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| <b>MODULE TITLE:</b>                      | <b>SURGICAL ONCOLOGY</b>  | <b>7-Nov-2016</b> |
| <b>DEVELOPED BY:</b>                      | <b>Bruce Mann, Meron Pitcher, Chris Pyke</b>  |                   |
| <b>REVIEWED BY:</b>                       | <b>Jeremy Tan, Alan Saunder (2010) Michael Donovan, Senarath Edirimanne, Brian Kirkby, Chris Pyke (2013). Richard Bryant, Satish Warriar (2016).</b>  |                   |
| <b>Module Rationale and Objectives</b>    | <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.</p> <p>The graduating trainee will be able to:</p> <ul style="list-style-type: none"> <li>describe common surgical pathologies of melanoma and soft tissue sarcoma</li> <li>identify and recognise the symptoms and signs of these conditions</li> <li>describe and select appropriate diagnostic testing</li> <li>identify appropriate treatment options, and their indications and contraindications</li> <li>diagnose and manage pathological conditions that pertain to surgical oncology including referral to other specialists where indicated</li> <li>select appropriate investigative tools</li> <li>adapt their skill in the context of each patient and each procedure</li> <li>identify and manage risk</li> <li>recognise the need to refer patients to other professionals</li> <li>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)</li> </ul> |                   |
| <b>Anatomy, Physiology, Pathology</b>     | <p>Trainees should have thorough knowledge of the general principles of various aspects of cancer management, including:</p> <ul style="list-style-type: none"> <li>cancer screening</li> <li>cancer diagnosis</li> <li>cancer staging</li> <li>multidisciplinary care</li> <li>adjuvant therapies</li> <li>cancer follow-up</li> <li>palliative care</li> </ul>  |                   |
| <b>Suggested Reading</b>                  | <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 <a href="http://www.surgeons.org">www.surgeons.org</a></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>   |                   |
| <b>Learning Opportunities and Methods</b> | <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>   |                   |
| <b>How this module will be assessed</b>   | <p>The Generic and Clinical Examinations; Fellowship examination (written and viva voce sections); Trainee evaluation forms and logbooks; SEAM (where applicable).</p>  |                   |
| <b>Definitions</b>                        | <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<br>PHYSIOLOGY<br>PATHOLOGY  | CLINICAL ASSESSMENT  | INVESTIGATIONS   | PRINCIPLES OF<br>MANAGEMENT   | OPERATIVE<br>MANAGEMENT<br>- KNOWS -                                       | OPERATIVE<br>MANAGEMENT<br>- DOES -                              |
| <b>Fundamentals of cancer biology</b>   |   |  |  |   |  |  |
| Early SET   | <ul style="list-style-type: none"> <li>Describe aetiology and epidemiology</li> <li>Describe mechanisms of metastasis</li> </ul>          | <ul style="list-style-type: none"> <li>Understand local versus systemic manifestations of malignant disease</li> </ul>                   | <ul style="list-style-type: none"> <li>Appreciate order of investigations to diagnose malignant disease</li> </ul>   | <ul style="list-style-type: none"> <li>Appreciate principles of treatment modalities for cancer</li> </ul>  |  |  |
| <b>Principles of screening for malignancy</b>   |   |  |  |   |  |  |
| Early SET   | <ul style="list-style-type: none"> <li>Issues in population screening, including bias</li> <li>Principles of ethical screening</li> </ul> | <ul style="list-style-type: none"> <li>Discuss screening results with patients/families</li> </ul>                                       | <ul style="list-style-type: none"> <li>Describe subsequent pathology of investigation following screening</li> </ul> | <ul style="list-style-type: none"> <li>Interpretation of results: <ul style="list-style-type: none"> <li>false positives</li> <li>false negatives</li> </ul> </li> </ul>  |  |  |
| Mid SET   | <ul style="list-style-type: none"> <li>Know current screening programs and data supporting their use</li> </ul>                           |  |  |   |  |  |
| <b>Familial cancer syndromes including:</b>   |   |  |  |   |  |  |
| <ul style="list-style-type: none"> <li>FAP</li> <li>HNPCC</li> <li>BRCA1,2</li> <li>Li Fraumeni</li> <li>Neurofibromatosis</li> <li>MEN syndrome</li> </ul> |   |  |  |   |  |  |
| Mid SET   | <ul style="list-style-type: none"> <li>Understand molecular basis</li> </ul>  | <ul style="list-style-type: none"> <li>Ability to take a family history</li> <li>Recognise possible familial cancer syndromes</li> </ul> |  | <ul style="list-style-type: none"> <li>Principles of genetic counselling and testing</li> <li>Principles of risk management</li> </ul>  |  |  |
| Late SET  |   |  |  | <ul style="list-style-type: none"> <li>Indications for preventive surgery</li> </ul>  |  |  |
| <b>Carcinoma including breast, colon, oesophageal, gastric, pancreatic, skin, thyroid</b>   |   |  |  |   |  |  |
| <i>See also individual Modules - tumours</i>  |   |  |  |   |  |  |
| Early SET   | <ul style="list-style-type: none"> <li>Understanding the molecular biology of the tumour</li> </ul>                                       |  | <ul style="list-style-type: none"> <li>Understand requirements of standardised histology reporting</li> </ul>        | <ul style="list-style-type: none"> <li>Understanding intent of treatment and terminology</li> </ul>   |  |  |
| Mid SET   |   | <ul style="list-style-type: none"> <li>Discuss clinical staging</li> </ul>   | <ul style="list-style-type: none"> <li>Discuss appropriate imaging investigations to enhance staging</li> </ul>      | <ul style="list-style-type: none"> <li>Immunotherapy</li> <li>Systemic chemotherapy</li> <li>Regional chemotherapy</li> <li>Radiotherapy</li> <li>Vaccine options and delivery thereof</li> <li>Biological therapy</li> <li>Intent of therapy – downstaging vs neoadjuvant vs adjuvant vs definitive vs palliative</li> </ul> | <ul style="list-style-type: none"> <li>Regional lymphadenectomy</li> </ul> | <ul style="list-style-type: none"> <li>Regional nodes</li> </ul> |

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

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

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

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