Module Rationale and Objectives

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.

The graduating trainee will be able to:
- 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
- diagnose 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

Trainees should have thorough knowledge of the normal embryology, anatomy, physiology and pathology of the skin and subcutaneous tissues.

In addition the trainee should know:
- regional surgical anatomy of body surfaces
- histology of the skin and appendages
- principles of wound healing and cosmesis

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 regional training days, in order to fulfil the research requirement.

Suggested Reading

Trainees who are preparing to sit the Generic and/or Specialty-Specific Science Examinations and the Clinical Examination need to refer to the recommended reading list on the RACS website at [www.surgeons.org](http://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.

Assumed Knowledge

- 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

List of potential Surgical DOPS

- Excision of skin lesion
- Wedge resection of ingrown toenail

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;

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 -

### Skin cancer
- basal cell carcinoma
- squamous cell carcinoma
- intra-epithelial carcinoma
- Merkel cell tumour
- Melanoma *(See also Surgical Oncology Module)*

### SET1-2 (Early)
- 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

### SET3-4 (Mid)
- Select and describe relevant staging investigations

### SET5+ (Late)

### Benign skin and subcutaneous lesions
- Nevus
- Solar keratosis
- Papilloma/wart
- Seborrheic keratosis
- Lipoma
- Sebaceous cyst
- Ganglion
- Keloid and hypertrophic scar

### SET1-2 (Early)
- Histological features and biological behaviour of specific lesions
- Principles of wound healing
- Principles of cosmesis: Langer’s lines

### SET3-4 (Mid)
- Principles of advanced reconstructive techniques e.g. skin graft, pedicle flap, free flap, composite graft
- Discuss the indications and principles of managing regional lymph nodes
- Discuss possible complications of surgical treatments and how to manage them

### OPERATIVE MANAGEMENT
- Excision of skin cancer and wound closure using direct suturing
- Excision of skin cancer and wound closure using:
  - cutaneous flaps
  - full-thickness/split skin grafts
- Block dissection of axillary and inguinal lymph nodes
- Sentinel lymph node biopsy

### SKIN & SOFT TISSUE
### Benign skin and subcutaneous lesions (continued)

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<th>SET LEVEL</th>
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#### Ingrown toenail

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<tr>
<td>SET1-2 (Early)</td>
<td><strong>Describe the anatomy of a finger or toe:</strong> - digital artery and nerves - nail matrix</td>
<td><strong>Identify typical appearance and examination findings</strong></td>
<td><strong>Nail avulsion</strong></td>
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<td><strong>Describe the pathogenesis</strong></td>
<td><strong>Identify risk factors for complications (e.g. diabetes, peripheral vascular disease)</strong></td>
<td><strong>Wedge resection of nail</strong></td>
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<td>SET3-4 (Mid)</td>
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<td>SET5+ (Late)</td>
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<td><strong>Zadek's operation</strong></td>
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#### Cellulitis

**Soft tissue abscess**

**Wound infection**

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<tr>
<td>SET1-2 (Early)</td>
<td><strong>List likely pathogens</strong></td>
<td><strong>Take a history and accurately interpret examination findings</strong></td>
<td><strong>Incision and drainage of abscess</strong></td>
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<td><strong>Summarise pathogenesis of cellulitis and abscess formation</strong></td>
<td><strong>Employ and interpret microbiological investigations as appropriate</strong></td>
<td><strong>Wound debridement</strong></td>
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<td><strong>Define risk factors for wound infection</strong></td>
<td><strong>Medical imaging modalities where indicated</strong></td>
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#### Synergistic soft tissue infections e.g.:  
- Fournier's gangrene  
- gas gangrene  
- necrotising fasciitis, etc.

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<td>SET1-2 (Early)</td>
<td><strong>Define and describe pathogenic mechanisms</strong></td>
<td><strong>Take a history and accurately interpret examination findings</strong></td>
<td><strong>Implement and evaluate response to resuscitation</strong></td>
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<td><strong>List likely pathogens</strong></td>
<td><strong>Recognise and identify the critically ill patient</strong></td>
<td><strong>Discuss principles and indications of non-surgical and surgical management</strong></td>
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<td><strong>Define risk factors</strong></td>
<td><strong>Interpret microbiological investigations as appropriate</strong></td>
<td><strong>Organise multidisciplinary approach to management</strong></td>
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<td><strong>Explain the role in systemic inflammatory response syndrome</strong></td>
<td><strong>Employ and interpret imaging modalities as appropriate</strong></td>
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<td>Synergistic soft tissue infections (continued)</td>
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<td>Hidradenitis suppurativa</td>
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<td>SET1-2 (Early)</td>
<td>• Discuss pathogenesis and natural history of the condition</td>
<td>• Interpret history and examination findings</td>
<td>• Discuss principles and indications of non-surgical and surgical management</td>
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<td>SET5+ (Late)</td>
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<td>Hand Infections</td>
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<td>SET1-2 (Early)</td>
<td>• Anatomy of hand spaces</td>
<td>• Interpret history and examination findings</td>
<td>• Employ use of microbiology, imaging and blood tests</td>
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<td>• Recognise implications of deep space infections</td>
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<td>SET5+ (Late)</td>
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<td>Chronic leg ulcer/ pressure ulcers</td>
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<tr>
<td>SET1-2 (Early)</td>
<td>• Discuss pathogenesis and aetiological factors</td>
<td>• Take a history and accurately interpret examination findings</td>
<td>• Use and interpret investigations as indicated e.g.: - punch/incision biopsy - medical imaging - microbiology</td>
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<td>• Describe arterial and venous anatomy of the leg</td>
<td>• Perform, calculate and interpret Doppler assessment of ankle-brachial index</td>
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### Chronic leg ulcer/ pressure ulcers (continued)

See also Vascular Module

- **SET3-4 (Mid)**
  - **Operative Management** - Knows -
  - **Operative Management** - Does -
  - Flap repair (as indicated)

- **High risk foot (diabetic/ neuropathic)**
  See also Vascular Module

- **SET1-2 (Early)**
  - **Anatomy of the foot**
  - **Aetiological factors**
  - **Microbiology: likely pathogens (where relevant)**
  - **Operative Management** - Knows -
  - **Operative Management** - Does -
  - Incision and drainage of suppuration

- **SET3-4 (Mid)**
  - **Discuss procedural details of surgical management, including after-care, possible complications and how to deal with them**
  - **Coordinate multi-disciplinary care**

- **SET5+ (Late)**
  - **Wound debridement**
  - **Local amputations (e.g. toes, forefoot, below-knee, etc.) where indicated**

### Pilonidal sinus/ abscess

- **SET1-2 (Early)**
  - **Describe pathogenesis and aetiology**
  - **Take a history and accurately interpret examination findings**
  - **Operative Management** - Knows -
  - **Operative Management** - Does -
  - **Excision and marsupialisation**

- **SET3-4 (Mid)**
  - **Operative Management** - Knows -
  - **Excision and primary closure (e.g. Karydakis, Bascom)**

- **SET5+ (Late)**
### Hyperhidrosis

**SET1-2 (Early)**
- 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

- Obtain a focused history including with respect to location of sweating and possible causes of secondary hyperhidrosis

- Discuss the principles and indications of non-surgical and surgical management

**SET3-4 (Mid)**
- Discuss the procedural details of surgical management including possible complications

**SET5+ (Late)**
- Endoscopic thoracic sympathectomy
- Lumbar sympathectomy

### Carpal tunnel syndrome

**SET1-2 (Early)**
- Describe anatomy of hand and wrist, with particular reference to median nerve
- Define pathogenesis and contributing conditions

- Take a history and accurately interpret examination findings
- Differentiate between other diagnoses

- Order and interpret nerve conduction studies

- Discuss principles and indications of non-surgical and surgical management

**SET3-4 (Mid)**
- Discuss procedural details of surgical management, including after-care, possible complications and how to deal with them

**SET5+ (Late)**
- Carpal tunnel release

### Other peripheral nerve entrapments

**SET1-2 (Early)**
- 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

- Obtain a focused history of the condition
- Perform an examination of the sensory and motor functions of the relevant nerve

- Request nerve conduction or electromyographic studies where appropriate

- Discuss the options and indications for non-surgical and surgical management

**SET3-4 (Mid)**
- Discuss the neuralgia post inguinal hernia repair
- Ilioinguinal nerve damage
- Genitofemoral nerve damage

- Outline the procedural details of surgical management, including possible complications

- Ulnar neurolysis
- Other neurolysis

**SET5+ (Late)**
- Exploration of Guyon’s canal
- Decompressive surgery for pronator syndrome
Peripheral nerve injuries

**SET1-2 (Early)**
- 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
- 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
- Outline preventive measures for peripheral nerve injuries on the operating table
- Discuss the principles of primary nerve repair for acute injuries

**SET3-4 (Mid)**
- Appreciate sites of potential iatrogenic nerve injury (e.g. Accessory nerve, Femoral nerve)
- Discuss precautions taken to avoid or minimise the risk of nerve injury during specific operations

**SET5+ (Late)**
- Acute primary nerve repair