio could be used as a study guide and/or mechanism to document the multitude of informal and formal teaching events that occur throughout the training period. A signoff is only done once the trainee has reached a satisfactory level of competence for their stage of training, *as judged by the trainer*. If the trainee presents a topic and still has some deficiencies then no signature should be given. A signature means the trainee is satisfactory. While it is recognised that there is no standardised marking system, it is expected that over the course of the six year training program in urology that each topic will be covered multiple times by different trainers and at different stages of training. Hence, there is an inherent check on level of knowledge and standard expected.

The signoff process itself can take many forms and can be in a variety of situations, formal and informal. Some examples are described below:

1. Formal: The trainee and trainer agree on the topic to be covered in the next session of training. The trainee presents their knowledge to the trainer and then is graded on their level of mastery of the topic in relation to their year of training.
2. Formal: The trainee gives a talk to the unit on a particular topic.
3. Informal: A patient with a particular topic is discussed and the trainee displays their knowledge.

It is important that the process is explicit. *"Please grade me on ..."*, *"Do you feel ready to be graded on ..."* This is not a secret process. Training is meant to be a two-way dialogue that is transparent and open. In addition to completing this portfolio, the trainer is also obliged to complete quarterly assessment reports and of course participate in all of the other training requirements as specified by the Board of Urology and Section TA&E subcommittee.

Surgical Competence

Surgical competence is not part of the urology curriculum portfolio but will be assessed by the Supervisors of training in conjunction with the Board of Urology, as part of the quarterly in-training assessment process.

COMPETENCIES OF A GRADUATING UROLOGIST

<p>Medical Expertise</p> <p>Establish and maintain clinical knowledge, skills and attitudes appropriate to their practice</p> <ul style="list-style-type: none"> • Basic Sciences • Pre-operative, intra-operative, and post-operative care and assessment. • Apply clinical knowledge in practice to recognise and safely solve real-life problems in particular, the treatment of life threatening, as well as, bothersome conditions.
<p>Technical Expertise</p> <p>Safely and effectively perform appropriate surgical procedures</p> <ul style="list-style-type: none"> • Consistently demonstrate sound surgical skills • Demonstrate procedural knowledge and technical skill at a level appropriate to their level of experience • Demonstrate manual dexterity required to carry out procedures • Adapt their skills in the context of each patient-each procedure • Maintain skills and learn new skills • Approach and carry out procedures with due attention to safety of patient, self, and others • Analyse their own clinical performance for continuous improvement
<p>Judgement – Clinical Decision Making</p> <p>Provide compassionate patient-centred care</p> <ul style="list-style-type: none"> • Recognise the symptoms of, accurately diagnose, and manage common problems in their area of expertise • Manage patients in ways that demonstrate sensitivity to their physical, social, cultural, and psychological needs • Use preventative and therapeutic interventions effectively • Recognise the urological (and related) disorders and differentiate those amenable to surgical treatment • Effectively manage the care of patients with severe and acute trauma including multiple system trauma • Manage the critically ill patient • Manage complexity and uncertainty • Effectively manage complications • Plan, and where necessary implement, a risk management plan <p>Perform a complete and appropriate assessment of a patient</p> <ul style="list-style-type: none"> • Take a history, perform an examination, and arrive at a well-reasoned diagnosis • Efficiently and effectively examine the patient <p>Organise diagnostic testing, imaging and consultation as appropriate</p> <ul style="list-style-type: none"> • Select medically appropriate investigative tools and monitoring techniques in a cost-effective, and useful manner • Appraise and interpret radiographic investigations against patient's needs • Critically evaluate the advantages and disadvantages of different investigative modalities
<p>Collaboration</p> <p>Work in collaboration with members of inter-disciplinary teams where appropriate</p> <ul style="list-style-type: none"> • Collaborate with other professionals in the selection and use of various types of treatments assessing and weighing the indications and contraindications associated with each type. • Effectively work with other health professionals to minimise inter-professional conflict and maximise quality of patient care • Demonstrate a respectful attitude towards other colleagues and members of inter-professional teams • Develop a care plan for a patient in collaboration with members of an inter-disciplinary team • Recognise the need to refer patients to other professionals • Initiate the resolution of misunderstandings or disputes

Professionalism

Demonstrate a commitment to their patients, profession, and community through ethical practice

- Consistently apply ethical principles
- Recognise and respond appropriately to ethical issues encountered in practice
- Acknowledge their own limitations
- Is accountable for their own decisions and actions
- Maintain appropriate relations with patients
- Manage patients in a culturally appropriate manner

Recognise medico-legal issues

- Identify ethical expectations that impinge on the most common medico-legal issues
- Recognise the principles and limits of patient confidentiality
- Apply appropriate national / state regulations
- Appropriately report issues as they arise to the relevant authorities

Demonstrate a commitment to their patients, profession, and community through participation in profession-led regulation

- Employ a critically reflective approach to their practice
- Acknowledge and learn from mistakes
- Participate in peer review

Manage medical indemnity and risk

- Appropriately manage conflicts of interest
- Explain the standards of informed consent
- Summarise key issues in relation to professional liability and negligence

Scholar and Teacher

Assume responsibility for their own ongoing learning

- Access and interpret relevant evidence
- Integrate new learning into practice
- Document and evaluate any change in practice

Critically evaluate medical information and its sources, and apply appropriately to practice decisions

- Draw on different kinds of knowledge in order to weigh up patients' problems in terms of context, issues, needs and consequences
- Describe the principles of critical appraisal
- Critically appraise new trends in surgery

Facilitate the learning of patients, families, trainees, other health professionals, and the community

- Collaboratively identify the learning needs and desired learning outcomes of others
- Describe principles of learning relevant to medical education
- Develop teaching skills and facilitate medical student learning
- Provide effective feedback

Contribute to the development, dissemination, application, and translation of new medical knowledge and practices

- Select and apply appropriate methods to address a research question
- Describe the principles of research ethics
- Conduct a systematic search for evidence

Management and Leadership

Allocate finite healthcare resources appropriately

- Effectively use resources to balance patient care and systemic demands
- Identify and differentiate between systemic demands and patient needs
- Apply a wide range of information to prioritise needs and demands

Manage and lead clinical teams

- Is respectful of the different kinds of knowledge and expertise which contribute to the effective functioning of a clinical team
- Communicate with and co-ordinate surgical teams to achieve an optimal surgical environment

Manage their practice and career effectively

- Use time management skills appropriately
- Maintain accurate and up-to-date patient records

Serve in administration and leadership roles, as appropriate

- Plan relevant elements of health care delivery
- Chair or participate effectively in committees, meetings, etc

Communication

Develop rapport, trust and ethical therapeutic relationships with patients and families

- Establish positive therapeutic relationships with patients and their families
- Respect patients confidentiality, privacy and autonomy
- Respect patient diversity and difference (including gender, age, sexual orientation, religion, culture)

Accurately elicit and synthesise relevant information from patients, families, colleagues and other professionals

- Gather information about a health condition and also about a patient's beliefs, concerns, expectations and illness experience
- Identify when a patient is likely to interpret information as bad news and adjust their communication accordingly

Accurately convey relevant information and explanations to patients and families, colleagues and other professionals

- Communicate information to patients (and their family) about procedures, potentialities, and risks associated with surgery in ways that encourage their participation in informed decision making
- Communicate with the patient (and their family) the treatment options, potentials, complications, and risks associated with the use of drugs
- Appropriately adjust the way they communicate with patients to accommodate cultural and linguistic differences

Develop a common understanding (with patients, families, colleagues and other professionals) on issues, problems and plans

- Discuss relevant information with patients (and their family) in ways that encourage their participation in informed decision making
- Encourage patients to discuss and question
- Effectively identify and explore problems to be addressed from a patient encounter

Health Advocacy

Respond to individual patient health needs

- Identify the health needs of an individual patient

Promote health maintenance of patients

- Advise patients (and their families) on ways to maintain and/or improve their health

Respond to the health needs of the community

- Describe the health needs in the practice communities that they serve
- Identify opportunities for advocacy and health promotion and respond appropriately
- Identify the determinants of health in the populations including barriers to access to care and resources
- Identify vulnerable or marginalised populations and respond appropriately

Promote health maintenance of colleagues

- Describe the ethical and professional issues inherent to working in teams

Look after their own health

- Take responsibility to ensure that when they are on duty, or on call, that they are at optimal level of performance

Advocate for improvements in health care

- Identify points of influence in the health care system and its structures
- Describe the role of the medical profession in advocating collectively for health and patient safety
- Advocate for improved resources in the environment where they are employed

Preamble

This modular guide provides a framework to assist in the structured learning SET trainees could use in preparing for the final FRACS (Urol) examinations. The principles and detail required will be harnessed from a variety of (current edition) resources. All trainees should select reference material that suits them. The following resources are commonly used. They include but are not limited to:

INTERMEDIATE STAGE (SSE Exam)Textbooks

1. Wein: Campbell-Walsh Urology (Kavoussi, Novick, Partin and Peters), 11th edition
 - Chapters 1 – Evaluation of the Urologic Patient: History, Physical Examination, and Urinalysis
 - Chapter 2 – Urinary Tract Imaging: Basic Principles of Computed Tomography, Magnetic Resonance Imaging and Plain Film
 - Chapter 3 – Urinary Tract Imaging: Basic Principles of Urologic Ultrasonography
 - Chapter 21 – Surgical, Radiographic, and Endoscopic Anatomy of the Male Reproductive System
 - Chapter 33 - Surgical, Radiographic, and Endoscopic Anatomy of the Retroperitoneum
 - Chapter 42 – Surgical, Radiographic, and Endoscopic Anatomy of the Kidney and Ureter
 - Chapter 64 – Surgical and Radiologic Anatomy of the Adrenals
 - Chapter 67 – Surgical, Radiographic, and Endoscopic Anatomy of the Female Pelvis
 - Chapter 68 - Surgical, Radiographic, and Endoscopic Anatomy of the Male Pelvis
 - Chapter 122 – Embryology of the Genitourinary Tract

2. Ganong's Review of Medical Physiology (Barrett, Boitano, Barman and Brooks), 25th edition
 - Chapter 13 – Autonomic Nervous System
 - Chapter 17 – Hypothalamic Regulation of Hormonal Function
 - Chapter 18 - The Pituitary Gland.
 - Chapter 20 – The Adrenal Medulla & Adrenal Cortex
 - Chapter 21 – Hormonal Control of Calcium & Phosphate Metabolism & The Physiology of Bone
 - Chapter 22 – Reproductive Development & Function of the Female Reproductive System
 - Chapter 23 – Function of the Male Reproductive System
 - Chapter 37 - Renal Function & Micturition
 - Chapter 38 – Regulation of Extracellular Fluid Composition & Volume
 - Chapter 39 – Acidification of the Urine & Bicarbonate Excretion

3. Last's Anatomy Regional and Applied (McMinn), 9th edition
 - Chapter 1 – Introduction to Regional Anatomy
 - Chapter 5 – Abdomen

4. Robbins and Cotran Pathologic Basis of Disease (Kumar, Abbas and Aster), 9th edition
 - Chapter 1 – The Cell as a Unit of Health and Disease
 - Chapter 2 – Cellular Responses to Stress and Toxic Insults: Adaptation, Injury, and Death
 - Chapter 3 – Inflammation and Repair
 - Chapter 4 – Hemodynamic Disorders, Thromboembolic Disease, and Shock
 - Chapter 5 – Genetic Disorders
 - Chapter 6 – Diseases of the Immune System
 - Chapter 7 – Neoplasia
 - Chapter 8 – Infectious Diseases
 - Chapter 9 – Environmental and Nutritional Diseases
 - Chapter 10 – Diseases of Infancy and Childhood
 - Chapter 20 – The Kidney
 - Chapter 21 – The Lower Urinary Tract and Male Genital System

5. Smith and Tanagho's General Urology (McAninch and Lue), 18th edition

ADVANCED STAGE (FRACS Urol)

Reference texts:

- *Adult and Pediatric Urology (Gillenwater)
- *Campbell-Walsh Urology (Wein)

Operative/Anatomy texts:

- *Textbook of Laparoscopic Urology (Inderbir Gill)
- Operative Urology at the Cleveland Clinic (Andrew Novick, et al)
<http://link.springer.com/book/10.1007/978-1-59745-016-4/page/1>
- *Glenn's Urologic Surgery (Graham & Keene)
- *Complications of Urologic Surgery (Taneja)
- *Hinman's Atlas of Urologic Surgery (Smith, et al)
- *Hinman's Atlas of Urosurgical anatomy (Greg MacLennan)

Shorter texts:

Choe's Urology Oral Board Self-assessment (Philipp Dahm, et al)

<http://www.isbns.fm/isbn/9781890018627>

Pocket Guide to Urology (Jeff Wieder)

<http://www.pocketguidetourology.com/>

- *Penn Clinical Manual of Urology (Philip Hanno, et al)

Scientific journals:

Recent seminal papers from leading urology journals including (but not limited to):

- *Journal of Urology
- *British Journal of Urology International (incl USANZ suppl)
- *European Urology
- *Urology

Guidelines:

Relevant Guidelines from USANZ, EAU, AUA (incl updates) and BAUS.

**indicates resource available at RACS online library.*

indicates purchase request to RACS librarian May 2013

TRAUMA

Preamble

This module covers the following topics:

- Open and closed renal trauma
- Ureteric injury
- Ruptured bladder
- Urethral trauma
- Genital trauma
- Multi-system trauma

Prerequisite Knowledge

- Abdominal and pelvic anatomy
- Emergency Management of Severe Trauma (EMST)

CORE LEARNING OBJECTIVES

	Completed
Anatomy and Embryology	
Describe in detail the anatomy of the kidney & ureter with particular reference to Gerota's fascia & renal vascular anatomy.	
Describe in detail the abdominal and pelvic course of the ureter.	
Describe in detail the anatomical relationships of the male urethra, prostate, pelvic floor and their attachments.	
List anatomical variants of the urinary tract that are of relevance to urologic trauma.	
Epidemiology	
Discuss the incidence and mode of urologic trauma.	
Discuss the risk factors of urinary tract trauma associated with other abdominal or pelvic trauma	
Compare the patterns of urologic injury in adults and children.	
Pathophysiology	
Discuss the pathophysiology of haemodynamic shock.	
Describe the staging or classification systems in use for renal, bladder and urethral trauma and their importance.	

CLINICAL REASONING LEARNING OBJECTIVES

	Completed
Evaluation	
Demonstrate proficiency in clinical history, examination and investigation of the trauma patient.	
List the indications for investigation of patients presenting with suspected urinary tract trauma.	
Treatment	
Design a treatment plan for a multi-trauma patient.	
Design a treatment plan for a patient with renal trauma.	
Design a treatment plan for a patient with ruptured bladder.	
Critically appraise the treatment options for patients with urethral injury, include how each option is selected	
Design a treatment plan for a patient with genital trauma.	
Design a treatment plan for patients with iatrogenic urologic trauma with particular reference to vesico-vaginal fistulae and ureteric injury.	
Communication	
Describe the information you would convey to a patient and/or their family on the management options for their condition.	
Discuss the information that a patient should be given prior to obtaining informed consent for diagnosis or treatment, with particular reference to the individual's circumstances.	

ONCOLOGY

Preamble

This module covers the following tumour sites:

- Adrenal
- Renal parenchyma
- Renal pelvis (collecting system) and Ureter
- Bladder
- Prostate
- Urethra
- Penis
- Testis
- Epididymis
- Scrotum
- Retroperitoneal

CORE LEARNING OBJECTIVES

	Completed
Epidemiology	
Discuss environmental, genetic and other predisposing factors in the aetiology of tumours.	
Recall the incidence, prevalence, morbidity and mortality statistics of the malignant tumours, with particular reference to kidney, renal pelvis and ureter, bladder, prostate, testis and penis.	
Discuss the factors that influence the natural history and growth of tumours.	
Discuss the issues involved in screening programs for urologic cancer with particular reference to prostate cancer. Be able to outline the controversies in screening.	
Pathophysiology	
Demonstrate the ability to recognise the macroscopic appearance of tumours.	
Discuss the important histopathological and cytological features. Trainees are not expected to identify and diagnose histopathology or cytology slides.	
List the TNM staging system (UICC) for adrenal, renal, ureteric, bladder, prostate, penis and testis cancer.	
Describe the grading system for those tumours.	
Describe the routes of spread of those tumours.	
Describe hormonal influences on prostate cancer.	
List the tumour markers and discuss their use with particular reference to testis and prostate cancer.	
Discuss the endocrine function of tumours with particular reference to adrenal and renal.	
Discuss the molecular biological factors that are relevant to pathogenesis, diagnosis and treatment of renal, bladder and prostate cancer.	
Uroradiology	
Describe the diagnostic features of tumours in imaging studies. Trainees are expected to have covered the uroradiological module in conjunction with the oncology module.	

CLINICAL REASONING LEARNING OBJECTIVES

	Completed
Evaluation	
Demonstrate the ability to take a history and perform a physical examination to elicit the features of relevance to diagnosis and management of the cancer patient.	
Interpret alterations in tumour marker levels in the management of tumours with particular reference to prostate & testis cancer.	
Demonstrate the ability to critically interpret imaging studies. Trainees will be expected to interpret radiological images.	
Discuss the relevance of tumour grade and TNM stage to management and prognosis.	
Treatment	
Discuss and critically appraise the treatment modalities available including risks, complications and outcomes.	
Discuss the parameters that are available to measure treatment outcomes including cancer control, survival & quality of life.	
Design a treatment plan for a patient with urological malignancy in both early and late stages of disease, including the role of a multidisciplinary approach and of community support groups:	
<ul style="list-style-type: none"> • Renal 	
<ul style="list-style-type: none"> • Urothelial carcinoma urinary tract 	
<ul style="list-style-type: none"> • Prostate 	
<ul style="list-style-type: none"> • Testis 	
<ul style="list-style-type: none"> • Adrenal, Retroperitoneum, Penis and Scrotum 	
Discuss palliation in the care of patients with urological malignancy.	
<ul style="list-style-type: none"> • Renal 	
<ul style="list-style-type: none"> • Urothelial carcinoma urinary tract 	
<ul style="list-style-type: none"> • Prostate 	
<ul style="list-style-type: none"> • Testis 	
<ul style="list-style-type: none"> • Adrenal, Retroperitoneum, Penis and Scrotum 	
Communication	
Describe the information you would convey to a patient and/or their family on the management options for their condition.	
<ul style="list-style-type: none"> • Renal 	
<ul style="list-style-type: none"> • Urothelial carcinoma urinary tract 	
<ul style="list-style-type: none"> • Prostate 	
<ul style="list-style-type: none"> • Testis 	
<ul style="list-style-type: none"> • Adrenal, Retroperitoneum, Penis and Scrotum 	
Discuss the information that a patient should be given prior to obtaining informed consent for diagnosis or treatment, with particular reference to the individual's circumstances.	
<ul style="list-style-type: none"> • Renal 	
<ul style="list-style-type: none"> • Urothelial carcinoma urinary tract 	
<ul style="list-style-type: none"> • Prostate 	
<ul style="list-style-type: none"> • Testis 	
<ul style="list-style-type: none"> • Adrenal, Retroperitoneum, Penis and Scrotum 	

MALE LOWER URINARY TRACT FUNCTION

Preamble

This module includes: obstruction (including bladder outlet and strictures), incontinence, neuropathic bladder, painful prostate and scrotal syndromes

Prerequisite Knowledge

Normal anatomy of the male pelvis and lower urinary tract

CORE LEARNING OBJECTIVES

Anatomy and Embryology	Completed
Describe in detail the anatomy, with particular reference to function, of the male lower urinary tract.	
Describe in detail the innervation of the male lower urinary tract, including neuromuscular receptors and pharmacological manipulation.	
Describe the normal urodynamic parameters of the lower urinary tract.	
Describe the normal and abnormal embryological development of the lower urinary tract.	
Pathophysiology	
Describe the pathological processes leading to lower urinary tract obstruction.	
Describe the physiological effects of acute and chronic obstruction to the lower urinary tract.	
Describe the pathological changes following acute and chronic obstruction with particular reference to prostatic bladder outlet obstruction, including the pathologic changes in prostate zonal anatomy, as well as, as renal and bladder pathophysiology (in response to BOO). Outline the broad differences between BPH, BPE and BOO.	
Describe the mechanism and classification of neuropathic bladder dysfunction with particular reference to cerebrovascular disease, spinal cord injury, multiple sclerosis, meningomyelocoele, Parkinson's disease, post pelvic surgery or radiation.	
Describe the mechanisms and classification of male urinary incontinence. Describe the effects of ageing on the structure and function of the lower urinary tract.	
Epidemiology	
List the risk factors involved in lower urinary tract dysfunction with particular reference to BPH/BPE and male urinary incontinence. Recall the incidence and prevalence of urinary incontinence in the male community with regard to age.	
Discuss the incidence and prevalence of BPH/BPE and associated LUTS.	
Physical Principles	
Describe the physical principles of monopolar/bipolar electrodiathermy, laser and thermotherapy devices used in the treatment of BPH. Discuss the safety issues involved with the use of these modalities.	

MALE LOWER URINARY TRACT FUNCTION

CLINICAL REASONING LEARNING OBJECTIVES

	Completed
Evaluation	
Demonstrate proficiency in clinical history, examination and investigation of a male patient with lower urinary tract dysfunction. Particular reference should be made to assessment of a male with LUTS.	
Evaluate the use of validated quality of life/symptom questionnaires for LUTS and incontinence.	
Demonstrate proficiency in the performance and interpretation of the spectrum of male urodynamic studies.	
Treatment	
Compare and critically assess the relevant outcomes of the treatment modalities of LUTS in association with BPH	
Design a treatment plan for a patient with symptomatic BPH, urethral stricture and other causes of male lower urinary tract dysfunction.	
Design a treatment plan for a male with neuropathic bladder	
Design a treatment plan for a male with chronic prostate or scrotal pain	
Design a treatment plan for a male patient presenting with acute and chronic urinary retention including management of post obstructive diuresis. (see Fin's comments)	
Communication	
Describe the information you would convey to a patient and/or his family on the management options for his treatment.	
Discuss the information that a patient should be given prior to obtaining informed consent for diagnosis or treatment, with particular reference to the individual's circumstances.	

FEMALE LOWER URINARY TRACT FUNCTION

Preamble

This module includes: Incontinence, Neuropathic Bladder, Female Urology (Interstitial Cystitis and Painful Bladder included in Inflammation/ Infection module)

Prerequisite Knowledge

Normal anatomy of the female pelvis

CORE LEARNING OBJECTIVES

	Completed
Anatomy and Embryology	
Describe in detail the anatomy, with particular reference to function, of the female lower urinary tract.	
Describe in detail the innervation of the female lower urinary tract including neuromuscular receptors and pharmacological manipulation	
Describe the normal urodynamic parameters of the female lower urinary tract.	
Describe the normal and abnormal embryological development of the female lower urinary tract	
Describe an assessment tool for vaginal prolapse (ICS-POPQ, Baden Walker Halfway System)	
Pathophysiology	
Describe the mechanisms and classification of female urinary incontinence with particular reference to types of incontinence and genitourinary prolapse.	
Describe the mechanism and classification of neuropathic bladder dysfunction with particular reference to cerebrovascular disease, spinal cord injury, multiple sclerosis, meningomyelocoele, Parkinson's disease, post pelvic surgery or radiation.	
Describe the effects of ageing on the structure and function of the female lower urinary tract.	
Epidemiology	
List the risk factors involved in lower urinary tract dysfunction with particular reference to female urinary incontinence.	
Recall the incidence and prevalence of female urinary incontinence in the community with regard to age.	
Physical Principles	
Describe the physical properties and principles of the use of biosynthetic and other materials in the female lower urinary tract.	
Discuss the medical issues involved with the use of these materials.	

FEMALE LOWER URINARY TRACT FUNCTION

CLINICAL REASONING LEARNING OBJECTIVES

	Completed
Evaluation	
Demonstrate proficiency in clinical history, examination and investigation of a patient with lower urinary tract dysfunction.	
Particular reference should be made to assessment of a female with LUTS, with incontinence or with neuropathic bladder.	
Evaluate the use of validated quality of life/symptom questionnaires for incontinence and genitourinary prolapse.	
Demonstrate proficiency in the performance and interpretation of the spectrum of urodynamic procedures.	
Treatment	
Compare and critically assess the relevant outcomes of the treatment modalities of female urinary incontinence.	
Design a treatment plan for a female with urinary incontinence with/without pelvic floor prolapse, including appropriate consultation with other specialist groups and health professionals.	
Design a treatment plan for a female patient with neuropathic bladder.	
Communication	
Describe the information you would convey to a patient and or/her family on the management options for her condition.	
Discuss the information that a patient should be given prior to obtaining informed consent for diagnosis or treatment, with particular reference to the individual's circumstances.	

INFECTION AND INFLAMMATION

Preamble

UTI includes common bacterial and non-bacterial infections of the genitourinary tract. It also includes specific infections such as STDs, HIV/AIDS, TB, candidiasis, schistosomiasis, filariasis, gas forming and gangrenous infections.

This module also includes inflammatory urological conditions such as painful bladder syndromes, interstitial cystitis, radiation cystitis.

Prerequisite Knowledge

The trainee should be familiar with the following:

- Principles of antibiotic treatment
- Microbiology
- Immunology
- Principles of inflammation
- Sterilisation

CORE LEARNING OBJECTIVES

	Completed
Anatomy and Embryology	
List the normal immune and structural defence mechanisms of the urinary tract	
Describe abnormalities of anatomy and embryological development pertaining to UTI	
Pathophysiology	
Discuss the pathophysiology of inflammatory and infective genito-urinary tract conditions	
Discuss the importance of specimen collection techniques and interpretation of laboratory diagnosis of urological infections	
Epidemiology	
Discuss the relevant risk factors and mode of spread of urological infections both in the individual and in the community	

CLINICAL REASONING LEARNING OBJECTIVES

	Completed
Evaluation and Treatment	
Formulate a management plan for patients presenting with manifestations of:	
Upper and Lower urinary tract infection and inflammation (including LUTS, Pyuria, Bacteriuria, fever and loin pain)	
Systemic sequelae of these conditions	
Plan the management of urinary infection/inflammation secondary to pathology in structures outside the genitourinary tract (including retroperitoneal fibrosis, endometriosis)	
Discuss the indications and rationale of prophylactic antibiotics in urology	
Discuss a treatment plan for a patient with painful bladder syndrome	
Epidemiology	
Demonstrate an ability to audit all aspects of the management of urologic infections with particular reference to surgical wound infection	
Communication	
Describe the public health issues as they affect individuals, institutions and communities and how you would communicate relevant information to relevant health groups	
Describe the information you would convey to a patient and/or their family on the management options for their condition with particular reference to privacy and public health issues	
Understand the role of interaction with other clinicians involved in the care of patients with infective and inflammatory diseases	

UPPER URINARY TRACT FUNCTION

Preamble

This module includes: renal function and obstruction, renovascular disease, renal transplantation and renal cystic (see uroradiology module)

Prerequisite Knowledge

- Renal/ureteric anatomy and physiology.
- Describe the normal process of renal function with particular reference to:
 - Water balance
 - Acid-base balance
 - Regulation of electrolytes
 - Regulation of blood pressure via the renin-angiotensin-aldosterone system

CORE LEARNING OBJECTIVES

	Completed
Anatomy and Embryology	
List the anatomic variants of renal arterial/venous anatomy and the relationship to the ureter and retroperitoneal structures.	
Describe in detail the segmental renal anatomy and associated blood supply.	
Describe and illustrate the embryological development of the kidney and ureter.	
List the congenital abnormalities of the kidney, ureter and retroperitoneum which may result in renal failure/obstruction.	
Pathophysiology	
Discuss the pathophysiology and pathology of acute and chronic obstruction to the upper urinary tract and consequences of treatment of obstruction.	
Discuss the pathophysiology and pathology of renovascular disease, with particular reference to renal artery stenosis.	
Describe the pathophysiology associated with renal transplantation with particular reference to acute tubular necrosis, acute and chronic rejection.	

UPPER URINARY TRACT FUNCTION

CLINICAL REASONING LEARNING OBJECTIVES

	Completed
Evaluation	
Demonstrate proficiency in clinical history, examination and investigation of a patient with upper urinary tract obstruction. Particular reference should be made to the assessment of overall and split renal function using urine and serum biochemistry and specific imaging.	
Demonstrate proficiency in clinical history, examination and investigation of a patient with urologic complications of renal transplantation.	
Describe the important factors in assessing a patient for living related donor nephrectomy.	
Demonstrate proficiency in the investigation of a patient with renovascular disease.	
Treatment	
Design a treatment plan for a patient with upper urinary tract obstruction, with particular reference to PUJ obstruction, retroperitoneal disease and congenital abnormalities.	
Compare the relevant outcomes of the treatment modalities of congenital PUJ obstruction.	
Design a treatment plan for a patient with urologic complications of renal transplantation.	
Recognise the triggers for referral to a nephrologist of a patient with renal disease.	
List the treatment options for a patient with renovascular disease.	
Communication	
Describe the information you would convey to a patient and/or their family on the management options for their condition.	
Discuss the information that a patient should be given prior to obtaining informed consent for diagnosis or treatment, with particular reference to the individual's circumstances.	

URINARY STONE DISEASE

Preamble

This module covers the mechanism of urinary stone formation and the clinical consequences of stone disease

Prerequisite Knowledge

Renal physiology & mineral metabolism, Microbiology

CORE LEARNING OBJECTIVES

	Completed
Anatomy and Embryology	
Identify surface anatomy relevant to the surgical management of renal and ureteric calculi.	
Recognise radiological anatomy of the urinary tract.	
Describe the anatomic relationships of the kidney and ureter.	
Identify endoscopic anatomy of the ureter and intrarenal collecting system.	
Epidemiology	
Discuss the incidence and recurrence rates for urinary stone disease.	
List the genetic and environmental risk factors for urinary stone disease.	
Pathophysiology	
List the structural and biochemical factors that govern urinary lithiasis.	
Summarise the theories regarding stone formation.	
Compare biochemical stone types with regard to their aetiology and physical characteristics.	
List the available methods of stone analysis.	
Physical Principles of Stone Treatment	
Describe the physical principles of kinetic lithotripsy including ESWL, laser, pneumatic and electrohydraulic modalities.	
Discuss the safety issues involved with the use of these modalities.	

URINARY STONE DISEASE

CLINICAL REASONING LEARNING OBJECTIVES

	Completed
Evaluation	
Discuss the assessment of a patient presenting with loin pain.	
Demonstrate proficiency in the management of a patient with the diagnosis of urinary tract calculus disease.	
Discuss the metabolic investigations of patients with recurrent or multiple urinary stone disease.	
Treatment	
Discuss the indications for admission and intervention for patients with urinary stone disease.	
Design a treatment plan for patients presenting with renal, ureteric and bladder stones and discuss the factors which influence management.	
Discuss the indications, results and complications of specific treatments including conservative management, medical therapy, extracorporeal shock-wave lithotripsy, percutaneous, endoscopic, open and laparoscopic surgery.	
Discuss the particular issues associated with the management of stone disease in children.	
Discuss the complications of stone disease and describe their management with particular reference to obstruction, infection and inflammation.	
Communication	
Describe the information you would convey to a patient and/or their family on the management options for their condition.	
Discuss the information that a patient should be given prior to obtaining informed consent for diagnosis or treatment, with particular reference to the individual's circumstances.	

ANDROLOGY

Preamble

The andrology module considers male infertility and sexual dysfunction in detail. It also includes vasectomy, vasectomy reversal, sperm retrieval techniques for assisted reproduction, varicocele, priapism, various peno-scrotal disorders and sexual counseling

Prerequisite Knowledge

Normal anatomy, physiology and function of the male genital system.

CORE LEARNING OBJECTIVES

	Completed
Epidemiology	
Describe the incidence, prevalence and risk factors in male infertility and sexual dysfunction with particular reference to cryptorchidism, varicocele, drug exposure and acquired environmental factors.	
Anatomy and embryology	
Describe normal male genital anatomy, embryology and function with particular reference to erectile and ejaculatory function and spermatogenesis	
Pathophysiology	
Explain the pathophysiology of erectile dysfunction, Peyronie's disease and priapism. List the causes of oligospermia/azoospermia and male infertility.	
Discuss the effects of ageing on the male genital system with particular reference to androgens.	
Discuss the psychosexual factors that affect male sexual function.	
Discuss the pathogenesis of benign scrotal conditions with particular reference to testis torsion, hydrocoele, varicocele and epididymal cysts.	
Discuss the pathophysiology of phimosis, paraphimosis and balanitis xerotica obliterans.	
Discuss the pathophysiology of cryptorchidism.	

CLINICAL SKILLS LEARNING OBJECTIVES

	Completed
Evaluation	
Demonstrate competency in the history, examination and investigations on the following conditions:	
Male sexual dysfunction	
Male infertility	
Vasectomy and vasectomy reversal	
Painful testis	
Describe the technique of collection and the interpretation of seminal fluid analysis.	
Discuss the differential diagnosis of penile ulcers, plaques and tumours.	
Discuss the differential diagnosis of testicular lesions.	
Treatment	
Develop a management plan for the following clinical scenarios:	
Priapism	
Male sexual dysfunction (including erectile, ejaculatory and orgasmic dysfunction)	
Infertility – interplay with a gynaecologist	
Be able to describe and obtain informed consent for the following surgical procedures:	
Testicular biopsy	
Sperm acquisition	
Varicocele repair	
Vasectomy	
Vasectomy reversal	
Epididymectomy (including cyst management)	
Corrective surgery for penile deformity	
Penile prosthesis	
Demonstrate proficiency in performing the following surgical procedures (listed below): <i>(be familiar with the operative steps in the other procedures mentioned above)</i>	
Vasectomy	
Epididymectomy	
Epididymal cyst	
Communication	
Describe the information you would convey to a patient and their sexual partner on the management options for their condition.	
Discuss the information that a patient should be given prior to obtaining informed consent for diagnosis or treatment, with particular reference to the individual's circumstances.	

PAEDIATRIC UROLOGY

Preamble

This module covers the spectrum of urological practice and represents a subspecialty at the advanced level. There are however specific aspects with which the trainee is expected to be familiar. This module considers each of the standard modules and lists those areas previously covered which apply to paediatric urology. Where necessary, additional material for each module is attached and is generally more directive as to the depth of knowledge required.

Prerequisite Knowledge

Normal anatomy, physiology and function of the male genital system

	Completed
ANDROLOGY	
Varicocele	
Testicular anatomy and embryology	
Describe the differences in assessment and treatment of a varicocele in the adolescent and adult male.	
List the common sites for the undescended testis (UDT) and describe the difference between a retractile testis and UDT.	
Describe the surgical procedure for UDT found in the superficial inguinal pouch.	
Describe in detail your evaluation and management of a child with an acute scrotum. List the relevant factors you would discuss with the child's parents.	
INFECTION	
Explain the relevance of abnormalities of anatomy and embryological development pertaining to urinary tract infections.	
Discuss the factors leading to parenchymal scarring of the kidney in children, with particular relevance to role of vesicoureteric reflux (VUR).	
Describe the grades of VUR, and the techniques of evaluation.	
Describe the information you would convey to the family of a child with VUR in regard to management options.	
URINARY STONE DISEASE	
Discuss the management of stone disease in children.	
Describe the etiology and the surgical management options	

PAEDIATRIC UROLOGY

LOWER TRACT FUNCTION	Completed
Describe the normal and abnormal embryological development of the lower urinary tract.	
Describe the physiological effects of acute and chronic obstruction on the lower urinary tract.	
Describe the mechanism and classification of neuropathic bladder dysfunction (including meningomyelocele).	
Recognise the radiological features of ureterocele and ectopic ureters.	
Describe the management options for children with ureterocele and ectopic ureters.	
List the complications associated with posterior urethral valves and the surgical options in management.	
Classify the sites of hypospadias.	
Recognise the radiological features of sacral agenesis, exstrophy and myelomeningocele.	
List the current theories of diurnal and nocturnal enuresis, and list management options.	
RENAL FUNCTION AND OBSTRUCTION	
Describe the embryological development of the kidney and ureter.	
List the congenital abnormalities of the kidney and ureter (including reflux) which may result in renal failure or obstruction.	
Compare the relevant outcomes of the treatment modalities of upper urinary tract obstruction with particular reference to congenital PUJ obstruction.	
Describe the common renal fusion and ectopia anomalies.	
Describe the radiological/imaging features to distinguish between PUJ obstruction, Multicystic Dysplastic Kidney, and Hypoplasia.	
ONCOLOGY	
The spectrum of testicular malignancies.	
List the causes of benign and malignant abdominal masses in children.	
Describe the differences between neuroblastoma and Wilms tumour with particular reference to age of onset, radiological features, genetic factors, diagnostic tests and management principles.	
TRAUMA	
Discuss the incidence of urological trauma and the risk of urinary tract trauma associated with other abdominal or pelvic trauma (including paediatric trauma).	
Indicate the issues associated with childhood assault and self-harm with particular reference to genito/urinary tract	
Discuss the obligations and principles of management of children at risk	

URORADIOLOGY - IMAGING

Preamble

Uroradiology is an integral tool in Urology because a thorough understanding of radiographic images is critical in the diagnosis and management of patients.

The objective of this module is to provide trainees with an understanding of the scope of diagnostic modalities, the principles of their use, the normal uroradiologic anatomy, the common indications in urological practice, the limitations of each modality, and the relevant safety issues.

Note that this module is confined to the technical aspects of imaging – the clinical application has been inserted into the clinical modules

Prerequisite Knowledge

The Uroradiology module does not attempt to cover abnormal anatomy, diagnostic pathology or therapeutic radiology, all of which however, will form part of the training programme and be covered in radiologic texts, teaching and assessment.

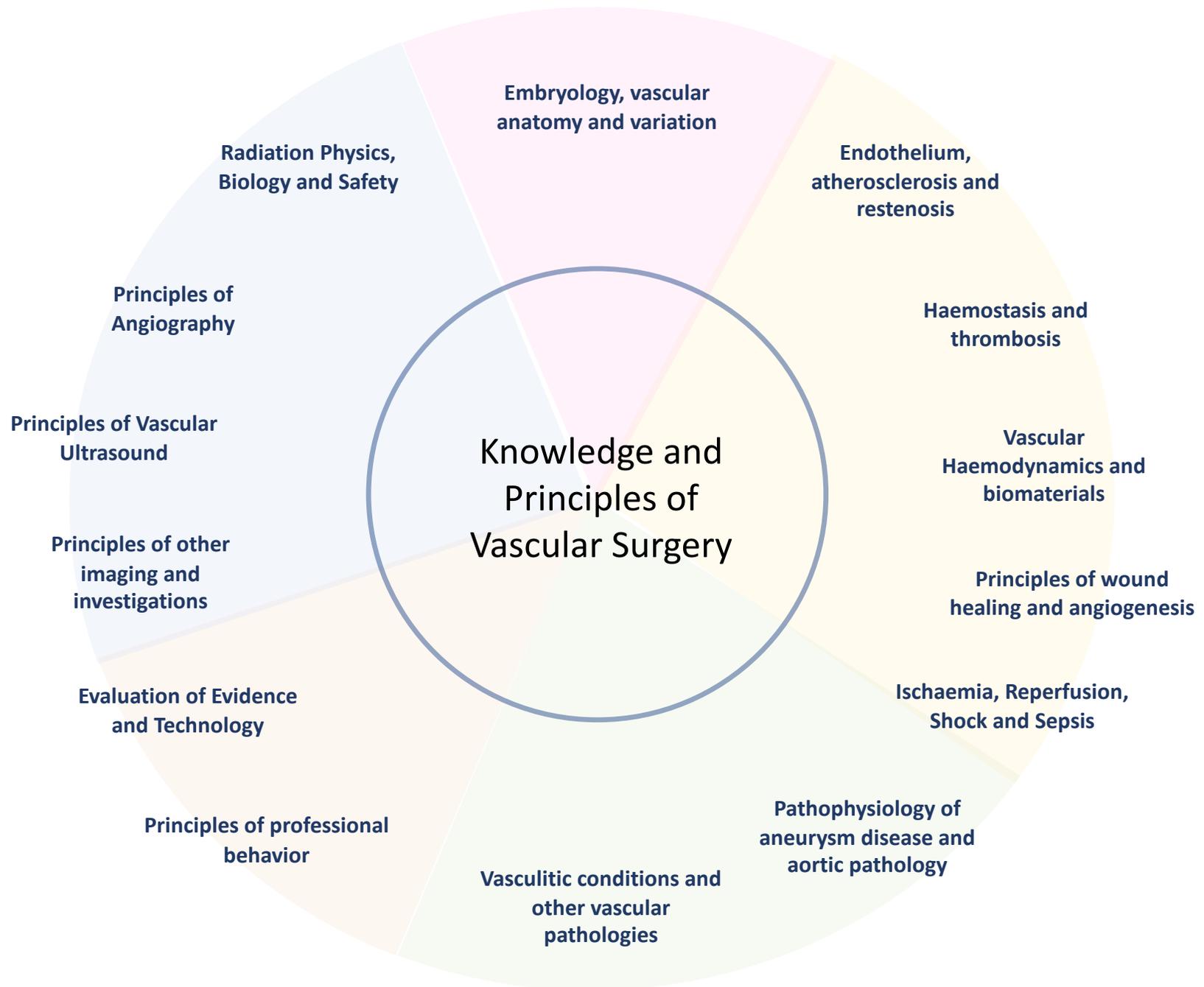
Please Note: The area of Uroradiology is rapidly changing with advances in technology, and trainees are expected to use their own resources to maintain a current knowledge of Uroradiology.

CORE LEARNING OBJECTIVES

	Completed
Principles, Skills & Applications	
Discuss the use and limitations of the range of available techniques	
Describe the indications for use of the range of tools	
Critically evaluate the advantages and disadvantages of different investigative modalities	
Order images that are appropriate for the diagnosis of common urological problems	
Interpret Uroradiologic images and reports quickly and accurately	
Evaluate the significance of the data	
Explain the technique	
Identify the level of application	
Discuss safety issues including contra-indications	
Describe and pay due attention to radiation safety in the operating theatre	
Select appropriate investigations to suit the clinical diagnostic problem	

URORADIOLOGY - IMAGING

	Completed
Explain to a patient the purpose, limitations and risks associated with each modality	
Explain in detail, assess and perform Uroradiologic procedures such as:	
Transrectal prostate ultrasound	
Renal and scrotal ultrasound	
Fluoroscopic imaging	
Percutaneous nephrostomy	
Summarise and evaluate nuclear medicine techniques applicable to Urological surgery	
Identify the role of MRI, PET and SPECT, and apply in the diagnosis and management of benign and malignant disease	
Take responsibility for the clinical decisions of diagnosis, advice and treatment	
Communication	
Communicate information to patients (and their family) about procedures potentialities and risks associated with uroradiology	
Interact effectively with radiologists sonographers and radiographers in order to obtain the maximum benefit and minimise the risks from each investigation	



Knowledge and Principles of Vascular Surgery

Embryology, vascular anatomy and variation

Endothelium, atherosclerosis and restenosis

Haemostasis and thrombosis

Vascular Haemodynamics and biomaterials

Principles of wound healing and angiogenesis

Ischaemia, Reperfusion, Shock and Sepsis

Pathophysiology of aneurysm disease and aortic pathology

Vasculitic conditions and other vascular pathologies

Principles of professional behavior

Evaluation of Evidence and Technology

Principles of other imaging and investigations

Principles of Vascular Ultrasound

Principles of Angiography

Radiation Physics, Biology and Safety

