

Allied Health Professions' Office of Queensland

## **PODIATRY LEARNER GUIDE**

**Assist with podiatric procedures**

**April 2017**

## ***Podiatry Learner Guide: Assist with podiatric procedures***

*Published by the State of Queensland (Queensland Health), April 2017*



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# Acknowledgement

The Allied Health Professions' Office Queensland wishes to acknowledge and extend sincere appreciation to the following Queensland Health clinicians who have contributed to the development of these learning support materials:

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  - Queensland Health State-wide Podiatry Network Steering Committee

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# INTRODUCTION

Welcome to Podiatry Learner Guide: Assist with podiatric procedures.

## Learner Guide Structure

This Learner Guide has been developed specifically for allied health assistants to provide the necessary knowledge and foster the skills required to assist a podiatrist in rehabilitation programs developed by Allied Health Professionals

This Learner Guide contains information and activities relating to key topics to enhance learning opportunities. The guide is broken up into three topic areas with sub-topics for each. These are as follows:

Organisation Practices:

- Roles and Responsibilities
- Policy and Procedures
- Organisational Practices

Podiatry and Podiatric Procedures:

- Anatomy and Physiology
- Disease Processes
- Biomechanics of the Lower Limb
- Footwear
- Orthotic Devices
- Podiatric Surgery

Service Delivery:

- Podiatry Interventions
- Client Care
- Monitoring Requirements

The Learner Guide has six sections:

1. Introduction
2. Learning Topics
3. Workplace Observation Checklist
4. References
5. Resources and Websites
6. Appendix

Each topic includes sub-topics which cover the essential knowledge from the unit of competency. You will be asked to complete the activities in each topic to support your

learning. These activities address the essential skills from the unit of competency and will be part of your assessment.

Throughout the guide, you will be given the opportunity to work through a number of activities, which will reinforce your learning and help you improve your communication and organisation skills, manual handling skills and ability to apply therapeutic exercise practices. Take time to reflect during the module on how you may be able to apply your new knowledge and skills in your role as an allied health assistant.

## Learning requirements

It is important that you have an allied health workplace supervisor who has agreed to support in your study. Regular clinical supervision during the course of your study should also assist you to stay “on track”, provide opportunities for your supervisor to monitor your progress, provide encouragement, and to check that you understand the information in the learning materials. This will be particularly important if you are having any specific learning difficulties.

Activities and assessment tasks may require access to the internet. If you do not have internet access please talk with your supervisor about your options.

## Self-Completion Checklist

The Self Completion Checklist outlines the underpinning knowledge and skills contained in each of the topics for the unit of competency you will be assessed against. You will be asked to review the list and place a tick in the box if you feel you have covered this information in each section and if you feel ready to undertake further assessment. If you have any questions about this checklist, ask your supervisor.

## Recognition for Prior Learning

If you subsequently enrol in the Certificate IV in Allied Health Assistance you may be able to undertake recognition assessment for the study that you have done. To enable you to gain recognition for the learning you have undertaken in this Learner Guide, it will be necessary for you to complete the Assessment Guide associated with this unit of competency. The assessment activities in this Assessment Guide must be signed off by a **podiatrist**. Copies (Word version) of the Assessment Guide can be obtained by contacting the AHPOQ team via e-mail: [AH\\_CETU@health.qld.gov.au](mailto:AH_CETU@health.qld.gov.au)



### **Please Note**

Due to the varied environments in which allied health assistance is carried out, the terms ‘patient’ and ‘client’ are used interchangeably throughout this resource. Please use your organisation’s preferred term when performing your duties.

## Symbols

The following symbols are used throughout this Learner Guide.



**Important Points** – this will include information that is most relevant to you; statistics, specific information or examples applicable to the workplace.



**Activities** – these will require you to reflect on information and workplace requirements, talk with other learners, and participate in a role play or other simulated workplace task. You may use the space provided in the Learner Guide to write down a draft response. Record your final answer in the Assessment Guide.



**Further Information** – this will include information that may help you refer to other topics, complete activities, locate websites and resources or direct you to additional information located in the appendices.



**Case Studies** – these will include situations or problems for you to work through either on your own or as a group. They may be used as a framework for exploration of a particular topic.



**Research** – this refers to information that will assist you complete activities or assessment tasks, or additional research you may choose to undertake in your own time.

# LEARNING OUTCOMES

As an Allied Health Assistant assisting with Podiatric procedures you will be required to perform the following tasks.

1. Prepare for a surgical Podiatry procedure by:
  - Obtaining information (which may include Podiatry Care Plan, Client Treatment Plan, supervising Podiatrist's instructions, client record, checklists, case notes, other forms according to procedures of the organisation, Material Safety Data Sheets, manufacturers' instructions and guidelines etc.) from the Podiatrist and the client's record (including the Podiatry Care Plan) relevant to the procedure to be undertaken
  - Determining client availability according to organisation protocols
  - Conforming to all infection control guidelines and requirements specified by the National Infection Control Guidelines for Podiatrists and the protocols of the organisation
  - Ensuring the environment in which the procedure is to be performed conforms to OHS standards and protocols
  - Gathering necessary equipment, instruments and materials
  - Preparing the environment for surgery, including cleansing and disinfecting of surfaces, equipment and materials
  - Ensuring all instruments, dressings and related materials have undergone sterilisation according to the guidelines and protocols stated above
  - Ensuring work flow and set up for work flow by additional persons in the environment comply with the guidelines and protocols
  
2. Assist with the Surgical Podiatry Procedure by:
  - Determining procedural requirements from the client's record and the treating Podiatrist
  - Providing the physical environment required to meet procedural requirements in a manner that is safe for the client as directed by the Podiatrist
  - Following the directions of the Podiatrist to provide assistance during the procedure
  - Following all infection control and OHS protocols to ensure the procedure conforms to organisation, state, national and legislated requirements
  - As required, assisting with care and supervision of the client during procedure
  - Following directions for instrument handling, equipment handling material handling and any additional assistance required from the Podiatrist
  - Safely and correctly using equipment and instrumentation to collect assessment information

- Following organisation guidelines and protocols for the safe and appropriate handling and disposal of hazardous and sharps materials
  - Providing documentation assistance and support as directed by the Podiatrist
3. Assist with templating for manufacture of orthotic devices by:
- Determining requirements from the client's record and treating Podiatrist
  - Seeking assistance and clarification as required
  - Gathering equipment and materials required for templating and foot measurement
  - Providing the physical environment required to meet procedural requirements in a manner that is safe for the client and operator
  - Assisting with templating and foot measurement according to the Podiatrist's instructions
  - Working with Podiatrist and client, within organisation guidelines, to determine appropriate follow up and further appointments
4. Assist with modification to orthoses and footwear by:
- Determining procedural requirements from the client's record and the treating Podiatrist
  - Seeking assistance or clarification to procedural directions as required
  - Providing the physical environment required to meet procedural requirements in a manner that is safe
  - Assisting with modifications according to the Care Plan and prescriptions from the supervising Podiatrist
  - Presenting modified orthoses or footwear to the Podiatrist for assessment
  - Interpreting and responding to instructions from the Podiatrist regarding further procedural or modification requirements
  - Providing instructions and assistance to client as directed by the Podiatrist
  - Working with the Podiatrist and client, within organisation guidelines, to determine appropriate follow up and further appointments
  - Using machinery and equipment for modifications in accordance with manufacturer's guidelines, OHS requirements and organisation protocols
5. Assist with support and advice to clients in the selection of footwear by:
- Under the guidance of a Podiatrist, using appropriate devices and procedures to measure for fit
  - Confirming measurements with a supervising Podiatrist
  - Under the guidance of a supervising Podiatrist, supporting and educating client in the selection of footwear and fit
  - Seeking assistance or clarification to procedural directions as required
  - Working with the Podiatrist and client, within organisation guidelines, to determine appropriate follow up and further appointments

6. Clean, sterilise and store equipment by:
  - Cleaning equipment according to manufacturers and organisation requirements
  - Preparing equipment and instruments for sterilisation according to organisation protocols
  - Storing equipment according to manufacturers requirements and organisation protocols
  - Reporting equipment faults to appropriate person
  - Ensuring consultation environment is maintained according to guidelines and organisation protocols
  
7. Document client information by:
  - Using accepted protocols to document information in line with organisation requirements
  - Using appropriate terminology to document client information
  -
  
8. Comply with supervisory requirements by:
  - Providing Podiatry assistance according to the instruction of the treating Podiatrist
  - Providing client progress feedback to the treating Podiatrist
  - Seeking assistance when client presents with needs or signs outside limits of own authority or competence
  - Reporting client difficulties and concerns to the treating Podiatrist
  - Implementing variations to the Podiatry Care Plan according to the advice of the treating Podiatrist

## LEARNING TOPICS

The table below outlines the relationship between the topics presented in this Learner Guide and the Essential Knowledge required for completion of the unit of competency.

Topics	Essential Knowledge
1. Organisational Practices	<ul style="list-style-type: none"> <li>• Roles, responsibilities and limitations of self and other allied health team members and nursing, medical and other personnel</li> <li>• Supervisory and reporting protocols</li> <li>• Relevant organisation policies and procedures</li> <li>• Knowledge of first aid, emergency and evacuation protocols of the site</li> <li>• OHS policy and procedures</li> <li>• Infection control protocols</li> <li>• Privacy and confidentiality requirements</li> <li>• Record keeping requirements</li> </ul>
2. Podiatry and Podiatric Procedures	<ul style="list-style-type: none"> <li>• Disease processes relevant to the client group/s</li> <li>• Basic anatomy, physiology and function of the skin and integuments</li> <li>• Basic anatomy and physiology of the nails</li> <li>• Common pathological conditions of the skin and nails</li> <li>• Basic biomechanics of the lower limb</li> <li>• Principles of footwear selection and fitting</li> <li>• Principles and guidelines of orthotic devices</li> <li>• Knowledge of Podiatry procedures including orthotic manufacture/modification</li> <li>• Knowledge of Podiatry procedures including podiatric surgery</li> <li>• Identification and purpose of Podiatry surgical instruments</li> </ul>
3. Service Delivery	<ul style="list-style-type: none"> <li>• Conditions treated by a Podiatrist</li> <li>• Goals and limitations of Podiatry intervention</li> <li>• Client care plans</li> <li>• Medical terminology</li> </ul>

# CONTENT

## 1. Organisational Practice

This topic covers information about:

- Roles and Responsibilities
- Policy and Procedures
- Organisational Practices

Activities in this topic address the following essential skills:

- Communicate effectively with supervisors and co-workers
- Work under supervision
- Apply time management and personal organisation skills and establish priorities
- Operate within OHS and infection control requirements
- Use personal protective equipment
- Provide a safe and effective response in first aid, emergency and evacuation conditions
- Work safely and effectively with electrical equipment and machinery
- Work safely with potentially hazardous materials
- Safely and appropriately dispose of hazardous materials
- Construct and maintain the environment for safe modification of orthotic devices and footwear
- Use hygiene practices such as (surgical) hand washing
- Establish and maintain sterile field

### 1.1 Roles and Responsibilities

As an employee of Queensland Health, you are responsible for compliance with the Code of Conduct for the Queensland Public Service in your workplace.

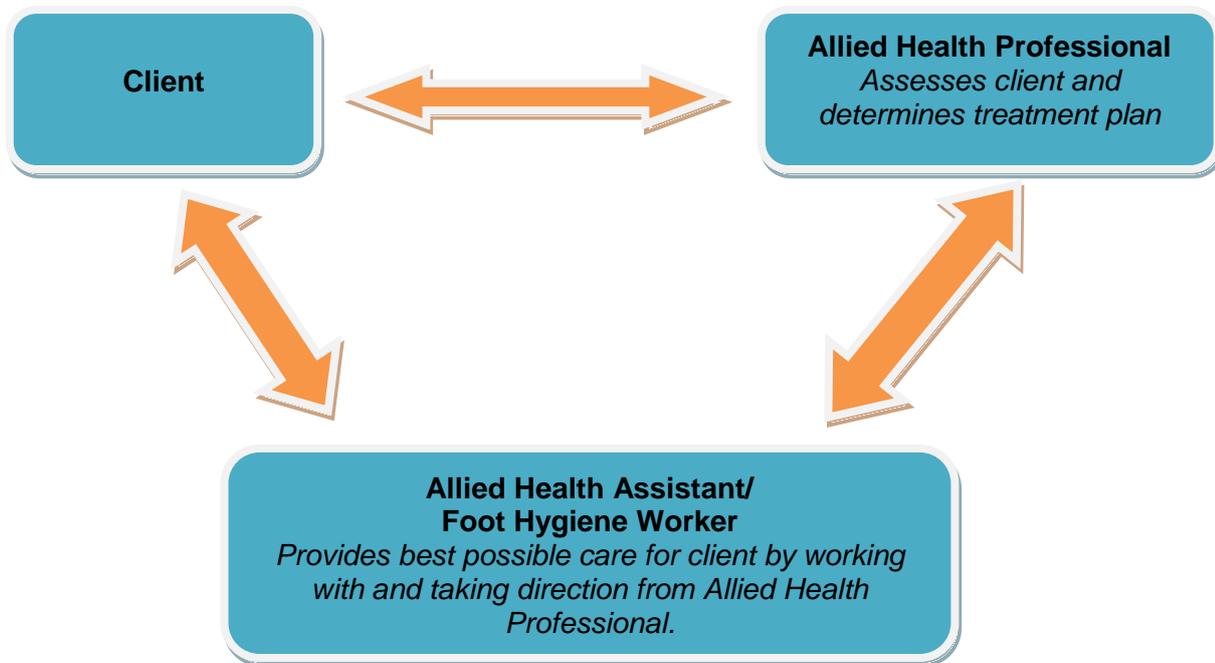
Integrity and Impartiality	Demonstrate commitment to ethical standards; impartiality; and honest, fair and respectful interactions with all persons.
Promoting the Public Good	Manage public resources effectively, efficiently and economically; seeking to achieve excellence in service delivery to serve clients better.
Commitment to the system of	Uphold the system of government and the laws of the State,

Government	Commonwealth and local governments.
Accountability and transparency	Demonstrate commitment to exercising proper diligence, care and attention; achieving high standards of public administration; innovating and continually improving performance.

(State of Queensland, 2010)

Your workplace will have a specific Role Description for your position as Allied Health Assistant – whether your position is Podiatry-specific or contains aspects of a Podiatry Assistant role. It is important that you always work within the role boundaries outlined in this document. Performing in your delegated area of responsibility allows you to effectively and safely perform your role as a member of the health care team.

**Figure 2** Responsibility links between the Allied Health Professional and the Allied Health Assistant.



 Many areas of health care are legislated to ensure that only those people with appropriate skills and knowledge are permitted to perform certain clinical tasks.

 Further information and links:  
 Australian Health Practitioner Regulation Agency: <http://www.ahpra.gov.au/en.aspx>  
 Podiatry Board of Australia: <http://www.podiatryboard.gov.au>

## Supervision

As an Allied Health Assistant or Health Care Worker, you will always work under the direction and supervision of the relevant supervising Health Professional. In the context of this module, this will be a Podiatrist.

Supervision is flexible and may be conducted in a number of ways including face-to-face or through electronic communication media such as telephone, videoconference or email.

A person under supervision does not require direct and continuous personal interaction with their supervisor. The provision of supervision will be determined by a number of factors including:

- The supervisee's familiarity with the task being supervised
- The progression of the client and the necessity to alter the treatment plan
- The need to support the development of nonclinical aspects including time management and communication skills
- Geographical factors where the supervisor and supervisee may not both be in the same place at the same time
- Organisational requirements

## Your Role in Supervision

Type	Description
Direct	You are given a task to complete. Your supervisor observes as you complete the task.
Indirect	You are given a task to complete. Your supervisor interacts with you periodically to evaluate your success with completing the task.
Delegation	You are given a task to complete and you are responsible for completing it.

On any given day, your duties may comprise a combination of these methods. As your skill and experience level increases, you may perform a greater number of tasks requiring indirect supervision or delegation (Podiatry Board of Australia, 2010).



### Case Study

Pam, an Allied Health Assistant (Podiatry), works with the multidisciplinary team in the High Risk Foot Clinic. Sarah, the supervising Podiatrist, asks Pam to prepare the clinical area for a Surgical Podiatry Procedure. While Pam is performing this task, Sarah checks periodically that Pam is conducting preparations for surgery successfully (indirect supervision). Once the clinical area has been prepared, Sarah then gives Pam step-by-step direction in the placing of equipment, dressings and related materials in preparation for the surgical procedure (direct supervision). Once the surgical procedure is complete, Sarah then asks Pam to clear the clinical area as per organisational protocols, a task that Pam has done many times before (delegation). While Pam completes this task, Sarah completes the documentation for the procedure.



### Activity 1: Roles and Responsibilities of an Allied Health Assistant

1. Obtain a copy of your role description. Ensure you understand each key responsibility listed. Give a brief explanation of the responsibility links including the supervision arrangements between you and your supervising Allied Health Professional.

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2. Provide an example from your current role where you have undergone direct supervision, indirect supervision, and delegation.

Direct Supervision	
Indirect Supervision	
Delegation	

## 1.2 Policies and Procedures

As a Health Care Worker, you will perform your duties according to a set of organisational policies and procedures. This set of documents must, by law, include policies on Occupational Health and Safety and Infection Control.

### **Occupational Health and Safety**

Your role as a Podiatry Assistant may require you to operate electrical equipment and machinery and handle potentially hazardous materials. Your workplace will have procedures which, when followed, ensure your safety in this area. These procedures:

- Ensure safety of all employees, clients and anyone else entering the workplace
- Involve risk management, (an integral part of all Queensland Health activities)

As part of the management of risks, you must take reasonable action to ensure that:

- accidents are prevented
- people are protected from being hurt
- hazards are removed or controlled
- health is looked after and encouraged

### **Personal Protective Equipment (PPE)**

Health workers should have access to a range of PPE that meets Australian Standards and is appropriate for the intended use. PPE includes items such as:

- gloves
- gowns
- aprons
- facemasks
- eyewear
- footwear

The type of equipment required depends on the nature of the procedure being performed. Your supervisor will advise you on the appropriate PPE required in your workplace.



The Queensland Health Occupational Health and Workplace Safety website provides comprehensive information relevant to this topic at the following link:

<http://gheps.health.qld.gov.au/safety/home.htm>



## Activity 2: Occupational Health and Safety

In your role as a Podiatry Assistant, you may be required to perform a range of tasks related to equipment and materials handling. Using the information on the Queensland Health Occupational Health and Workplace Safety website, relevant policies in your workplace and discussions with your supervisor, make some notes (including workplace-specific examples) below about your responsibilities in the following areas:

Personal protective equipment	
Safe and effective use of electrical equipment and machinery	
Safe use of potentially hazardous materials	
Safe and appropriate disposal of hazardous materials	

Construction and maintenance of an environment for safe modification of orthotic devices and footwear	
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## Infection Control

Infection control involves maintaining a safe environment in the health care setting for staff, clients, and visitors. Infection Control in Australia is expected to comply with the current endorsed version of the Australia/New Zealand standards as well as industry-specific guidelines.

These standards and guidelines may include:

- Australian Standards AS4815 and AS/NZS4187
- National health and medical research council guidelines for infection control
- Industry codes of practice
- Local, state and federal government guidelines and standards
- Recommendations and operating manuals from manufacturers

Infection Control measures protect people in health care settings from contracting or passing on infection by:

- removing or controlling sources and reservoirs of organisms
- reducing the risk of transmission by promoting an environment where the risk of interaction between potentially infectious agents and susceptible people is minimised
- maximising host defences



Care workers should have a sound knowledge on the principles of infection control and be aware of their organisational infection control protocols.

Infection Control policies and procedures may relate to:

- Cleaning procedures and schedules
- Cleaning equipment
- Handling, storage and disposal of all types of waste
- Infection control risk management
- Infection control incident and hazard reporting

## Standard and Additional Precautions

All staff employed in a health care service or facility are responsible for assisting in the control of infection by observing two levels of infection control practices – standard precautions and additional precautions.

Precaution	Explanation	Example
Standard	Basic work practices recommended for use with all clients to give the minimum level of protection for everyone (clients, staff and others)	Hand washing Immunisation of health care workers Routine environmental cleaning
Additional	Used in addition to standard practices with those clients who pose special infection risks	Infectious client is isolated, preventing transmission of the infectious agent to susceptible people in the health care setting  Appropriate signage to alert staff and visitors that they are entering an isolation area and personal protective equipment, e.g. Mask, is required

**Standard Precautions** are work practices which achieve a basic level of infection control. Based on the idea that all blood and body fluids are potentially infectious, these precautions apply to the care and treatment of all clients regardless of their perceived infectious risk.

Standard Precautions should be implemented at all times as a minimum standard for infection control. These precautions include:

- Aseptic technique to reduce client exposure to microorganisms
  - Hygiene practices such as hand washing
  - Use of personal protective equipment
  - Appropriate clinical layout, workflow and clinical practices
  - Protocols for waste disposal and sharps management and processing reusable instruments and equipment
  - Appropriate practices for cleaning and maintenance of the podiatric clinic and equipment
  - Immunisation of health care workers
- (Podiatry Board of Australia, 2016; QLD Health, 2016).

Additional precautions are used in addition to Standard Precautions when extra barriers are required to prevent or interrupt the transmission of specific diseases. The implementation of these strategies is intended to prevent the spread of infection to others from clients, known or suspected to be infected or colonised with infectious agents that would not be contained by standard precautions alone.

Where indicated, additional precautions your Podiatrist may ask you to observe may include:

- Isolation of the infectious client in a separate room or waiting area or alternatively placing them at the end of the treatment list
- Additional PPE, for example, masks, gloves and single-use gowns
- Appropriate environmental cleaning regimes

(Podiatry Board of Australia, 2016; QLD Health, 2016.)

## Hand Hygiene

'Poor hand hygiene among HealthCare Workers (HCWs) is recognised as being the largest problem associated with healthcare-associated infections (HAIs) within hospital environments.' (Protocols and Guidelines: QLD Health Hand Hygiene, 2013).

Hand hygiene is the most important measure in preventing or reducing healthcare associated infections. Health care workers must perform hand hygiene before and after any activity that is likely to cause contamination, for example:

- Touching a client
- Before and after a procedure
- After body fluid exposure
- After touching a client's surroundings
- Before and after cleaning of reusable instruments

(Protocols and Guidelines: QLD Health Hand Hygiene, 2013; Podiatry Board of Australia).



The Queensland Health Hand Hygiene Protocol can be found in Appendix B. This protocol applies to all Queensland Health facilities.

## Sterile Fields

A sterile field is an area in which contamination is kept to an absolute minimum. This may be necessary in a number of settings across the spectrum of Podiatry including during the performance of nail surgery or the management of a wound.

A sterile field is established by starting with a sterile surface, for example, a sterile drape or towel. Items for use are then dropped onto the sterile field using gloved

hands, which do not come in contact with the sterile field. These items should be arranged conveniently for use in sequential order. Once used, the items should not be returned to the sterile field; rather they should be placed in an adjacent secondary field or discarded (McDermott 2006: 640).

### **Site-specific Protocols for First Aid, Emergency, and Evacuation**

All Queensland Health facilities have site-specific protocols for first aid, emergency, and evacuation. These protocols are explained and demonstrated when a new staff member joins Queensland Health and are updated for all staff on an annual basis. Written versions of the protocols must be accessible in all facilities. It is important that all staff are aware of the location of these protocols.





## 1.3 Organisational Practice

### Privacy and Confidentiality

Queensland Health has a longstanding commitment to ensuring the privacy and confidentiality of personal information collected. That commitment is supported by nine National Privacy Principles in the Information Privacy Act 2009 (Qld) (in relation to all personal information held) and strict confidentiality obligations found in Part 7 of the Health Services Act 1991 (Qld) (in relation to health information held) (Queensland Health, 2009).

Health workers are obligated not to disclose client information except when the information is required in the course of their professional duties. This information may include but is not limited to medical history, current treatment, and prognosis.

### Consent

Health care workers are legally required to obtain client consent prior to commencing contact. The exception to this is in the case of an emergency. Your supervising Allied Health Professional is responsible for obtaining initial client consent for treatments with which you will be assisting. In your regular contact with clients, you should routinely gain consent before assisting the client in any way.

Requirements for consent:

- Must be freely given
- Client must have legal capacity as determined by the individual's intellectual status and age – if less than 18 years of age, consent must be provided by a parent or legal guardian.
- Client is adequately informed of the nature of the procedure

### Record Keeping

Any intervention, treatment, advice, or occurrence of any kind (including indirect client contact) with or about a client must be documented within an acceptable time frame. Client record keeping must be performed in a manner consistent with your specific organisational policy and procedure. This will be in a format that is accepted and reproducible in the event of a medico-legal situation. It is a legal requirement that all documentation is completed in black ink.



## Key Points

Topic	Important Points	Completed
1.1 Roles and Responsibilities	Code of Conduct	
	Allied Health Assistant – Podiatry Role	
	Responsibility links with Allied Health Professional	
1.2 Policies and Procedures	Occupational Health and Safety	
	Infection Control	
	Organisation specific policies and procedures	
1.3 Organisational Practices	Privacy and Confidentiality	
	Consent	
	Record Keeping	
	Supervisory and Reporting Protocols	

My Points to Remember

## 2. Podiatry and Podiatric Procedures

This topic covers information about:

- Anatomy and Physiology
- Disease Processes
- Biomechanics of the Lower Limb
- Footwear
- Orthotic Devices
- Podiatric Surgery

Activities in this topic cover the following essential skills:

- Undertake activity analysis – breaking activities down into component parts
- Identify variations in podiatry conditions
- Modify orthotic devices
- Modify shoes
- Construct and maintain the environment for safe modification of orthotic devices and footwear
- Use observation and reporting skills
- Work under supervision
- Communicate effectively with supervisors and co-workers
- Maintain accurate records
- Safely and appropriately use materials including animal derived leathers, synthetics, solvents and adhesives

## 2.1 Anatomy and Physiology of the Foot

### The Skin

The skin, the body's largest organ, is a membrane that encloses the body. The skin is composed of two layers, the epidermis, and the dermis. These layers are joined by the dermo-epidermal junction.

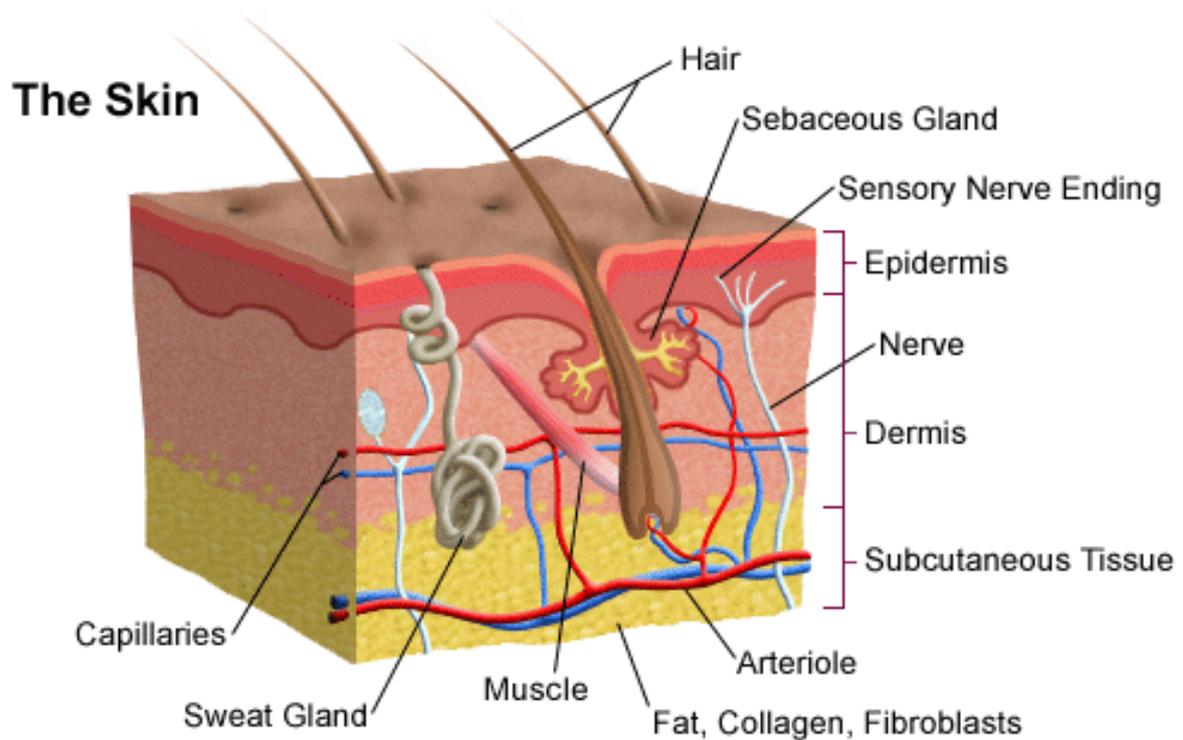


Figure 3 Anatomy of the Skin (Stanford Medicine, 2010)

#### Epidermis:

- generally 0.06-0.15mm thick
- 'top' coat of the skin
- forms the 'intact' barrier between the body and its environment
- contains five layers of cells including keratinocytes (protein cells) and melanocytes (provide UV light protection)

#### Dermis:

- usually approximately 2-4mm thick
- makes up the bulk of the skin
- most of the appendages occur in this layer-
  - Arteries

- Veins
- Capillaries and Lymph vessels
- Nerves
- Hair Follicles
- Sweat glands
- Sebaceous glands

### **Function of Skin**

Prevents dehydration

Protects against outside agents, for example, bacteria

Regulates body temperature

Produces Vitamin D

Protects against damage from UV radiation

Processes and send information via nerves



### Activity 5: Age-Related Changes to Skin

1. Compare the skin characteristics on the lower legs of three people, one from each of the age brackets listed below. Comment on your observations considering factors such as texture (thick/thin), dryness, presence of hair, presence of lesions (sores).

0-12 years	
30-45 years	
70-85 years	

Make some notes to discuss with you supervisor about possible aged-related changes to skin based on your observations.

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## The Foot

Each foot has:

- 26 bones
- 38 joints
- 28 muscles
- Blood Vessels
- Nerves
- 150,000 skin cells
- 50,000 Sweat glands

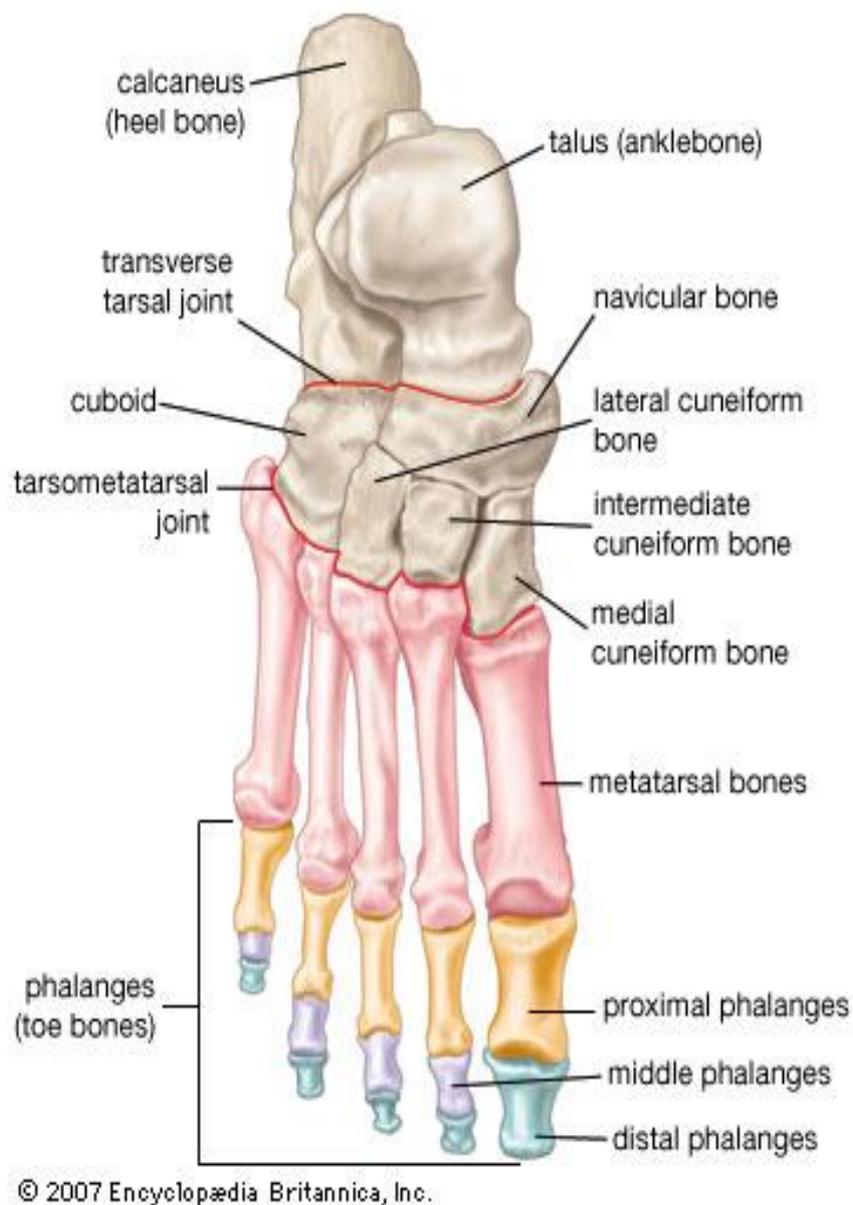
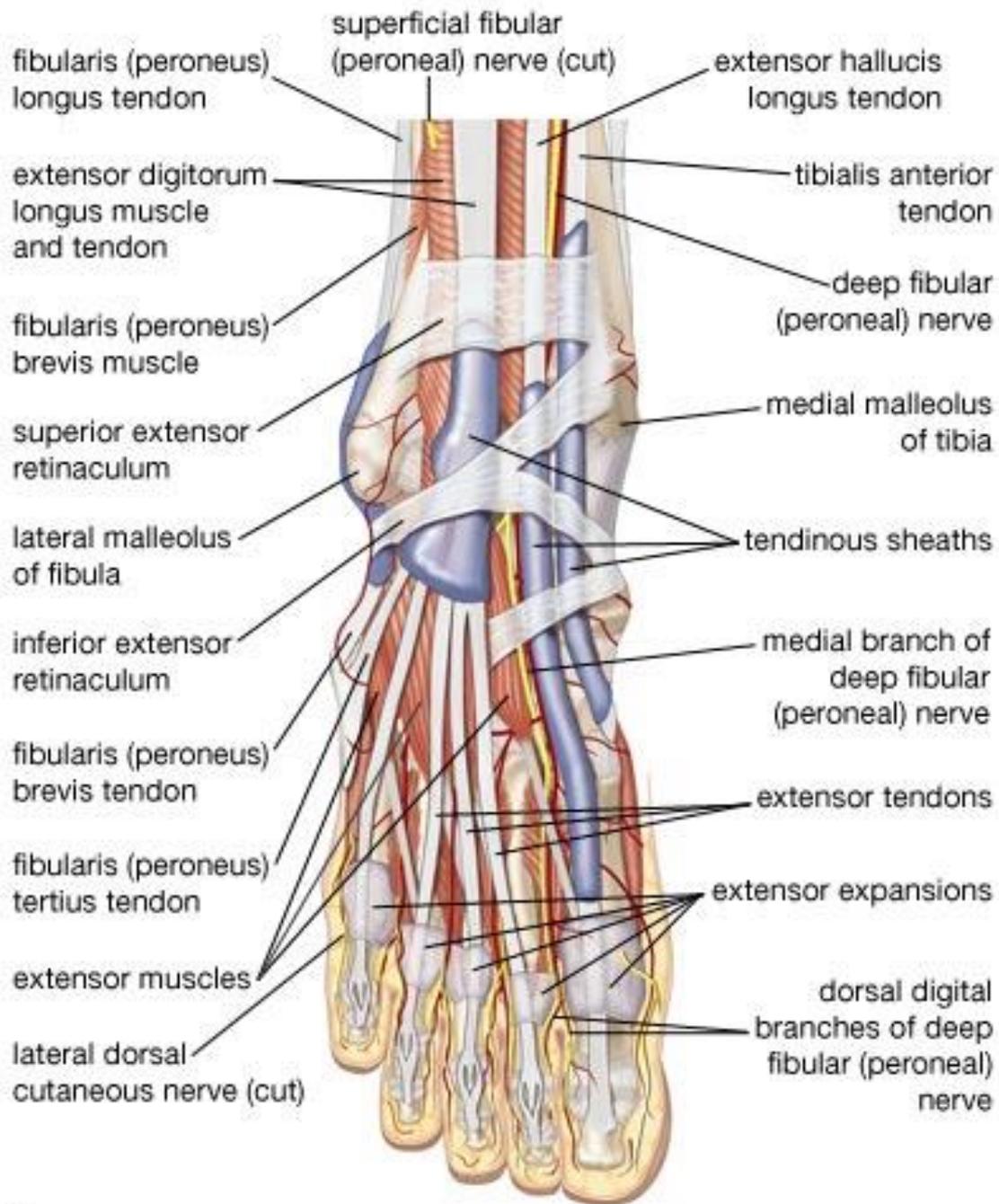


Figure 4 Bones of the Foot (Encyclopædia Britannica, 2010)

## Muscles of the Foot



© 2007 Encyclopædia Britannica, Inc.

Figure 5 Muscles of the Foot (Encyclopædia Britannica, 2010)



It is important to note that there are many soft tissue structures on the bottom of the feet. As you work through this unit, ensure that you thoroughly discuss foot anatomy with your supervisor.

## The Vascular System

The body requires adequate blood flow to all areas to maintain good health and function. Oxygenated blood, which has passed through the lungs, leaves the heart through the aorta (the body's largest artery) and is then pumped throughout the body, returning to the heart via the vena cava (the body's largest vein).

The feet are supplied with blood by two main arteries:

- Dorsalis pedis (top of the foot; shown below in red)
- Posterior tibial (bottom of the foot; shown below in orange)

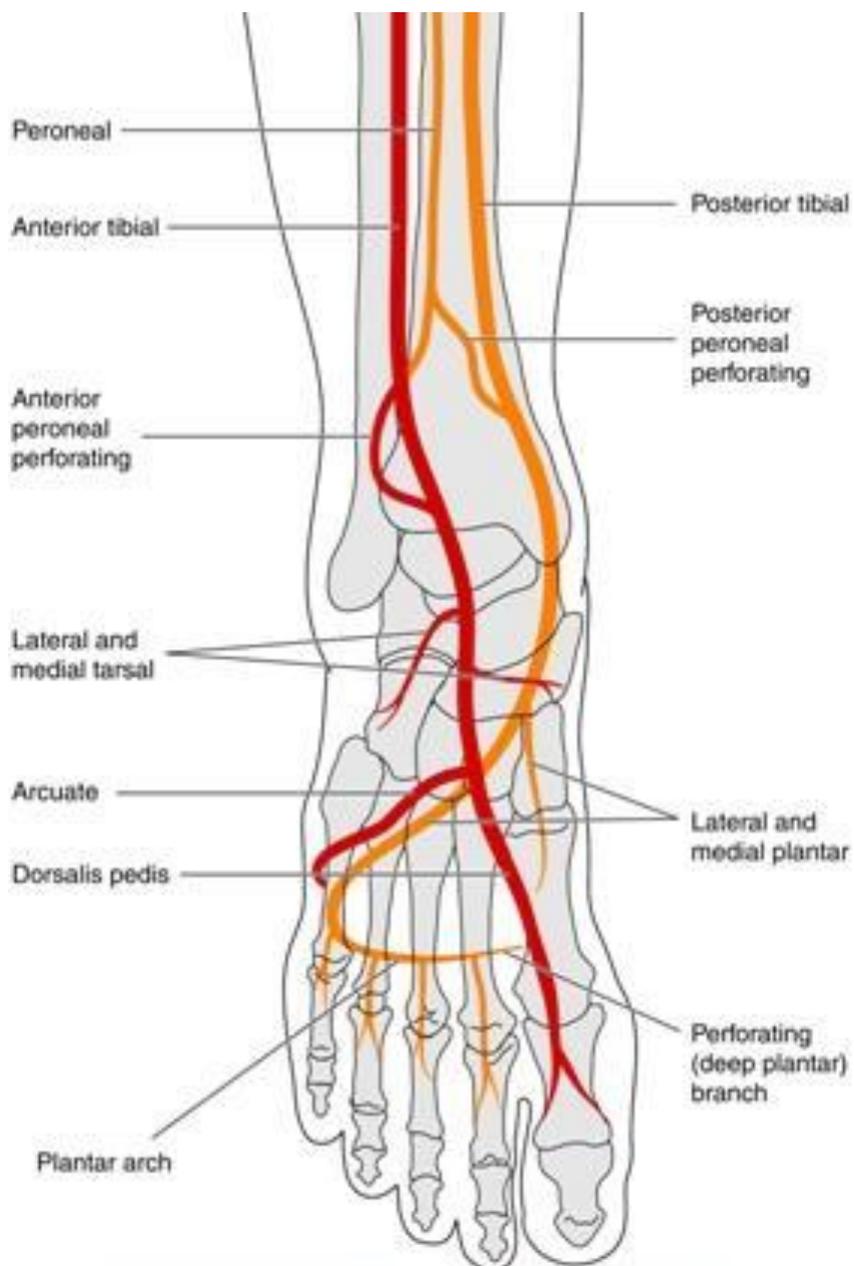


Figure 6 Blood Supply of the Foot (joint-pain-expert.net, 2010)

## Neurological

The body's nervous system can be divided into the Central Nervous System (CNS) and the Peripheral Nervous System (PNS). The CNS contains all structures lying within the central axis of the body – the brain and spinal cord. The PNS comprises the nerves that are located outside the brain and spinal cord.

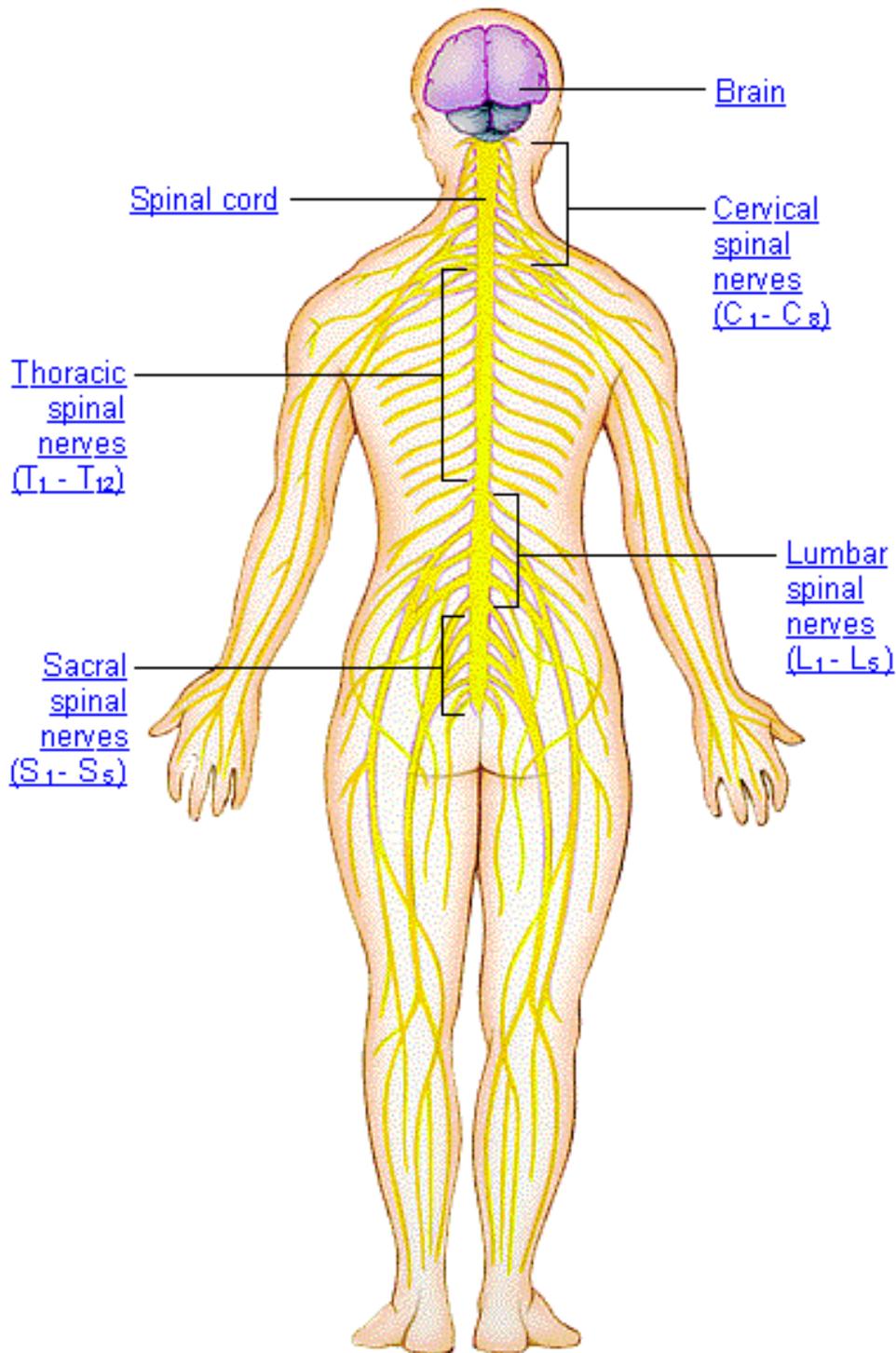


Figure 7 Human body neurological supply (Improve-Education.org, 2010)

Peripheral nerve function provides information to the brain about the external environment. Afferent nerves carry nerve impulses from receptors or sense organs towards the central nervous system and provide information about changes in touch, pressure, temperature, pain, and bodily position (also known as proprioception). Efferent nerves carry nerve impulses away from the central nervous system to effectors such as muscles or glands and provide information such as sweat glands (McLeod-Roberts: 107, 1995).



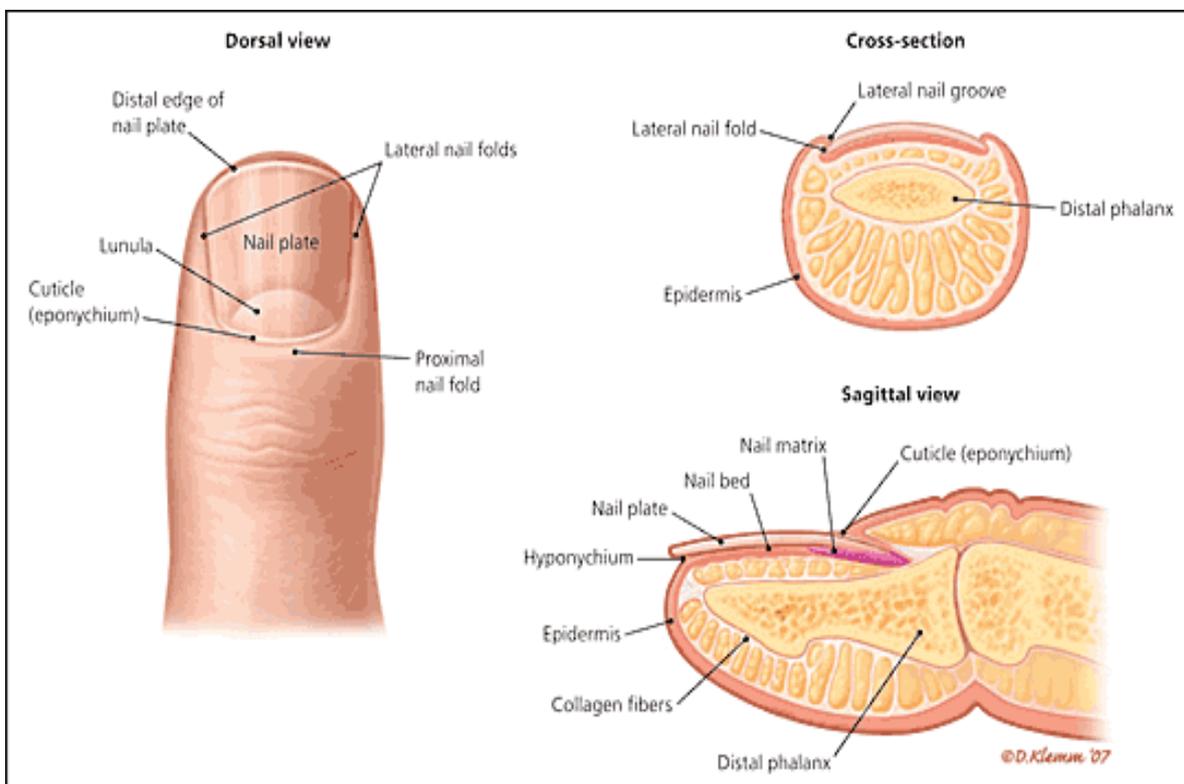
As an Allied Health Assistant, it is not necessary for you to memorise the names of all the bones, muscles, and blood vessels listed above. Your supervising Podiatrist will let you know which medical terminology you will need to know to perform your role.



## The Nails

The nail complex consists of:

Nail plate	Composed of keratin
Nail bed	Attaches beneath the nail plate to stop harmful organisms from entering the nail
Nail matrix	A layer of cells under the skin at the base of the nail which produce the nail plate
Proximal nail fold	Covers the matrix
Eponychium/'cuticle'	Distal section of the proximal nail fold Stops harmful organisms from entering the nail matrix
Lunula	The white part (moon) at the base of the nail
Hyponychium	Skin located beneath the distal nail plate at the junction between the free edge and the skin of the toe Forms a seal to protect the nail bed



**Figure 8 Anatomy of the Nail (American Academy of Family Physicians, 2010)**

### **Function and Growth:**

The function of the nail is to protect the top of the digits.

Nails grow in response to pressure. Increased pressure leads to increased nail growth so that nails on the dominant side of the body will grow at a faster rate.

The average toenail takes 8-12 months to grow from the cuticle to the distal edge of the nail plate.



### Activity 7: Age-Related Changes to Toe Nails

1. Compare the toe nail characteristics of three people, one from each of the age brackets listed below. Comment on your observations considering factors such as colour (e.g. pink, black, brown), shape (e.g. wide, narrow, curved) and texture (e.g. smooth, brittle, crumbly). Include diagrams to illustrate if necessary.

0-12 years	
30-45 years	
70-85 years	

## Pathology of Skin

Disorders of the skin may result for a number of reasons. Consequently, numerous skin conditions may exist in the lower limbs.

### Common Skin Conditions of the Lower Limbs

Condition	Description	Appearance
Fissures	In response to poor water retention in skin tissue, skin becomes hard and external pressure causes cracking or 'fissuring'	 <p>(Podiatry and Foot Protection Program, 2010)</p>
Maceration	Water content in skin is too high resulting in loss of tensile strength  May be associated with hyperhidrosis (overly sweaty feet which perspire excessively) and/or bromidrosis (a condition caused by the presence of bacteria which results in perspiration with unpleasant odour)  (DeMaria et al 2010: 13)	 <p>(Wikivisual, 2010)</p>
Hyperkeratosis	Commonly known as callus  Yellowish plaque of hard skin  Often due to increased abnormal pressure  May be painful and cause alterations in gait  May be a precursor to ulceration in the at-risk foot  (Luck, Munro, Roberts, Springett, Thomson, O'Donnell 2006:35)	 <p>(Podiatry and Foot Protection Program, 2010)</p>

Condition	Description	Appearance
<p>Heloma</p>	<p>Commonly known as a corn</p> <p>Several types – hard (heloma durum), soft (heloma molle), seed (heloma miliare)</p> <p>Inverted cone of hard skin which is pushed into the adjacent skin</p> <p>May be painful and cause alterations in gait</p> <p>May predispose ulceration in the at-risk foot</p> <p>(Luck et al 2006: 35)</p>	 <p>(The Footcare Company, 2010)</p>
<p>Tinea pedis</p>	<p>Caused by dermatophytes</p> <p>Itching blister-type skin lumps which break open</p> <p>Moisture is usually a factor</p> <p>(DeMaria et al 2010: 19)</p>	 <p>(DermIS, 2010)</p>
<p>Psoriasis</p>	<p>Chronic inflammatory skin condition</p> <p>Most commonly distinct, itchy patches of thick, scaly, red skin</p> <p>Prominent on elbows, knees, scalp and feet (including toe nails)</p> <p>(Luck et al 2006: 37)</p>	 <p>(DermIS, 2010)</p>

Condition	Description	Appearance
<p>Verrucae</p>	<p>Known as Plantar warts</p> <p>Caused by the Human Papilloma Virus (HPV)</p> <p>Often don't cause the client any concern</p> <p>Will disappear once the body's immune system recognises the virus</p> <p>(Luck et al 2006: 31)</p>	 <p>(DermIS, 2010)</p>
<p>Ulcers</p>	<p>Occur where the body's ability to heal damaged skin is impaired</p> <p>May be of varying size and depth</p> <p>Infection is often a concern</p> <p>(Luck et al 2006: 25)</p>	 <p>(Podiatry and Foot Protection Program, 2010)</p>





## Pathology of Nails

Nails are often the first visible site of disease and changes in nail appearance can demonstrate underlying disease. In the event of serious illness or trauma, nail growth may slow or stop until improvements in health occur. There are a wide range of nail pathologies, the most common of which are listed below.

### Common Nail Disorders

Condition	Description	Appearance
Onychocryptosis	<p>'Ingrown toenail'</p> <p>A spike or serrated edge of the nail pierces the adjacent skin</p> <p>Causes acute inflammation and often infection</p> <p>Most common in the hallux (Johnson 2006: 77)</p>	 <p>(EPodiatry.com, 2010)</p>
Onychauxis	<p>Abnormal thickening of nail increasing from the nail base to the free edge</p> <p>Occurs due to nail matrix damage, from numerous causes e.g. single trauma from heavy blow or repeated trauma from ill fitting footwear (Johnson 2006: 80)</p>	 <p>(Achilles Foot Health Centre, 2010)</p>
Onychogryphosis	<p>'Ram's horn nail'</p> <p>Abnormal nail thickening and gross deformity which develops a curved or ram's horn shape</p> <p>Often related to poor foot care practices (lack of nail cutting)</p>	 <p>(Podiatry and Foot Protection Program, 2010)</p>

Condition	Description	Appearance
Onychomycosis	<p>Fungal infection of the nail bed and nail plate</p> <p>Cause is often difficult to isolate however poor foot hygiene is frequently an issue</p> <p>Treatment may be with antifungal agents which are applied to the nails or with GP prescribed medication</p> <p>Treatment must also include precautions to reduce the possible spread of the infection via towels, socks and footwear</p> <p>(Johnson 2006: 86)</p>	 <p>(DermIS, 2010)</p>





## 2.2 Foot Pathologies Relevant to the Lower Limb

Certain systemic disorders or diseases may have a direct impact on the feet and lower limbs. As a result, clients with these disorders may be identified as 'high risk' from a Podiatric perspective.

As an Allied Health Assistant (Podiatry) or Foot Hygiene Worker, it is important that you have some awareness and understanding of these conditions and the related precautions that may need to be taken when interacting with clients who may have these conditions.

- Vascular disorders – arterial, venous, other
- Neurological disorders
- Bone and Joint disorders
- Endocrine e.g. Diabetes mellitus

### Vascular Disorders – Arterial

Condition	Characteristics	Typical Lower Limb Clinical Picture
Occlusive Arterial Disease	<p>Partial or complete blockage of one or more arteries</p> <p>May occur in coronary, femoral or popliteal arteries, resulting in ischaemia</p> <p>Blockage may be due to arteriosclerosis or atherosclerosis</p> <p>Early identification may be addressed by a vascular surgeon through coronary bypass 'stenting' or 'ballooning'</p> <p>Prognosis may improve with improvements in diet and exercise</p>	<p>Ulceration and/or gangrene of the lower extremities may occur as a result of severe blockages</p>
Raynauds Disease	<p>Condition where blood vessels of fingers and toes become hypersensitive to temperature variations and emotional stimuli</p>	<p>Bluish coloured, painful, cold digits</p> <p>Slow healing rates</p>

Condition	Characteristics	Typical Lower Limb Clinical Picture
Cerebro-vascular Accident (CVA, Stroke)  (Note: see also Neurological Disorders)	Brain haemorrhage or aneurysm causing oxygen deficiency which damages brain tissue  Results in deficiencies in bodily functions	Poor healing rates as vascular supply to affected side is impaired due to muscle weakness

### Vascular Disorders – Venous

Condition	Characteristics	Typical Lower Limb Clinical Picture
Varicose Veins	Reduced venous drainage occurs due to weakness in vein walls and vein valve incompetence	Prominent tortuous (twisted) veins  Possible cyanosis or haemosiderosis (increased deposition of iron in tissues. Usually presents as brown discoloration of the skin of the anterior lower legs)
Deep Vein Thrombosis	Blockage in one (or more) of the deep veins of the body, commonly the iliac or femoral veins  May be potentially life threatening – treated with bed rest and blood thinning medication	Symptoms include pain, swelling, redness and skin discoloration
Varicose Dermatitis	May occur in association with chronic varicose veins  Itchy skin eruption	Brownish skin discoloration if long standing  Often leads to varicose ulceration with poor healing

## Other Vascular Disorders

Condition	Characteristics	Typical Lower Limb Clinical Picture
Anaemia	Iron deficient condition which results in reduced oxygen carrying capacity of blood	Generalised weakness, poor health and poor healing rates
Heart Disease	Diseased/damaged heart results in weak pumping ability  May be congenital (e.g. heart valve defect) or acquired (e.g. through infection such as myocarditis)  May involve angina	Impaired healing times due to impaired lower limb circulation

## Neurological Disorders

Condition	Characteristics	Typical Lower Limb Clinical Picture
Cerebro-vascular Accident (CVA, Stroke)	Brain haemorrhage causing oxygen deficiency which damages brain tissue  Nerve supply to affected side is impaired	Loss of movement on one side of the body  Muscle weakness, impaired balance and reduced sensation  Speech often affected
Multiple Sclerosis	Autoimmune disease – immune system attacks central nervous system  Progressive condition of varying severity	Tremors, stiffness, muscle weakness and rigidity
Charcot-Marie-Tooth Disease	Hereditary disorder  Chronic degeneration of peripheral nerve roots resulting in muscle weakness and atrophy	Acquired foot deformities, weakness, balance problems and peripheral neuropathy

Condition	Characteristics	Typical Lower Limb Clinical Picture
Neuropathy	<p>Broad term to describe loss of sensation, balance, muscle strength</p> <p>Multiple causes – Diabetes, alcoholism, substance abuse, spinal injury, CVA, Vitamin B deficiency in childhood, other conditions, e.g. Paraplegia, Quadriplegia, Cerebral Palsy, Complex Regional Pain Syndrome</p> <p>Risk of lower limb injury is high due to reduced input from nerves</p>	<p>Foot pathology including ulceration as a result of lack of protective sensation</p> <p>Balance problems</p>

### Bone and Joint Disorders

Condition	Characteristics	Typical Lower Limb Clinical Picture
Osteoarthritis	<p>Also known as degenerative joint disease</p> <p>Inflammation, breakdown and eventual loss of cartilage in joints</p>	<p>Common in feet, especially with age and history of injury</p> <p>Joints become enlarged and motion is usually restricted</p>
Rheumatoid Arthritis	<p>Auto-immune disorder</p> <p>Immune system attacks the joints causing inflammation and pain</p>	<p>Many joints may be affected although commonly seen in the hands and feet</p> <p>Effects may also occur in the lungs, kidneys, eyes, skin and nervous system</p> <p>Reduced blood supply to feet and legs</p> <p>Peripheral neuropathy</p> <p>Ulceration especially in the feet</p>

Condition	Characteristics	Typical Lower Limb Clinical Picture
Seronegative Arthritis	Systemic arthritic conditions other than rheumatoid arthritis  Psoriatic arthritis, ankylosing spondylitis, reactive arthritis	All conditions cause joint pain and inflammation
Gout	Accumulation of uric acid crystals in joints  Results from disorder in metabolism  Well managed by dietary changes and medication	Most commonly seen in 1st metatarsophalangeal joint of the foot  Joint is intensely painful and inflamed
Osteoporosis	Decreased bone density resulting in structural weakness which makes bones prone to fracture	Prominent in females and the elderly

## Endocrine Disorders

Condition	Characteristics	Complications
Diabetes Mellitus	<p>Group of diseases characterised by high blood glucose levels (BGLs)</p> <p>Inadequate ability to produce and/or use insulin in the metabolism of glucose</p> <p>Classified as type 1 (absence of insulin production by the pancreas) or type 2 (insulin resistance)</p> <p>Common characteristics: fluctuating BGLs (hyper/hypoglycaemia), excessive thirst/urination, sugar cravings, sudden changes in weight (at diagnosis), nausea (in some cases)</p> <p>BGLs may be controlled by modified diet, exercise, oral medication or injectable insulin</p> <p>If BGLs are not maintained at the regulated level (4-8mmol/l; HbA1c less than 7%), complications may result.</p> <p>With good control of BGLs and diligent attention to foot care, lower limb and foot complications may be minimised</p>	<p>Eyes</p> <p>Damage to retinas and cataract development may result in impaired vision</p> <p>Impaired vision reduces ability to detect injury to feet as well as perform foot care including safe toenail cutting</p> <p>Blood Vessels</p> <p>Poorly controlled BGLs may accelerate hardening of artery walls resulting in a reduction in circulation to the lower limbs</p> <p>Reduced circulation results in reduced healing times and hence increased risk of infection</p> <p>Reduced circulation also affects skin and tissue health making resilience to pressure and friction poor</p> <p>Nervous System</p> <p>Poorly controlled BGLs may cause nerve damage resulting in loss of sensation or neuropathy especially in the feet</p> <p>Kidneys</p> <p>Often results in kidney failure (especially in Type 1 population) which requires dialysis +/- renal transplantation</p>

(De Maria & POD in Health Training 2010:21-25; Edmonds & Wall 2006: 244, 246)





## Foot Pathology

As Podiatrists are lower limb practitioners, it is not uncommon to see a range of conditions involving structures from the hip right through to the toes.

Examples of conditions that may present:

- Plantar fasciitis
- Medial tibial stress syndrome (shin splints)
- Tibialis posterior tendon pathologies
- Hallux abductovalgus
- Patellofemoral pain syndrome
- Recurrent ankle inversion sprains
- Sinus tarsi syndrome
- Tarsal coalition
- Achilles tendinitis
- Metatarsalgia
- Bursitis
- Neuroma
- Tarsal tunnel syndrome
- Stress fractures of bones of the feet
- Pes planus
- Leg length discrepancy



### Activity 11: Foot Pathologies Relevant to the Lower Limb

Discuss the list of conditions on the previous page with your Podiatry supervisor. Choose three conditions from the list. Research these conditions and write a brief explanation about each one. Be sure to include signs and symptoms and possible treatment options.

Condition 1:

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Condition 2:

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Condition 3:

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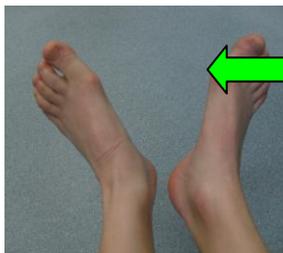
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## 2.3 Basic Biomechanics of the Lower Limb

In the lower limb, **biomechanics** is a term used to describe movement in the leg and foot. It takes into account the anatomy of the leg and foot, and how that interacts with the muscles, tendons, ligaments and other tissues in the area, to allow the body to move.

There are various terms that refer to movement of the joints and limbs which you may encounter in your workplace.

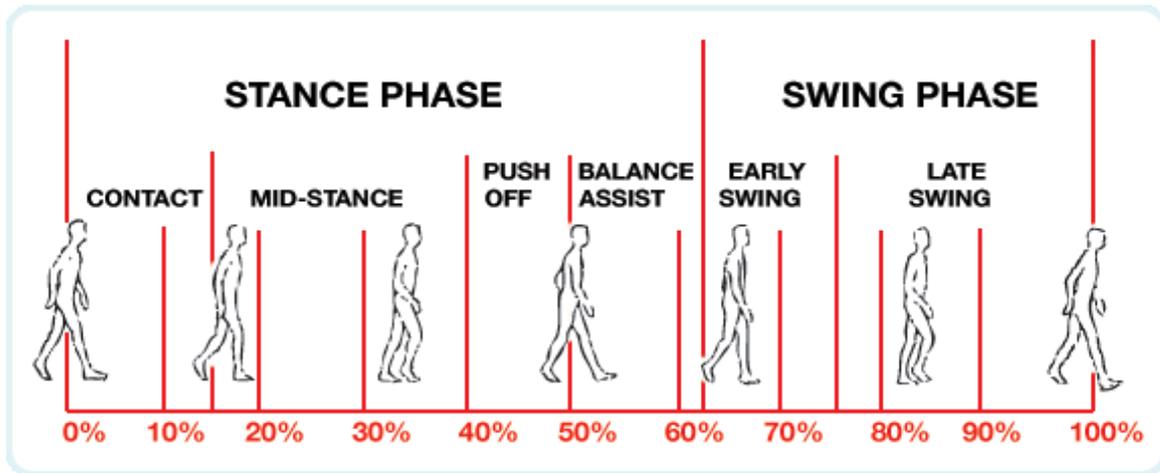
Term	Explanation	Appearance
Plantarflexion	Toes or foot moving in a downward motion away from the body	
Dorsiflexion	Toes or foot moving in an upward motion towards the body	
Abduction	Movement of the limb/foot away from the midline of the body, for example, moving your toes apart is abducting your toes	
Adduction	Movement of the limb/foot towards the midline of the body, for example, putting your toes together is adducting your toes	

Inversion	A lengthways twist of the foot with the big toe coming up first.	
Eversion	A lengthways twist of the foot that has the big toe moving down first.	
Pronation	The inward rolling motion of the foot with flattening of the arch. Allows the foot to adapt to uneven terrain and to absorb the impact of the foot striking the ground.	
Supination	The rolling out motion of the foot.	

(Watkins 2006: 425, 441)

**Gait** is a word used to describe a walking or running motion. The biomechanics of gait looks at how the body parts work in relation to each other, to allow the person to move.

The **gait cycle** describes what happens to the foot and ankle from the point of contact of one foot with the ground, to the point at which the same foot contacts the ground again.



Clinical Gait Analysis: Biomechanics and Etiology of Common Walking Disorders (Rose, Accessed 1 November 2016).

**Figure 9 Clinical Gait Analysis**

The gait cycle is divided into the swing phase and the stance phase:

- Swing phase – The phase of the gait cycle when the foot is in the air
- Stance phase – The foot is in contact with the ground. The stance phase of the gait cycle is then divided into three parts.

Elements of Stance Phase	
1. Heel Strike	When the heel initially touches the ground
2. Midstance	Entire foot is in contact with the ground, and the whole body weight is through and over the foot.
3. Heel Lift	When the heel lifts off the ground

(Watkins 2006: 433)





## 2.3 Footwear

Footwear selection is a major factor in the success of treating a client. There are many factors which must be considered when advising clients about footwear. Podiatrists will often list the components they would like present in footwear when prescribing for a client.

### Features of a Good Shoe

Feature	Explanation
Upper material	Natural Fibre materials like leather are better than a synthetic material like vinyl. Some styles of shoe are now being made with stretchy mesh panels to accommodate different shapes in feet.
Location of seams on the upper	An area with a seam through it doesn't stretch like an area without. It is important to be aware of the location of seams especially in the toe box of the shoe in relation to the foot and its bony prominences.
Length of the shoe	There should be adequate space between the longest toe and the end of the shoe
Toe box	The toe box should be wide enough and deep enough for all of the toes to be positioned comfortably. A square toe box puts less pressure on the toes than a round toe box.
Sole	A cushioned midsole is advisable along with an outsole that has good grip (although not so much that it causes a fall due to tripping).
Heel Counter	The part of the shoe that encompasses the heel is called the heel counter. It should be stiff and not able to be fully bent in.
Shank	A shoe should only flex where the foot bends, at the ball of the foot. The shank is the material within the sole of the shoe which ensures that this happens.
Fastener	For a shoe to fit correctly it must have a form of fastener – laces, 'Velcro' straps, or straps with buckles.

In some cases, clients will be unable to find appropriate conventional foot wear that will fit their feet. This may be as a result of foot deformity, due to surgery or amputation.

These clients are often referred to medical-grade footwear practitioners who are able to either prescribe a shoe with extra width and/or depth or if this is not possible, design footwear that is custom-made to the client and the client's foot.



**Figure 10** Appropriate footwear styles (Propet Australia 2011)



Some tips on shoe fitting are available from the following brochure:

[https://www.health.qld.gov.au/stayonyourfeet/documents/33381\\_f.pdf](https://www.health.qld.gov.au/stayonyourfeet/documents/33381_f.pdf)



### Activity 13: Footwear

Assess three different pairs of shoes according to the specified features of a good shoe. Make notes about each pair of shoes below.

Shoe 1:	
Shoe 2:	
Shoe 3:	

## 2.3 Foot Orthoses

Two main types of insoles or orthoses often prescribed by Podiatrists are:

- Prefabricated (off-the-shelf)
- Custom made

These devices can be either accommodative and/or functional in nature.

### **Prefabricated Orthoses**

These devices are made to a predetermined size and shape and are able to be modified or heat-moulded using a heat gun. Addition of various extra materials either under the heel or under/on the forefoot of the device is also possible. The Podiatrist will determine the final configuration of the orthoses on a case-by-case basis.



**Figure 11** Prefabricated orthoses. (Briggate Medical Company 2011)

## Custom-Made Orthoses

Custom-made orthotic devices are made from casts or scans of the client's feet. Casts are taken using 'plaster-of-paris' bandaging or impression foam boxes. An outline of the client's shoe, both inside and outside the shoe, may also be taken to ensure the orthotic devices being made fit properly.



**Figure 12 Custom made orthoses (Queensland Orthotic Laboratory 2011)**

There are an array of materials and devices available for use for a range of purposes when fabricating or altering insoles or orthoses. As these vary widely across work sites, it is important to discuss with your supervisor the types of devices and materials used in your work area.

Devices used may include:

- bench grinders
- vacuum presses
- heat guns

Materials used may include:

- heat mouldable thermoplastics such as:
  - polypropylene
  - sub-ortholen
- accommodative products such as:
  - low, medium and high density EVA
  - plasztazote and silicone
  - covering materials such as vinyl and neoprene

Certain contact adhesives may also be used specific to the types of materials being worked with and the intended purpose of the materials.

Both custom made and pre-fabricated orthoses need to be fitted to the client's feet and to their footwear. As orthoses usually alter the structural positioning of the feet, a period of 'wearing-in' is required to allow adjustment of soft tissue lengths to accommodate this change.

The 'wearing-in' period involves wearing the orthoses for a certain length of time each day, gradually increasing wear until the devices can be worn all day. When wearing the orthoses, care should be taken to check for any areas of friction so that these may be addressed by the Podiatrist. Once the 'wearing-in' period is complete, it is generally expected that clients will use their orthoses and appropriate footwear for up to 80% of their weight-bearing day.





## 2.4 Podiatric Surgery

Podiatric surgery is a broad field and may include surgery to any part of the foot and ankle. Unless they are a qualified Podiatric Surgeon, general Podiatrists are only legislated to be able to provide nail surgery and some soft tissue surgeries, and this is the area in which you may be involved.

Nail surgery is a minor surgical procedure, completed under local anaesthetic, most often for the management of ingrown toenails. The problematic section of the nail is removed and the nail matrix is treated with a cauterisation agent (an agent or instrument used to destroy abnormal tissue by burning, searing, or scarring, such as electric currents and lasers) to prevent regrowth. Soft tissue surgeries may vary across work sites but may include, for example, excision of verrucae.



As these procedures involve the use of local anaesthetic and are surgical procedures, consent must first be obtained from the client or person responsible for the client prior to commencing the procedure.

Nail and soft tissue surgeries are conducted following strict infection control protocols and using a range of specific instruments. Your workplace will have a particular set of instruments for this purpose.

As an Allied Health Assistant (Podiatry), you may be required to prepare for the procedure, assist the Podiatrist who conducts the procedure, and manage the cleaning of the area following the procedure. You may also be required to assist with completing the documentation for the procedure. A specific set of documentation accompanies nail and soft tissue surgical procedures; your workplace will have documentation available for this purpose.



Appendix C provides an example of nail surgery workplace guidelines, and includes the expected roles of the assistant and the Podiatrist.







## Key Points

Topic	Important Points	Completed
2.1 Anatomy and Physiology	The Skin	
	The Foot	
	The Nails	
	Pathology of Skin	
	Pathology of Nails	
2.2 Disease Processes	Vascular	
	Neurological	
	Bone and Joint	
	Endocrine	
	Foot Pathology	
2.3 Lower Limb Biomechanics	Biomechanics and the Gait Cycle	
2.4 Footwear	Features of a Good Shoe	
2.5 Orthotic Devices	Prefabricated and Custom Made Foot Orthoses	
2.6 Podiatric Surgery	Instrumentation and Procedure	

My Points to Remember

## 3. Service Delivery

This topic covers information about:

- Podiatry Interventions
- Client Care
- Monitoring Requirements

Activities in this topic cover the following essential skills:

- Modify orthotic devices
- Modify shoes
- Construct and maintain the environment for safe modification of orthotic devices and footwear
- Use observation and reporting skills
- Work under supervision
- Communicate effectively with clients
- Communicate effectively with supervisors and co-workers
- Work effectively with non-compliant clients
- Apply time management, personal organisation skills and establish priorities
- Maintain accurate records

### 3.1 Podiatry Interventions

Certain bodily disorders or diseases may have a direct impact on the feet and lower limbs. As a result, clients with these disorders may be identified as 'high risk' from a Podiatric perspective. Foot Hygiene Workers and Allied Health Assistants are not expected to perform foot, skin, and nail care on these clients, although low-risk interaction, such as fabrication of padding, may occur from time to time in the course of assisting the treating Podiatrist.

It is important, however, that you have some awareness and understanding of these conditions and the related precautions that may need to be taken when interacting with clients who may have these conditions. This will enable you to identify previously low-risk clients whose medical status has changed between visits.

There is no expectation that you would need to diagnose certain conditions, rather that you are aware of them and can act on your observations should this be necessary.



Should you identify a change in a client's situation, it is imperative that you record your concerns in the client's chart as well as reporting them to the Podiatrist or other health care professional involved in the client's care. Prompt and effective action is imperative to prevent possible further or irreversible deterioration in a client's condition (DeMaria & Pod In Training 2009:62).

## 3.2 Client Care

Effective communication with clients is the cornerstone of successful treatment outcomes. Bates, (1995, in Burrow 2006:2) suggests that this communication may take numerous forms:

- Facilitation – actions, postures or words that communicate your interest in the client
- Reflection – a word or phrase that the client used is repeated back to them
- Clarification – requesting that the client gives more meaning to what they said
- Empathy – recognise the feelings of the client through your words or actions
- Interpretation/Paraphrasing – put into your own words what you have deduced or interpreted from what the client has said. This ensures no misunderstanding.

Successful communication with clients goes hand-in-hand with effective observation skills. Your observations will assist you to build a broader picture based on the information the client has verbally given you. Whilst you will be looking for relevant signs and symptoms, it is also important to pay close attention to body language as well as other factors such as the client's state of mind, appearance, and general awareness.

Throughout your time as an Allied Health Assistant or Foot Hygiene Worker, you will occasionally encounter a client who chooses not to engage with the treatment plan offered to them. In these situations, the following points may be useful:

- Ensure you provide education to the client that is relevant to them personally, for example, if they have trouble reading, avoid giving them written information
- Try wherever possible to see the situation through the eyes of the client; this may give you some perspective regarding their choices
- Explain the need for the client to engage in their own health care
- Document all occurrences regarding the client in the client's health chart

In order to perform your role to the best of your ability, it is important that you are able to manage time well, are personally organised and are able to establish priorities. Be aware of the need to adhere to the time constraints of appointment lengths, ensuring

that you effectively cover all required aspects of the client's care in an efficient and organised manner.

### 3.3 Monitoring Requirements

#### Case Records

- Set out, in accessible form, the progress of the management of the case
- Should be completed immediately after treatment has been completed
- Detail all that has occurred in each treatment
- Format should be adequate for full reporting
- If well maintained, provide value in the context of allegations of malpractice
- Should be stored in a safe and secure place

(O'Donnell et al 2006: 452)



Documentation Points to remember:

If handwritten, must be in black ink and legible

Should include date and time

Should be brief yet factual including all aspects of the treatment episode

Should indicate that consent was obtained from the participant (or their legal guardian if less than 18 years of age or has intellectual impairment)

Correct mistakes by putting one line through the error and adding your initials next to it. Avoid trying to remove the mistake completely.

Abbreviations should only be used if they are part of an accepted and published norm

Guidelines for allied health assistants documenting in health records has been developed by Queensland Health. This may be viewed at the following link:

<https://www.health.qld.gov.au/ahwac/docs/aha/ahadocguide.pdf>

(Queensland Health, 2016)







## Key Points

Topic	Important Points	Completed
3.1 Podiatry Interventions	Identify situations and conditions requiring referral to Podiatrist	
3.2 Client Care	Communicate effectively with clients	
	Use effective observation skills	
	Work effectively with non-compliant clients	
	Apply time management, personal organisation skills and establish priorities	
3.3 Monitoring Requirements	Case Records	

### My Points to Remember

## SELF-COMPETITION CHECKLIST

Congratulations you have completed the topics for **Podiatry Learner Guide: Assist with podiatric procedures**.

Please review the following list of knowledge and skills for the unit of competency you have just completed. Indicate by ticking the box if you believe that you have covered this information and that you are ready to undertake assessment.

### Assist with podiatric procedures

Essential Knowledge	Covered in topic
Knowledge of Podiatry procedures including orthotic manufacture/modification; assessment; and Podiatric surgery	<input type="checkbox"/> Yes
Conditions treated by a Podiatrist	<input type="checkbox"/> Yes
Basic anatomy and physiology of the skin and nails	<input type="checkbox"/> Yes
Structure and function of the skin and integuments	<input type="checkbox"/> Yes
Common pathological conditions of the skin and nails	<input type="checkbox"/> Yes
Disease processes relevant to the client group/s	<input type="checkbox"/> Yes
Identification and purpose of Podiatry surgical instruments	<input type="checkbox"/> Yes
Knowledge of first aid, emergency and evacuation protocols of the site	<input type="checkbox"/> Yes
Basic biomechanics of the lower limb	<input type="checkbox"/> Yes
Principles and guidelines of orthotic devices	<input type="checkbox"/> Yes
Principles of footwear selection and fitting	<input type="checkbox"/> Yes
Relevant organisation policies and procedures	<input type="checkbox"/> Yes
Client care plans, goals and limitations of Podiatry intervention	<input type="checkbox"/> Yes
Medical terminology	<input type="checkbox"/> Yes
Roles, responsibilities and limitations of self and other allied health team Members and nursing, medical and other personnel	<input type="checkbox"/> Yes

Essential Knowledge	Covered in topic
OHS policy and procedures	<input type="checkbox"/> Yes
Privacy and confidentiality requirements	<input type="checkbox"/> Yes
Infection Control Protocols	<input type="checkbox"/> Yes
Supervisory and reporting protocols	<input type="checkbox"/> Yes
Record keeping requirements	<input type="checkbox"/> Yes
Undertake activity analysis – breaking activities down into component parts	<input type="checkbox"/> Yes
Identify variations in Podiatry conditions	<input type="checkbox"/> Yes
Establish and maintain sterile field	<input type="checkbox"/> Yes
Use hygiene practices such as (surgical) hand washing	<input type="checkbox"/> Yes
Modify orthotic devices	<input type="checkbox"/> Yes
Modify shoes	<input type="checkbox"/> Yes
Construct and maintain the environment for safe modification of orthotic devices and footwear	<input type="checkbox"/> Yes
Use observation and reporting skills	<input type="checkbox"/> Yes
Work under supervision	<input type="checkbox"/> Yes
Communicate effectively with clients	<input type="checkbox"/> Yes
Communicate effectively with supervisors and co-workers	<input type="checkbox"/> Yes
Work effectively with non-compliant clients	<input type="checkbox"/> Yes
Operate within OHS and infection control requirements	<input type="checkbox"/> Yes
Use personal protective equipment	<input type="checkbox"/> Yes
Work safely and effectively with electrical equipment and machinery	<input type="checkbox"/> Yes
Work safely with potentially hazardous materials	<input type="checkbox"/> Yes
Safely and appropriately dispose of hazardous materials	<input type="checkbox"/> Yes
Provide a safe and effective response in first aid, emergency and	<input type="checkbox"/> Yes

Essential Knowledge	Covered in topic
evacuation conditions	
Apply time management and personal organisation skills and establish priorities	<input type="checkbox"/> Yes
Maintain accurate records	<input type="checkbox"/> Yes
Safely and appropriately use materials including animal derived leathers, synthetics, solvents and adhesives	<input type="checkbox"/> Yes

## WORKPLACE OBSERVATION CHECKLIST

Assessor to date and sign (draft only, please record in the Assessment Guide).

Essential Skills and Knowledge The learner demonstrates the following skills and knowledge	1 <sup>st</sup> observation date & initial	2 <sup>nd</sup> observation date & initial	Comments	*FER
Undertake activity analysis – breaking activities down into component parts				
Identify variations in podiatry conditions				
Establish and maintain sterile field				
Use hygiene practices such as (surgical) handwashing				
Modify orthotic devices				
Modify shoes				
Construct and maintain the environment for safe modification of orthotic devices and footwear				
Use observation and reporting skills				
Work under supervision				
Communicate effectively with clients, supervisors and co-workers				
Work effectively with non-compliant clients				
Operate within OHS and infection control requirements				
Use personal protective equipment				
Work safely and effectively with electrical equipment and machinery				
Work safely with potentially hazardous materials				
Safely and appropriately dispose of hazardous materials				
Provide a safe and effective response in first aid, emergency and evacuation conditions				

Apply time management and personal organisation skills and establish priorities				
Maintain accurate records				
Safely and appropriately use materials including animal derived leathers, synthetics, solvents and adhesives				
Comply with supervisory and reporting protocols				
Comply with privacy and confidentiality requirements				
Understand the roles, responsibilities and limitations of self and other allied health team members and nursing, medical and other personnel				
Use medical terminology				
Understand client care plans, goals and limitation of Podiatry intervention				
Work within relevant organisation policies and procedures				
Apply knowledge of first aid, emergency and evacuation protocols of the site				
Apply knowledge of Podiatry procedures including orthotic manufacture/modification; assessment; and Podiatric surgery				

\*FER – Further Evidence Required



## **APPENDICES**

## Appendix A: Queensland Health Hand Hygiene Protocol

### Queensland Health Protocol: Hand Hygiene

Other opportunities for hand hygiene include but are not limited to food preparation, linen handling and staff involved in maintenance of facilities.

#### Location of Dispensers

The time required for a HCW to leave a patient's bedside, go to a sink, and wash and dry their hands before attending to the next patient can be a deterrent to frequent hand cleansing. To achieve a maximum effect and optimal compliance of HCWs with hand hygiene, alcohol-based hand hygiene products should be easily available through dispensers placed:

- close to the point of care
- OR
- next to each patient's bed
- OR
- attached to the frame of patient's beds
- AND
- near the door to each patient room
- AND
- at staff stations or chart and medication trolleys
- AND
- not adjacent to sinks avoiding any confusion between soap and alcohol-based hand hygiene products

Continual monitoring needs to be undertaken to ensure alcohol-based hand hygiene product is not removed and bottles are replaced regularly. Refer to the Fire and Safety Issues fact sheet for detailed information on product placement and Occupational Health and Safety considerations. Available from:

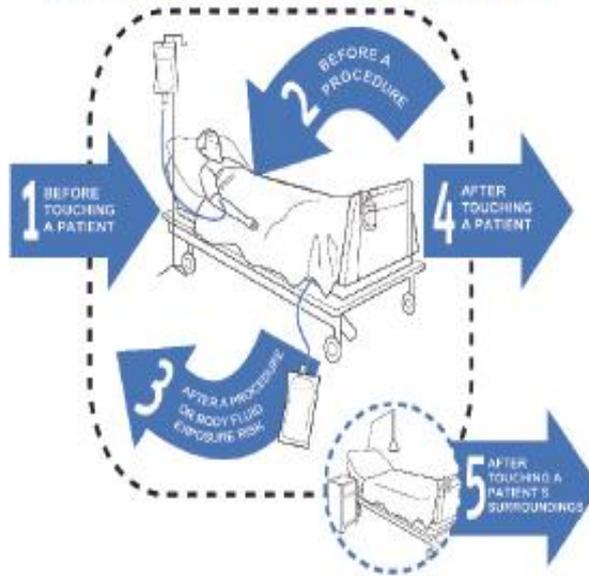
[http://www.health.qld.gov.au/chrisp/hand\\_hygiene/safety.pdf](http://www.health.qld.gov.au/chrisp/hand_hygiene/safety.pdf)

The 5 Moments for Hand Hygiene are described in Figure 1<sup>1</sup>. For more detailed information on implementation and auditing hand hygiene compliance refer to the Hand Hygiene Australia (HHA) 5 Moments for Hand Hygiene Manual available from:

<http://www.hha.org.au/ForHealthcareWorkers.aspx#Manual>

Figure 1

## 5 Moments for HAND HYGIENE



There are three types of hand hygiene techniques:

1. Routine/Social – soap and water or alcohol-based hand product
2. Aseptic/Clinical
3. Surgical

### 4.1 Routine/Social Hand Hygiene<sup>1-2</sup>

Plain liquid soaps have minimal, if any, antimicrobial activity and are suitable for routine/social handwashing. Handwashing with plain liquid soap can remove dirt, soil, and various organic substances from the hands and loosely adherent transient flora (micro-organisms).

Refer to the HHA 5 Moments for Hand Hygiene Manual to determine when to perform hand hygiene. Available from:

<http://www.hha.org.au/ForHealthcareWorkers.aspx#Manual>

#### **Routine/Social Hand Hygiene - Soap and Water:**

1. Remove jewellery
2. Wet hands thoroughly and lather vigorously using a neutral pH liquid soap for 15-30 seconds
3. Rub hands palm to palm
4. Right palm over left dorsum with interlaced fingers and vice versa
5. Palm to palm with fingers interlaced
6. Backs of fingers to opposing palms with fingers interlocked
7. Rotational rubbing of left thumb clasped in right palm and vice versa
8. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa
9. Rinse under running water

Figure 2

# How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

 Duration of the entire procedure: 40-60 seconds

<p><b>0</b></p>  <p>Wet hands with water;</p>	<p><b>1</b></p>  <p>Apply enough soap to cover all hand surfaces;</p>	<p><b>2</b></p>  <p>Rub hands palm to palm;</p>
<p><b>3</b></p>  <p>Right palm over left dorsum with interlaced fingers and vice versa;</p>	<p><b>4</b></p>  <p>Palm to palm with fingers interlaced;</p>	<p><b>5</b></p>  <p>Backs of fingers to opposing palms with fingers interlocked;</p>
<p><b>6</b></p>  <p>Rotational rubbing of left thumb clasped in right palm and vice versa;</p>	<p><b>7</b></p>  <p>Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;</p>	<p><b>8</b></p>  <p>Rinse hands with water;</p>
<p><b>9</b></p>  <p>Dry hands thoroughly with a single use towel;</p>	<p><b>10</b></p>  <p>Use towel to turn off faucet;</p>	<p><b>11</b></p>  <p>Your hands are now safe.</p>

**Clean hands are life savers**



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**Routine/Social Hand Hygiene - Alcohol-based hand product (ABHP)**

ABHPs are more effective against most bacteria and many viruses than either plain liquid soap or antimicrobial soap <sup>1</sup>. If hands are visibly soiled they must be washed with soap and water.

1. Remove jewellery
2. Apply quantity of alcohol-based hand hygiene product as per manufacturer's recommendations into cupped hand
3. Rub hands palm to palm
4. Right palm over left dorsum with interlaced fingers and vice versa
5. Palm to palm with fingers interlaced
6. Backs of fingers to opposing palms with fingers interlaced
7. Rotational rubbing of left thumb clasped in right palm and vice versa
8. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa
9. Rubbing hands together until hands are dry before continuing with patient care, do not rub off excess product
10. Alcohol based hand rub posters (Figure 3) are available from:  
[http://www.health.qld.gov.au/chrisp/hand\\_hygiene/How\\_To\\_HandRub\\_web.pdf](http://www.health.qld.gov.au/chrisp/hand_hygiene/How_To_HandRub_web.pdf)

Figure 3

# How to Handrub?

**RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED**

**🕒 Duration of the entire procedure: 20-30 seconds**



**Clean hands are life savers**



#### 4.2 Aseptic/Clinical Hand Hygiene<sup>1-2</sup>

Aseptic/Clinical hand hygiene is undertaken to remove transient micro-organisms and inhibit the growth of resident micro-organisms prior to any care activity that implies a direct or indirect contact with a mucous membrane, non-intact skin or an invasive medical device. During such a procedure no micro-organisms should be transmitted<sup>3</sup>.

1. Remove jewellery
2. Wash hands thoroughly using an antimicrobial soap (e.g. chlorhexidine gluconate 2% soap) for one minute using the technique outlined in Routine/Social Hand Hygiene
3. Rinse carefully
4. Do not touch taps with clean hands – if elbow or foot controls are not available, use paper towel to turn off taps
5. Pat dry hands using clean paper towels

#### 4.3 Surgical Hand Wash (extracted from ACORN Standards 2008)<sup>4</sup>

- A five minute scrub which includes cleaning of the fingernails is to be undertaken as the first scrub of the day
- Subsequent scrubs of three minutes duration (which omit the fingernails) are undertaken between cases
- Hands are kept higher than the elbows at all times to allow water to run in one direction only – from clean to dirty (hands to elbows)
- The bristles of the nail brush are used to clean the fingernails only
- Arms are washed in a circular motion, from the hands to the elbows without returning to the hands
- The antimicrobial soap used for the first scrub of the day should continue to be used for subsequent scrubs

#### **Procedure: first scrub of the day five minutes:**

Step 1: Duration 1 minute

1. Open and prepare a nail cleaner and scrub brush for later use. Note: single use disposable brush/sponges impregnated with antimicrobial soap are also available.
2. Rinse the hands and arms and wash with sufficient antimicrobial soap to ensure adequate skin coverage to 2.5 cm above the elbow and contact time with the antimicrobial soap
3. With the hands under gently running water, use the nail cleaner to remove debris from underneath the fingernails. The antimicrobial soap is left in contact with the forearms while the fingernails are cleaned
4. When finished with the nail cleaner discard in a safe manner and rinse the hands and forearms

Step 2: Duration 2 minutes

5. Apply antimicrobial soap to the bristles of the scrub brush and continue cleaning the fingernails.
6. Apply antimicrobial soap to the sponge side of the brush and wash all surfaces of hands and forearms working from the nail beds and between fingers before proceeding to wash the forearms (to the level of the elbow) using circular hand motions. Apply more antimicrobial soap if necessary. On completion, dispose of the scrub brush in a safe manner and rinse the hands and forearms.

Step 3: Duration 2 minutes

7. Hands and forearms are washed again using the same principles and procedures above, but stopping at mid forearm. On completion, rinse the hands and forearms.
8. Hands are washed again using the same principles and procedures.
9. Finally, the hands and forearms are rinsed thoroughly.
10. Remain at the scrub sink until the hands and arms are free of excess water, being careful to avoid splash, contamination or injury on wet surfaces.
11. Approach the gown trolley and grasp the sterile towel by one corner, being careful to avoid contamination of the sterile field with drips from hands (which are clean, not sterile)
12. Step back from the sterile field and with hands outstretched, allow the towel to unfold, being careful to avoid contamination by contact with unsterile scrub attire.
13. Using one half of the unfolded towel as a barrier between hands, pat dry or wipe the opposite fingers and hand, moving down the forearm to the elbow in a circular motion, without returning to the hand. This half of the towel comes in contact with skin above the elbow and is not used again.
14. Grasp the opposite half of the towel and release the contaminated half. Pat dry or wipe the opposite fingers and hand, moving down the forearm to the elbow in a circular motion, without returning to the hand.
15. Drop the used towel into an appropriate container being careful to avoid contamination from further handling of the towel. Hands are to remain above the waste level and away from the unsterile scrub suit at all times.

**Procedure: subsequent scrubs of the day three minutes:**

Step 1: Duration two minutes

1. Preliminary step: Rinse the hands and arms and wash with sufficient antimicrobial soap to 2.5cm above the elbows (20 seconds). This preliminary step ensures adequate skin coverage and contact time during Step 1.
2. Without rinsing, apply additional antimicrobial soap and wash all surfaces of hands and forearms working from nail beds and between fingers before proceeding to wash the forearms (to the level of the elbows) using circular motions. Apply more antimicrobial soap if necessary.
3. On completion, rinse the hands and forearms

Step 2: Duration one minute

4. Hands and forearms are washed again using the same principles and procedures above, but stopping at mid forearm. On completion rinse the hands and forearms. Finally, the hands and forearms are rinsed thoroughly and steps 10-15 above are followed

## 5 Supporting Documents

- Hand Hygiene Australia 5 Moments for Hand Hygiene

## Appendix B: Nail Surgery Procedure

### Nail Surgery Procedure

Created by Podiatrists of Metro North Health Service District, April 2009

#### Preparation - Prior to Surgery

- Podiatrist: Ensure that the client has received a copy of the Local Anaesthetic Information Form
- Podiatrist: The Nail Surgery Assessment Form should have been completed at a previous 'assessment' appointment and must be available for review prior to surgery.
- Podiatrist/Assistant: Ensure required instruments/consumables are available for procedure -refer- Instrument/Consumables Checklist.
- Podiatrist/Assistant: Check environmental safety/set up.
- Podiatrist/Assistant: Clean all surfaces using detergent wipes and wipe over with alcohol wipes.
- Podiatrist/Assistant: Ensure that clinical waste bin/sharps bin is available.
- Podiatrist: Ensure staff are conversant with emergency procedures/protocols.
- Podiatrist/Assistant: Always wear a clean plastic apron for each client/procedure.
- Podiatrist: Ensure that client documentation is available.
- Podiatrist: Check anaesthetic: Type, percentage, expiry date and batch No.
- Podiatrist/Assistant: Record anaesthetic details on Nail Surgery Record Form.
- Podiatrist: Load the checked Local Anaesthetic into the syringe(s), attach sterile needle(s) and store safely.
- Podiatrist: Check phenol bottle for contents, expiry date, and batch number.
- Podiatrist/Assistant: Record phenol details on Nail Surgery Record Form.

## Re-Assessment of the Client

- Podiatrist: Welcome client/introductions. Verify clients' name/details.
- Podiatrist: Weigh client and calculate maximum safe dose (MSD) of LA
- Podiatrist/Assistant: Record weight and MSD on the Nail Surgery Record Form.
- Podiatrist: Check the proposed operative site(s) and in consultation with the client agree and confirm the exact procedure(s) to be performed. *Note: This will be based on clinical judgement on the day of the procedure.*
- Podiatrist: Review the completed Assessment Form, checking the clients medical history, medication, vascular and where applicable neurological status. *Note: All changes and updates must be recorded.*

### Remember to check for risk of pregnancy.

- Podiatrist: Explain the procedure, outcomes and risk factors to the client - check that the client understands and answer any questions that they may ask.
- Podiatrist: Complete and sign the Nail Surgery Consent Form.
- Podiatrist: Ask client to read contents of Nail Surgery Consent Form and to sign in acceptance of the procedure and the associated risks.

## Administration of Local Anaesthetic (LA)

- Assistant: Support client and assist podiatrist as required throughout procedure.
- Assistant: Where possible, lay client back for administration of the LA.
- Podiatrist: Keep client advised of 'what is happening'.
- Podiatrist: Wash and dry hands, put on NON-sterile gloves.
- Podiatrist: Using Alco-wipe(s), swab the injection site(s).
- Podiatrist: Using the checked/loaded syringe, administer minimum dose required to attain an effective digital nerve block. Separate syringe(s)/needles are required for each digit to be anaesthetised.
- Podiatrist: If required, apply digital pressure with sterile gauze to arrest any bleeding at the injection site(s).

Podiatrist:	Wait for Anaesthetic to 'take', then using a sharp probe, such as an orange stick cut to a produce a sharp tip, check that anaesthesia has been achieved.
Podiatrist:	If necessary, administer additional LA and re-check anaesthesia.
Podiatrist:	Once anaesthesia is achieved, dispose of the used syringe/needle in the sharps bin.
Podiatrist:	Remove gloves and wash/dry hands.
Podiatrist/Assistant:	Ensure that the volume/dose of anaesthetic administered, both in mls and mgs, is recorded on the Nail Surgery Record Form.

### **Nail Surgery Procedure – Preparation**

Podiatrist:	<p>Define your primary and secondary 'sterile' fields.</p> <ul style="list-style-type: none"> <li>• A mayo trolley positioned over the clients' legs is an ideal secondary sterile field and also screens the procedure from the client.</li> <li>• The remaining trolley should be positioned as required and will act as the primary sterile field.</li> </ul>
Assistant:	Prepare sterile hand towels and sterile gloves, of appropriate size, for podiatrist.
Podiatrist:	Scrub up thoroughly, in accordance with current district guidelines on pre-surgical hand washing.
Podiatrist:	Dry hands using sterile towel(s) and put on sterile glove.
Assistant:	Remove the 'tracking label' from the outer cover of the sterile pack and attach it to the top of the Nail Surgery Record Form.
Assistant:	<p>Place 'Surgery Pack' on the primary sterile field, open it carefully by the corners being careful not touch the interior.</p> <p>Note: A safety area of at least 30cm should be established between sterile/non sterile areas.</p>

- Podiatrist: Commence set up for the procedure
- Make the required number of sterile cotton buds – using the sterile cotton wool and cotton tip applicators
  - Note: - Cotton buds must be fine and tightly bound; lack of care can lead to unnecessary phenol burns around the wound
  - Sort/select the instruments/materials required for procedure and place for ease of use within the sterile field
  - Place sterile drape under the clients' lower leg/feet as required. Where only one foot is being operated on cover the other foot with the drape
  - Place sterile drape over the Mayo Trolley (if utilised)
- Assistant: Decant additional items required for procedure into the sterile ligature tray. Use aseptic techniques and take care not to touch the tray, the sterile field or the podiatrist.
- Chlorhexidine – allow Podiatrist to check label prior to decanting a small quantity in to the ligature tray
  - Betadine Alcohol solution – procedure as for chlorhexidine
  - Primary non-adherent dressing as specified
  - Secondary non-adherent dressing
  - Alginate Dressing –if required
  - Number 61 Beaver Blade/additional sterile instruments – if required
- Assistant: Prepare Hypafix and digital Tubegauze ready for post-op dressing.
- Assistant: Support client and Podiatrist. Record tourniquet and phenol times as required.

### **Nail Surgery Procedure**

- Podiatrist: Do not return used instruments to the primary sterile field; place them on the designated 'secondary/dirty surface' within the sterile area.
- Podiatrist: Using Rampley's forceps/sterile gauze balls: swab the toe(s) and surrounding area with Betadine. Repeat with Chlorhexidine. Swab distal to proximal. Have NO other contact with the foot at this stage.

- Podiatrist: Place the Rampley's forceps in the sink. Do **not** return them to the sterile field.
- Podiatrist: Wrap the remaining sterile drape/towel around the swabbed surgical site(s) and secure using a towel clip.
- Podiatrist: Apply the Esmarch bandage or a tourniquet.  
**Note: Tourniquet time must not exceed 20 minutes**
- Podiatrist: Advise Assistant when Tourniquet is ON.
- Assistant: Record the Tourniquet Time ON - on Surgery Record Form.  
**Follow procedure for Partial/Total Nail Avulsion as Required.**

**Partial Nail Avulsion** - (if bilateral nail avulsion - act on medial and lateral nail)

- Podiatrist: Determine the portion of nail to be excised.
- Podiatrist: Using a black's file or small elevator, free the nail plate from the sulcus, eponychium and nail bed, removing any debris present.
- Podiatrist: Gently but firmly slide the Thwaites nippers down the length of the nail plate until resistance is met, or they cannot progress further. Make a clean straight cut along the nail plate to the level of the matrix, taking care not to damage tissue at the eponychium.
- Podiatrist: Where required, use a 61 Beaver blade to extend the cut to the matrix – be careful not to damage surrounding soft tissue.
- Podiatrist: Using Mosquito forceps, lock on to entire length of loose nail and rotate towards the midline of the digit; the cut section of nail should lift with ease for removal.
- Podiatrist: Check to ensure that the entire cut section of nail has been removed. A black's file may be used and will help identify any remaining fibrous attachments or pieces of nail.
- Podiatrist: Clear the sulcus of debris and clean/dry using sterile gauze prior to the application of phenol.

Where the procedure involves two digits on the same or a different foot, operate on only one digit at a time. The procedure must be finalised for each digit prior to starting the procedure on the next using STERILE instruments.

## Total Nail Avulsion

- Podiatrist: Using a black file or small elevator, free the nail plate from the sulci and eponychium.
- Podiatrist: Remove any debris present.
- Podiatrist: Gently push the elevator/black file under the free edge of the nail and move proximally until the entire nail plate is separated.
- Podiatrist: For ease of removal the nail may be bisected using Thwaites/Beaver.
- Podiatrist: Using mosquito forceps lock onto either edge of the nail plate – rotate the forceps towards the centre line of the nail plate and the nail should lift off in one piece. It may be necessary to repeat this action on the other border of the nail plate to assist with removal.
- Podiatrist: Check to ensure that no segments of nail have been left and all loose pieces of epidermal material are removed.
- Podiatrist: Clean/dry the nail bed with sterile gauze prior to the application of phenol.

## Phenolisation

*NOTE: Due to potential hazards of phenol, goggles/face shields must be worn for eye protection by both Podiatrist and Assistant. GLYCEROL must be available for use in the event of a phenol burn/spillage.*

- Assistant: Place eye protection/ face shield on self and on Podiatrist.
- Podiatrist: Using glycerol or wax from Bactigras dressing, mask the tissue surrounding the wound site as this will act as protection against accidental phenol burns.
- Assistant: Wearing non-sterile gloves, allow Podiatrist to check phenol bottle. Carefully open the bottle on a secure surface close to the foot being operated on.
- Assistant: Always recap the phenol bottle between each single application.
- Assistant: Time each of three individual one-minute applications of phenol, advising the Podiatrist when each one-minute period elapses.

Podiatrist: **Be careful to limit application of phenol to the area(s) to be destroyed.**

Podiatrist: Immerse the 'fine' sterile cotton bud(s) in phenol. Remove excess phenol against bottleneck. Apply the phenol soaked cotton bud(s) to the area being treated and worked in for one minute; pay particular attention to the matrix area.

Podiatrist: Discard the contaminated cotton bud into the clinical waste bin.

*Where a bilateral procedure is performed, phenol should be applied simultaneously, as above, to both the medial and lateral aspects*

Podiatrist: Apply two further one-minute applications of phenol using fresh cotton buds for each.

Podiatrist: Discard the contaminated cotton buds immediately into clinical waste.

Assistant: Re-cap the phenol bottle and remove it to a safe area. Remove gloves.

Podiatrist: Using fresh sterile gauze dab the area(s) dry to remove any excess phenol. Immediately dispose of gauze into the clinical waste.

Podiatrist: Remove the tourniquet and advise assistant.

Assistant: Note time and record the Tourniquet Time Off on the Nail Surgery Record Form and Calculate Total Tourniquet Time.

Podiatrist: Check for revascularisation of the digit(s) and inform Assistant

Assistant: Record the status of vascular return on the Nail Surgery Record Form.

### **Post Operative Procedure**

Podiatrist: Check for post op haemorrhage and arrest any bleeding, by applying digital pressure with sterile gauze/haemostat and if required elevation of the limb. Do not dress the wound until bleeding has been arrested.

- Podiatrist: Apply wound dressing as detailed:  
 1 x Non-adherent - primary (i.e. Bactigras / Jelonet / Adaptic)  
 1 x Haemostat – if required (i.e. Alginate )  
 1 x Non adherent - secondary (i.e. Melolin)  
 3 or 4 layers of sterile gauze  
 Tubegauze  
 Hypoallergenic tape – Hypafix
- Podiatrist: Remove dirty instruments and place them in the instrument tray
- Podiatrist: If applicable; Dispose of Beaver Blade in sharps bin.
- Podiatrist: Place un-used disposable items in appropriate waste bin.
- Podiatrist: Check instruments against CSSD list. Sign and include list within pack for return to CSSD.
- Podiatrist: Keep any additional instruments used separate from surgical packs, when returning to CSSD.
- Podiatrist: Remove sterile gloves and wash/dry hands.
- Assistant: Wearing non-sterile gloves remove and dispose of contaminated drapes and waste from the trolley(s) and around the client. Then remove gloves and wash hands.
- Podiatrist/Assistant: Lower surgery chair.
- Podiatrist: Check and complete the Nail Surgery Record Form.
- Podiatrist: Provide verbal postoperative advice to the client. This information may be given to the client during the procedure.
- Podiatrist: Provide client with date and clinic of first redress appointment.
- Podiatrist: Issue client with Nail Surgery Advice Leaflet.
- Podiatrist: Check that the client is feeling well and there is no bleeding/strike through on the dressing.
- Podiatrist: Check for the clients understanding of what is required of them and answer any questions.
- Podiatrist/Assistant: Advise client to put on their hosiery/shoes and if no further query/complication they can leave the clinic.

Assistant: If applicable, commence preparation for the next surgical procedure.

### **Finalising Client Documentation**

Podiatrist/Assistant: Check surgery documentation is complete: signed and dated by Podiatrist and assistant.

Podiatrist/Assistant: Place Nail Surgery documents together and file in clients' main notes.

Podiatrist: Enter brief note on clients' current progress notes:  
i.e. 21.03.2009 Left 1<sup>st</sup> PNA with phenolisation  
– see Nail Surgery Record Form

Podiatrist: Send GP letter advising of procedure

Podiatrist/Assistant: First redress appointment should be within 3 days post-op. Ensure that client file is returned to the clinic where first redress appointment has been booked.

### **Post-Operative Management**

#### **i. Return Appointments**

- After the first re-dress appointment, clinical appointments will be at the discretion of the attending clinician.
- All clients should attend until the surgical site has healed and the Podiatrist formally discharges the client from care in respect of nail surgery.
- Clients should be advised on the care of their toe(s) at each toe-check/redress appointment.
- Clients should be advised that they can contact Podiatry any time within normal working hours in the case of emergency or for advice. At all other times they should contact A & E or their GP practice.

#### **ii. Record Keeping**

Podiatrist: Maintain comprehensive clinical records of each visit in accordance with current district policies on record keeping and administration.

#### **iii. Redressing – using minimum touch technique**

Podiatrist: Remove dressing

- Podiatrist: Treat the area as required – irrigate only with warm saline if debris/pus or excess exudate is present.
- Podiatrist: Re-dress wound with Non-adherent dressing/Tubegauze/Hypafix.
- Podiatrist: Ensure that the toe is not completely encircled with tape so as to allow adequate circulation should the toe swell. Advise client of this.
- Podiatrist: Deal with any postoperative complications as and when they arise to ensure that every possible action is taken to promote a speedy resolve and recovery.

## GLOSSARY

Word	Definition
Aneurysm	Localised dilation of the wall of a blood vessel, usually caused by atherosclerosis and hypertension; common in the lower limbs especially the popliteal arteries of the older population
Arteriosclerosis	Narrowing of arterial diameter due to thickening of arterial wall coupled with loss of elasticity
Atherosclerosis	Accumulation of fats on internal arterial wall
Atrophy	A wasting or reduction in size of physiologic activity of a part of the body due to disease or other influences
Congenital	Present at birth
Cyanosis	Bluish discoloration of the skin and mucous membranes caused by an excess of deoxygenated blood
Dermatophytes	Organisms that cause parasitic skin disease in humans
Endocrine	A system of glands which secrete particular hormones into the bloodstream to regulate bodily functions
Haemosiderosis	Increased deposition of iron in tissues. Usually presents as brown discoloration of the skin of the anterior lower legs.
Ischaemia	A decrease supply of oxygenated blood to a body organ or part, often marked by pain and organ dysfunction.

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