

S-FC01: Assess the risk of foot complications

Scope and objectives of clinical task

This CTI will enable the allied health professional to:

- assess and categorise the client's level of risk of developing a foot wound and related complications
- develop and implement a plan for management of risk including implementing a foot protection program, providing standard foot care education and prioritising for further assessment by medical or podiatry services.

VERSION CONTROL

Version: 1.0

Endorsed: (Professional) Queensland Hospital and Health Service Podiatry Steering Committee Date approved: 19/3/2019

Approved: (Operational) Chief Allied Health Officer, Allied Health Professions' Office of Queensland Date approved: 9/4/2019

Document custodian: Chief Allied Health Officer, Allied Health Professions' Office of Queensland Review date: 9/4/2022

Acknowledgements: Mackay Hospital and Health Service, Metro North Hospital and Health Service

The CTI reflects best practice and agreed process for conduct of the task at the time of approval and should not be altered. Feedback, including proposed amendments to this published document, should be directed to AHPOQ at: allied_health_advisory@health.qld.gov.au.

This CTI should be used under a skill sharing framework implemented at the work unit level. The framework is available at: <https://www.health.qld.gov.au/ahwac/html/calderdale-framework.asp>

Please check <https://www.health.qld.gov.au/ahwac/html/clintaskinstructions.asp> for the latest version of this CTI.

© State of Queensland (Queensland Health) 2019



This work is licensed under a Creative Commons Attribution Non-Commercial No Derivatives 3.0 Australia licence. This work is licensed under a Creative Commons Attribution Non-Commercial No Derivatives 3.0 Australia licence. In essence, you are free to copy and communicate the work in its current form for non-commercial purposes, as long as you attribute Queensland Health and authoring unit listed above, and abide by the licence terms. You may not alter or adapt the work in any way. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/3.0/au/deed.en>.

For further information contact Allied Health Professions' Office of Queensland, PO Box 2368, Fortitude Valley BC QLD 4006, email allied_health_advisory@health.qld.gov.au, phone (07) 3328 9298. For permissions beyond the scope of this licence contact: Intellectual Property Officer, Queensland Health, GPO Box 48, Brisbane Qld 4001, email ip_officer@health.qld.gov.au, phone (07) 3328 9862.

Disclaimer

Queensland Health has made every effort to ensure that the information in this resource, at the time of distribution, is correct. The information in this resource will be kept under review and future publications will incorporate any necessary amendments.

The information in this resource does not constitute clinical advice and should not be relied upon as such in a clinical situation. The information is provided solely on the basis that readers will be responsible for making their own assessment of the matters presented herein and readers are advised to verify all relevant representations, statements and information. Specialist advice in relation to the application of the information presented in this publication must be sought as necessary to ensure the application is clinically appropriate.

In no event, shall Queensland Health be liable (including negligence) for any claim, action, proceeding, demand, liability, costs, damages, expenses or loss (including without limitation, direct, indirect, punitive, special or consequential) whatsoever brought against it or made upon it or incurred by Queensland Health arising out of or in connection with a person's use of information in this publication



Requisite training, knowledge, skills and experience

Training

- Mandatory training requirements relevant to Queensland Health/HHS clinical roles are assumed knowledge for this CTI.
- If not part of mandatory requirements, complete patient manual handling techniques including the use of walk belts and sit to stand transfers.
- Competence in or demonstrated professional equivalence in:
 - CTI S-FC02: Doppler ultrasound of the foot and ankle
 - CTI S-FC03: Calculate an Ankle Brachial Pressure index (ABI) and Toe Brachial Pressure Index (TBI)

S-FC02 and S-FC03 provide competence in vascular assessment and should be completed concurrently with S-FC01.

And if in scope for the local service:

- CTI S-FC04: Assess a foot wound and provide basic/bridging intervention
- CTI S-FC05: Prescribe, fit, train and review of an off-loading strategy for foot protection

S-FC04 and S-FC05 provide competence in basic foot wound care and off-loading strategies for walking and should be completed concurrently with S-FC01 if the skill share-trained health professional will be able to deliver basic/bridging intervention/s. This may benefit services where a podiatry clinic is not available onsite and requires travel to a team's hub facility, only available infrequently or where telehealth supported clinics are used for service delivery.

Clinical knowledge

To deliver this clinical task a health professional is **required** to possess the following theoretical knowledge:

- understanding and ability to identify from the medical record, subjective history and client observation, common lower limb conditions that increase the risk of foot and lower limb ulceration and amputation including diabetes, peripheral vascular disease, peripheral neuropathy, foot deformity, previous foot wounds or amputation
- understand the process, purpose, benefits and limitations of a basic foot risk assessment including the use of a foot deformity scale, assessment of pedal pulses and sensation using monofilament testing
- basic foot anatomy to the extent required to undertake this CTI including the names and locations of bony landmarks and areas of the foot and lower leg and the location of pedal pulses
- benefits, risks, limitations and processes for undertaking and recording the association between appropriate footwear and foot problems including signs of poor footwear selection
- local resources used for client education on foot complication risk reduction including foot models, handouts and posters
- local processes, protocols and funding scheme requirements for access to high risk foot clinics, wound dressings and medical grade footwear e.g. Department of Veterans' Affairs, Medical Aids Subsidy Scheme and National Disability Insurance Scheme.

The knowledge requirements will be met by the following activities:

- review of the 'Learning resource'
- receive instruction from the lead health professional in the training phase
- read and discuss the following references/resources with the lead health professional at the commencement of the training phase:
 - National Evidence-Based Guideline: Prevention, Identification and Management of foot complications in diabetes (2011). Available at:
<http://t2dgr.bakeridi.edu.au/LinkClick.aspx?fileticket=anrL23t3ADw%3d&tabid=172>
 - local resources used for client education on risk reduction including handouts and posters
 - local processes, protocols and funding scheme requirements for access to high risk foot clinics, wound dressings and medical grade footwear e.g. Department of Veterans' Affairs, Medical Aids Subsidy Scheme and National Disability Insurance Scheme.

Skills or experience

The following skills or experience are not specifically identified in the task procedure but support the safe and effective performance of the task or the efficiency of the training process and are:

- **required** by a health professional in order to deliver this task:
 - experience or ability to acquire skills in assisting the donning and doffing of a lower limb compression garment and removable cast walker
 - awareness of how to access basic first aid for a skin tear.
- **relevant but not mandatory** for a health professional to possess in order to deliver this task:
 - experience in gait analysis e.g. CTI S-MT01: Functional walking assessment
 - experience in chronic disease management including motivational interviewing techniques or smoking cessation.

Indications and limitations for use of a skill shared task

The skill share-trained health professional shall use their independent clinical judgement to determine the situations in which he/she delivers this clinical task. The following recommended indications and limitations are provided as a guide to the use of the CTI but the health professional is responsible for applying clinical reasoning and understanding of the potential risks and benefits of providing the task in each clinical situation.

Indications

- The client presents with a new or recent diagnosis that means they are at risk of developing foot complications including diabetes, neurological symptoms or a history of lower limb neurological conditions e.g. numbness, paraesthesia or Charcot Marie-Tooth disease.
- The client presents with an obvious gait pattern abnormality. This may be due to pain, deformity, recent trauma or surgery.
- The client has a reported history or observation of a non- or slow-healing wound on the lower limb or foot i.e. less than a 50% reduction in 4 weeks.
- The client is required to undertake an assessment of the risk of developing foot complications as part of a local service care plan, pathway or protocol e.g. is a client categorised as high risk for foot complications and consequently scheduled for foot examination every 3 to 6 months.

Limitations

- The client is known to receive regular podiatry management via a high-risk foot service or chronic disease management plan. This information may be obtained through verbal report from the client or a chart entry by the high-risk foot service. Liaise with the treating podiatrist prior to commencing the task.
- The client presents wearing an off-loading device for a diabetic foot wound e.g. total contact cast, removable cast walker or semi-compressed felt. Determine when the client was last reviewed by the service and if the client has any concerns with the device. Liaise with the service that supplied the device to support ongoing management of the intervention plan.
- The client has significant lower limb oedema, such that the medial malleolus cannot be visualised. Liaise with the local high-risk foot service and arrange for a comprehensive assessment.
- The client is unable to be positioned to allow access to all areas of the foot or lower limb for examination. This may be due to pain, medical/surgical restrictions or joint/muscle contractures or braces/devices that restrict range of motion of the lower limb. Liaise with the local high-risk foot service and arrange for a comprehensive assessment.
- The client has had a partial foot or higher level lower limb amputation. This may be due to wound complications or trauma. Altered anatomy of the lower limb will increase the complexity of foot risk screening. Clients with partial foot or higher level lower limb amputation are also likely to be linked to a high-risk foot service. Determine the need for review and liaise with the local high-risk foot service.

Safety & quality

Client

The skill share-trained health professional shall identify and monitor the following risks and precautions that are specifically relevant to this clinical task:

- An increased risk of skin tears is present in older clients (>65 years), where there is dry fragile skin, a history of previous skin tears, a prolonged use of steroids or anticoagulants, poor nutrition, dementia/cognitive impairment, dependency/impaired mobility, altered sensory status or oedema. Monitor for skin tears during the screening process. Note any current and new skin tears. If skin damage occurs during the foot screen, apply basic first aid immediately and contact the healthcare team.
- If the client presents with foot wounds, including skin tears on the lower limb, ensure dressings are clean, dry and intact. If in scope for the skill share-trained health professional, implement CTI S-FC04: Assess a foot wound and provide basic/bridging intervention. If not in scope and a dressing is not present, liaise with nursing staff to have a dressing applied prior to commencing the task. Avoid the dressing area during the task and arrange for a wound dressing plan as part of the management plan.
- If the client presents with a wound on the plantar aspect of their foot the client will require assessment for an off-loading strategy. If in scope for the skill share-trained health professional, implement CTI S-FC05: Prescribe, fit, train and review of an off-loading strategy for foot protection. If not in scope and an off-loading strategy plan is not in place, liaise with the podiatrist prior to mobilising or transferring the client. If required, perform this task with the client sitting in their bed or wheelchair and arrange for review for an off-loading strategy as part of the management plan.
- If the client requires more than one light assist to transfer onto the plinth, perform the task with the client sitting in the bed or chair. A small handheld mirror can be used to visualise the posterior heel.
- If the lower limb or foot has signs of infection cease the task and liaise with the healthcare team for review within 24 hours. The signs of infection include including two or more of the following: redness,

heat, thick opaque discharge/pus, increasing pain on touch or signs of increasing swelling, If the signs include systemic illness or spreading infection such as cellulitis, the client should be sent to the nearest emergency department for immediate assessment.

- If the client has orthopaedic, surgical or medical restrictions these should be adhered to during the task. Restrictions will be documented via protocols, theatre notes or medical orders e.g. total hip replacement precautions, skin grafting protocols, movement while wearing a range of a movement brace only or sternotomy precautions for upper limb weight bearing. If restrictions are unable to be maintained during the task, cease the task. If restrictions are unclear, consult with the treating team.

Equipment, aids and appliances

- Replacement of the 5.07 monofilament is recommended after 500 uses or after 12 months of use, whichever occurs first.
- If a client presents wearing a removable lower limb therapeutic device such as a compression stocking or removable cast walker, confirm with the client if the device is allowed to be removed e.g. for hygiene. If it is, request the client remove the device and provide assistance if required. If the client's management plan does not include removal of the device or the client declines to remove the device, continue with the task with the device in situ, noting the inability to fully examine the lower limb. Develop a management plan to complete the examination when the device is removed e.g. before showering or when the carer is present.

Environment

- Ensure that an appropriate level of client privacy is maintained during the task e.g. draping the client's lap with a towel during observation, drawing the curtain and/or closing the door.

Performance of Clinical Task

1. Preparation

- Collect the required equipment including:
 - foot screening kit including the foot screening form and 5.07 monofilament
 - disposable gloves
 - protection pads or single use apron
 - antiseptic wipes
 - hand held mirror (if required)
 - disinfectant or cleaning product to wipe down the chair and/or foot rest work surfaces.

2. Introduce task and seek consent

- The health professional checks three forms of client identification: full name, date of birth, **plus one** of the following: hospital UR number, Medicare number, or address
- The health professional introduces the task and seeks informed consent according to the Queensland Health Guide to Informed Decision-making in Health Care, 2nd edition (2017).

3. Positioning

The client's position during the task should be:

- lying or sitting supported in a supine position on a height adjustable bed or chair, with legs outstretched.

The health professional's position during the task should be:

- seated directly opposite the client with the feet at mid-trunk level.

4. Task procedure

- The task comprises the following steps:

1. Explain and demonstrate (where applicable) the task to the client.
2. Check or confirm information from the client (or carer) with regard to their health history. See 'Indications and limitations' section and the 'Guide to undertaking a foot assessment history' in the 'Learning resource'.

On the basis of the information obtained, determine if the task will progress to include objective assessment.

3. **Observe** the foot and note any ulceration, infection, skin/nail problems, evidence of surgery, corns, calluses or oedema
4. Complete the foot deformity scale, including palpating any areas of redness/erythema. Note capillary return, including non-blanching, or absence of blanching. If a foot wound is identified, see the 'Safety and quality' section.
5. Determine the foot deformity scale rating. If the score is greater than or equal to three, the client has a foot deformity.

6. Pulses

- i. Palpate the client's dorsalis pedis and posterior tibial pulses on both legs. Determine if pulses are absent, diminished, normal or bounding. Note any pulses that are inaccessible or difficult to locate due to bandaging, casts or oedema.
- ii. If the client has a foot wound or if pulses are diminished or not palpable implement CTI S-FC02: Doppler ultrasound of the foot and ankle.
- iii. If the Doppler ultrasound does not demonstrate triphasic wave forms implement CTI-S-FC03: Calculate an Ankle Brachial Pressure index (ABI) and Toe Brachial Pressure Index (TBI).

Record responses on the Foot Screening Form diagram with the appropriate symbol.

7. Monofilament testing

- i. Explain the purpose of monofilament testing and demonstrate on an area not likely to be affected by reduced sensation e.g. wrist/lower arm or upper arm. Ask the client to close their eyes and say 'yes' when they feel touch.
- ii. Apply the tip of the filament at 90 degrees (perpendicular) to the skin on recognised test sites (circled on the foot screen form), avoiding callused areas or other lesions. Bend the filament to a height of 1cm for 1 to 2 seconds. This process applies 10g pressure to the skin.
- iii. If there is no response, repeat/return to re-test at that site twice more.

Record responses on the Foot Screening Form diagram with the appropriate symbol. Note either 'yes' or 'no' to each site.

8. Determine the risk profile i.e. low, intermediate or high.

9. Conduct a footwear review with the client. Refer to the 'Footwear habits' section in the 'Learning resource'.
10. Based on the client's history, observation and risk profile develop a management plan for the client's feet. Refer to the decision-making tools and required readings in the 'Learning resource'.
11. Provide education to the client about their risk profile rating and risk factors.
12. Discuss and review the proposed management plan with the client for the planned interventions. Adjust the plan as relevant based on the client's feedback.
13. Implement the plan by tailoring the local client resources and providing an individualised foot self-care management program using information from the assessment e.g. if monofilament testing indicated areas of reduced sensation ensure the client is aware to be extra vigilant with daily visual inspection of this area. Where the client's footwear is worn and poorly fitting, provide education on appropriate footwear features and purchasing or where nail care is being poorly managed, how to access local services.
14. Using the National Evidence-Based Guideline and local service model to determine the appropriate period for review. See required reading in the 'Learning resource'. Complete any local processes to arrange the review e.g. appointment booking or recall system requirements.

5. Monitoring performance and tolerance during the task

- Common errors and compensation strategies to be monitored and corrected during task include:

Pulses

- palpating or pressing too firmly will occlude the vessels between the bone and fingers.
- generally, palpation is done with the index and middle finger but could also be done with the 4th or 5th finger or a combination. Your thumb has its own pulse and therefore should not be used.
- where pulses are difficult to locate, palpate adjacent to the area for a diameter of up to 2cm. Closing your eyes may improve focus and senses when palpating the pulses. Palpate the other limb and then return and try again. It is important to note that variation in dorsalis pedis artery anatomy is not uncommon¹. Where the pulse is non-palpable or diminished refer to step 6 of the task procedure above.

Monofilament testing

- to improve reliability and accuracy of responses, intersperse a "dummy" pressure or ask the client to identify where on the foot they feel the "pressure".
- Monitor for adverse reactions and implement appropriate mitigation strategies as outlined in the 'Safety and quality' section above.

6. Document

- Document the outcomes of the task as part of the skill share-trained health professional's entry in the relevant clinical record, consistent with documentation standards and local procedures. For this task include:
 - relevant health history

¹ Vijayalakshmi, S, Gunapriya Raghunath, Varsha Shenoy (2011). Anatomical study of dorsalis pedis artery and its clinical correlations. Journal of Clinical and Diagnostic Research 5(2): 287-290.

-
- observation including problems and location e.g. skin and nail integrity, deformity or previous surgery
 - pulse including absent, diminished, normal or bounding and any further investigations undertaken e.g. ABI or TBI and the result
 - monofilament testing result including information on size and location of diminished or absent skin sensation
 - risk profile rating
 - footwear assessment
 - education provided for self-management and/or access to services e.g. high-risk foot services
 - plan for ongoing management including period until the next review.
- The skill shared task should be identified in the documentation as “delivered by skill share-trained (*insert profession*) implementing CTI S-FC01: Assess the risk of foot complications” or similar wording.

References and supporting documents

- Queensland Health (2017). Guide to Informed Decision-making in Health Care (2nd edition). https://www.health.qld.gov.au/_data/assets/pdf_file/0019/143074/ic-guide.pdf
- Vijayalakshmi, S, Gunapriya Raghunath, Varsha Shenoy (2011). Anatomical study of dorsalis pedis artery and its clinical correlations. Journal of Clinical and Diagnostic Research 5(2): 287-290.
- Queensland Health (2017). Guide to Informed Decision-making in Health Care (2nd edition). https://www.health.qld.gov.au/_data/assets/pdf_file/0019/143074/ic-guide.pdf

Assessment: Performance Criteria Checklist

S-FC01: Assess the risk of foot complications

Name:

Position:

Work Unit:

Performance Criteria	Knowledge acquired	Supervised task practice	Competency assessment
	Date and initials of supervising AHP	Date and initials of supervising AHP	Date and initials of supervising AHP
Demonstrates knowledge of fundamental concepts required to undertake the task through observed performance and the clinical reasoning record.			
Identifies indications and safety considerations for the task and makes appropriate decisions to implement the task, including any risk mitigation strategies, in accordance with the clinical reasoning record.			
Completes preparation for the task including gathering required equipment and wiping down working surfaces.			
Describes the task and seeks informed consent.			
Prepares the environment and positions self and client appropriately to ensure safety and effectiveness of the task, including reflecting on risks and improvements in the clinical reasoning record where relevant.			
<p>Delivers the task effectively and safely as per the CTI procedure, in accordance with the 'Learning resource'.</p> <ul style="list-style-type: none"> a) Clearly explains and demonstrates the task, checking the client's understanding. b) Gathers subjective information from the client including their health history (see 'Guide to undertaking a foot assessment history' in the 'Learning resource'). c) Determines the suitability of the client to participate in a foot risk screen by checking indications and limitations. d) Observes the foot and accurately identifies abnormalities. e) Accurately completes the foot deformity scale rating. f) Locates and identifies the client's dorsalis pedis and posterior tibial pulse. If absent or diminished, implements CTI S-FC02 and/or S-FC03 as appropriate. g) Appropriately assesses foot sensation by accurately conducting monofilament testing. h) Accurately determines the risk profile. i) Conducts a footwear review using the 'Learning resource'. j) Develops a suitable management plan in consultation with the client and using clinical reasoning and Table 1 in the 'Learning resource'. 			

k) Provides education to the client that is appropriate and tailored.			
l) Determines the period for review and co-ordinates the process.			
m) During the task, maintains a safe clinical environment and manages risks appropriately.			
Monitors for performance errors and provides appropriate correction, feedback and/or adapts the task to improve effectiveness, in accordance with the clinical reasoning record.			
Documents in the clinical notes including a reference to the task being delivered by the skill share-trained health professional and the CTI used.			
If relevant, incorporates outcomes from the task into an intervention plan e.g. plan for task progression, interprets findings in relation to care planning, in accordance with the clinical reasoning record.			
Demonstrates appropriate clinical reasoning throughout the task, in accordance with the 'Learning resource'.			

Comments:

Record of assessment competence:

Assessor name:	Assessor position:	Competence achieved: / /
----------------	--------------------	--------------------------

Scheduled review:

Review date: / /

S-FC01: Assess the risk of foot complications

Clinical Reasoning Record

The clinical reasoning record can be used:

- as a training resource, to be completed after each application of the skill shared task (or potential use of the task) in the training period and discussed in the supervision meeting
- after training is completed for the purposes of periodic audit of competence
- after training is completed in the event of an adverse or sub-optimal outcome from the delivery of the clinical task, to aid reflection and performance review by the lead practitioner.
- The clinical reasoning record should be retained with the clinician's records of training and not be included in the client's clinical documentation.

Date skill shared task delivered: _____

1. Setting and context

- insert concise point/s outlining the setting and situation in which the task was performed, and their impact on the task

2. Client

Presenting condition and history relevant to task

- insert concise point/s on the client's presentation in relation to the task e.g. presenting condition, relevant past history, relevant assessment findings

General care plan

- insert concise point/s on the client's general and profession-specific/allied health care plan e.g. acute inpatient, discharge planned in 2/7

Functional considerations

- insert concise point/s of relevance to the task e.g. current functional status, functional needs in home environment or functional goals. If not relevant to task - omit.

Environmental considerations

- insert concise point/s of relevance to the task e.g. environment set-up/preparation for task, equipment available at home and home environment. If not relevant to task - omit.

Social considerations

- insert concise point/s of relevance to the task e.g. carer considerations, other supports, client's role within family, transport or financial issues impacting care plan. If not relevant to task - omit.

Other considerations

- insert concise point/s of relevance to the task not previously covered. If none - omit.

3. Task indications and precautions considered

indications and precautions considered

- insert concise point/s on the indications present for the task, and any risks or precautions, and the decision taken to implement/not implement the task including risk management strategies.

4. Outcomes of task

- insert concise point/s on the outcomes of the task including difficulties encountered, unanticipated responses

5. Plan

- insert concise point/s on the plan for further use of the task with this client including progression plan (if relevant)

6. Overall reflection

- insert concise point/s on learnings from the use of the task including indications for further learning or discussion with the lead practitioner

Skill share-trained health professional

Lead health professional (trainer)

Name:

Name:

Position:

Position:

Date this case was discussed in supervision:

/ /

Outcome of supervision discussion:

e.g. further training, progress to final competency assessment

Assess the risk of foot complications: Learning resource

Compared to standard care a foot screening program, followed by a foot protection program for those classified as at high risk for foot ulceration, has been shown to reduce major and total amputation rates and increase the rates of wound healing. It has also been shown to be cost effective in a UK setting. Expert opinion indicates any suitably trained healthcare professional may perform the risk assessment².

Required reading

- Diabetic Foot eLearning course. Available through iLearn at:
<https://central.csd.s.qld.edu.au/central/courses/176>

The following modules are relevant to this CTI.

Note: If the skill share-trained health professional will also train in CTI S-FC04 and S-FC05 additional modules are required. The local service may elect to complete all modules (10.5hrs of online training).

- Module 3: Early intervention
- Module 6: Providing self-management education
- Module 7: Basic foot screen
- Module 9: Decision support tools
- Module 13: Charcot foot assessment and management.

Note: for the modules listed above, the quizzes should be completed and results recorded.

- Vijayalakshmi S, Gunapriya Raghunath, Varsha Shenoy (2011). Anatomical study of Dorsalis pedis Artery and Its Clinical Correlations. Journal of Clinical and Diagnostic Research. Vol 5(2):287-290. Available at: http://www.jcdr.net/articles/pdf/1251/1916_10_4_11nitr.pdf
- Local processes/protocols/funding scheme requirements for medical grade footwear e.g. Department of Veterans' Affairs, Medical Aids Subsidy Scheme and National Disability Insurance Scheme.
- Local recording form and resources used for client education on risk reduction including handouts and posters. For example:
 - Diabetes Australia (2015). Foot care. Available at: <https://www.diabetesaustralia.com.au/foot-care>
 - Queensland Government: Statewide Diabetes Clinical Network: Clinician resources. Available at: <https://qhps.health.qld.gov.au/car/networks/diabetes/clinician> (QH employees only).

Decision making tools

- Review Module 9: Decision support tools, including:
 - Dr Paul Wraight's clinical pathway
 - NICE foot care guideline (revision): Algorithm NICE Guideline: type 2 diabetes, foot care: Appendix E.
- Evidence based clinical summary: Prevention, identification and management of foot complications in diabetes (2011). Available at: https://www.baker.edu.au/Assets/Files/Foot_ClinicalGuide_ONLINE.pdf
- Guidelines for Care and Referral of Adults with Type 2 Diabetes 2006. Available at: https://www.health.qld.gov.au/_data/assets/pdf_file/0027/435249/sdcn-guidelines.pdf

² National Evidence-Based Guideline on Prevention, Identification and Management of Foot Complications in Diabetes (Part of the Guidelines on Management of Type 2 Diabetes) 2011. Melbourne Australia. Available at: https://www.baker.edu.au/Assets/Files/Foot_FullGuideline_23062011.pdf

Alcohol

- Australian Government. National Health and Medical Research Council (NHMRC) (2009). Australian Guidelines to reduce health risks from drinking alcohol. Available at: <https://nhmrc.gov.au/about-us/publications/australian-guidelines-reduce-health-risks-drinking-alcohol>

Footwear

- Van Netten JJ, Lazzarini PA, Armstrong DG, Bus SA, Fitridge R, Harding K, Kinnear E, Malone M, Menz HB, Perrin BM, Postema K, Prentice J, Schott KH, Wraight PR (2018). Diabetic Foot Australia guideline on footwear for people with diabetes. Journal of Foot and Ankle Research 11:2. Available at: <https://ifootankleres.biomedcentral.com/articles/10.1186/s13047-017-0244-z>

Required viewing

Foot examination

- International Working Group on the Diabetic Foot (2004). Video physician education. Available at: <http://iwgdf.org/step-by-step/>
Note: 7:40-14:50min is provided for information purposes and includes management for the removal of callus, plantar wound debridement, de-roofing bullae and toe nail cutting. Debridement is outside the scope for this CTI.

Monofilament testing

- IHSgov (2016). Monofilament exam. Available at: <https://www.youtube.com/watch?v=FE4TOsPkdkd>

Pulses

- Med School Made Easy (2014). Dorsalis Pedis and Posterior Tibial Pulses. Available at: <https://www.youtube.com/watch?v=8F5qE8kjjUA>

Example local recording form

- Guidelines for Care and Referral of Adults with Type 2 Diabetes (2004). Appendix 1: Basic foot screening checklist. Available at: https://www.health.qld.gov.au/_data/assets/pdf_file/0027/435249/sdcn-guidelines.pdf#page=53
- State of Queensland (Queensland Health) 2016. High risk foot form. SW173, v5.00 04/2016. Available at: https://qheps.health.qld.gov.au/_data/assets/pdf_file/0019/1910305/sdcn-foot-form.pdf (QH employees only)

Optional reading

- Bergin SM, Nube VL, Alford JB, Allard BP, Gurr JM, Holland EL, Horsley MW, Kamp MC, Lazzarini PA, Sinha AK, Warnock JT, Wright PR (2013). Australian Diabetes Foot Network: practical guideline on the provision of footwear for people with diabetes. Journal of Foot and Ankle Research 6:6. Available at: <https://ifootankleres.biomedcentral.com/articles/10.1186/1757-1146-6-6>
- Prevention and management of foot problems in diabetes: Summary guidance for the daily practice 2015, based on the IWGDF Guidance documents. Available at: <http://iwgdf.org/guidelines/summary-guidance-for-the-daily-practice-2015/>

- Services for Australian Rural and Remote Allied Health. Addressing Diabetes-Related Foot Disease in Indigenous NSW: A Scan of Available Evidence. Research report prepared for NSW Ministry of Health, Workforce Development and Planning Branch. Canberra, 2016. Available at: <https://www.sarrah.org.au/publication/addressing-diabetes-related-foot-disease-indigenous-nsw>

Guide to undertaking a foot assessment history

The need to undertake objective assessment of the lower limb and foot is determined from the subjective history.

- Does the client experience any unexplained or unusual feelings in the feet or legs? If yes, what are the sensations e.g. numbness, tingling, burning or shooting pain, electrical or sharp sensations? Do the sensations improve or get worse with movement? Neuropathic pain generally will improve with movement, whereas ischaemic pain generally worsens. If the client's symptoms worsen with movement, how do they manage this e.g. with medication? If the client prefers to sleep in a reclining chair, this can be an indication that the pain is ischaemic? During the physical examination, if the client does not demonstrate triphasic pulses on Doppler ultrasound, implement local referral processes for a vascular review.
- Does the client have arthritis? If yes, observe the hands for deformity as this provides information on the likelihood of foot deformity being present.
- Does the client have/had cancer? If yes, what type of cancer and where in the treatment phase are they in e.g. treatment or survivorship? This question provides information on the location of scars, skin lesions and/or the presence of wounds associated with cancer treatment. For clients with a history of skin cancers, slow or non-healing wounds may indicate recurrence and require medical review.
- Does the client have any of the following cardiovascular disease risk factors or conditions including dyslipidaemia, hypertension (HT), myocardial infarction (MI), cerebral vascular accident (CVA)/stroke or transient ischemic attack (TIA)? If the client has had a CVA, do they have any problems with their mobility? See the next question.
- Does the client have any mobility problems? If yes, describe. Examples include pain with walking, unsteadiness or tripping, shortness of breath, use of a walking aid or inability to mobilise outdoors or on stairs. If the client reports falling due to mobility problems, implement the local falls protocol.
- If the client experiences pain with mobility, is the pain located in the legs?
 - If yes, how far can the client mobilise before it commences and what is their current management plan e.g. rest and resume, lay down, physio, medication? If the client experiences pain with activity that resolves with rest, this can be a sign of claudication caused by peripheral arterial disease.
 - If no, where is the pain located and how do they manage it? This question provides information on other health conditions and their management e.g. arthritic pain that eases with heat.

Abnormal gait patterns can result in uneven plantar pressure distribution, foot deformity and/or ulceration.

- Does the client have depression? Depression is a risk factor for low interest in self-care and management. The support of a carer may be required as part of the management plan.
- Does the client have any problems with circulation in their legs? This can be a sign of peripheral vascular disease. If yes, what investigations have they had? What is the diagnosis? And management plan? And who is managing the condition e.g. vascular surgeon?
- Has the client experienced any significant trauma to the feet or lower limbs resulting in changes to the structure of the feet, lower limbs or gait pattern? An abnormal gait pattern can result in uneven plantar pressure distribution, foot deformity and/or ulceration. Deformed feet are at a greater risk of trauma.

- Does the client smoke or have they been a past smoker? Smoking reduces blood circulation to the feet which can lead to pain and in severe cases gangrene and amputation³. If the client is a current smoker, would they like to stop? Support the client with smoking cessation e.g. if in the skill share-trained health professionals scope of practice, provide brief intervention or implement the local referral pathway to Alcohol, Tobacco and Other Drugs Service (ATODS).
- Does the client drink alcohol? If yes, do they follow the Australian Guidelines: to reduce health risks from drinking alcohol recommendations? If recommendations are being exceeded and/or the client expresses interest in accessing services to reduce alcohol intake, provide the referral pathway to ATODS.
- Does the client have any vision problems? This provides information on the client's ability to visually inspect their feet independently or if carer support will be required.
- Does the client have end stage renal failure (ESRF) or chronic kidney disease (CKD)? This provides information on the risk of neuropathy. It may also be necessary to co-ordinate future appointments with dialysis. If available, record the estimated Glomerular Filtration Rate (eGFR). The eGFR provides information on kidney function. An eGFR >90ml/min/1.73m² is considered normal kidney function. An eGFR between 60-90ml/min/1.73m² is mildly reduced kidney function and may be appropriate for the age of the client⁴. A diagnosis of CKD is dependent on the eGFR and evidence of kidney disease.
- Does the client have diabetes? Is it Type 1 or Type 2? Record the HbA1c if available in the chart or the client is aware. How long has the client had diabetes? This information determines the risk of neurological symptoms.
- Has the client ever had a foot wound? If yes, when and where was it located? How long did it take to heal? What was the cause of the ulceration? This information contributes to the client's risk profile of future foot wounds.

If the client has a current wound, where is it located? How long has it been present? What was the cause of the wound? What is the current management plan? See the 'Safety and quality' section.

- Has the client had an amputation? When? What was removed? Why e.g. infection from a wound or trauma from an injury? If a recent/current amputation, what is the active management plan and goal for mobility and/or prosthetic wear?

If the amputation is long standing, does the client have any issues or concerns with wounds or walking? If yes, implement local processes for amputee review e.g. podiatrist, physiotherapist or amputee clinic.

- Has the client had any previous hospitalisations or surgery that relate to a foot or lower limb condition? This may include cellulitis or infection, corrective vascular surgery (e.g. stenting), surgery for neurological conditions (e.g. laminectomy) or lower limb surgery (e.g. hip and/or knee replacement). See the 'Safety and quality' section.

³ Victoria State Government (2016). Better Health Channel: Smoking – effects on your body. Available at: <https://www.betterhealth.vic.gov.au/health/healthyliving/smoking-effects-on-your-body>

⁴ The Renal Association: identifying patients with CKD stages G1 & G2. Available at: <https://renal.org/information-resources/the-uk-eckd-guide/stages-1-2-ckd/>

Footwear habits

- Determine the type of footwear the client wears on their feet during the day e.g. inside the house, out in the garden and when going out.
- Determine the duration of wear for each of the types of footwear being worn e.g. 80% at home in the house barefoot, 8hrs per day at work in work boots or closed in shoes in the garden.
- Determine the features of the footwear e.g. closed heel, closed toe, adjustable fastening, heel height and removable insole.

Inspect the shoe as per the Diabetic Footwear Guidelines of Australia, see the “Required reading” section. These principles are applicable to all clients regardless of diagnoses. If the client has specific footwear concerns, liaise with a podiatrist.

Management of foot risk

All clients regardless of risk profile rating should receive standard education on good footcare and footwear habits. Table 1 below provides the skill share-trained health professional with a decision-making support tool for the risk profile rating and assessment findings, and guides clinical reasoning on suitable additional interventions for client care and management. This should be discussed in conjunction with the ‘Learning resources’, local workplace instruction and model of care documents as part of the training process.

Table 1 Decision making tool for the outcome of a foot assessment

Risk profile rating	Assessment finding	Intervention
Low risk People with no risk factors and no previous history of foot wound/amputation.	The client has a medical risk factor (co-morbidity) that places them at risk of developing neuropathy, peripheral vascular disease or foot deformity.	Implement local processes for the client to attend a foot risk screen in 12 months for monitoring. If the client does not have diabetes or any other risk factors, they do not need to be on a monitoring program and should access services only if concerns arise including the development of a risk factor.
	The client presents with a gait abnormality or signs of abnormal footwear changes e.g. limping or uneven stepping pattern due to pain or balance or shoes with uneven wear patterns.	Arrange a gait assessment provided by a health professional with assessment skills in walking e.g. podiatrist, physiotherapist.
	The client shows signs of poor toe nail care including toe nails that are long, thickened, discoloured, poorly cut, callus build up or where there is no management plan in place e.g. carer support, podiatry via a GP management plan.	Implement local processes for the client to access a low risk foot clinic for general foot care e.g. GP management plan.
Intermediate risk People with one risk factor (neuropathy, peripheral arterial disease or foot deformity) and no previous history of foot wound/amputation.	Signs of reduced sensation on monofilament testing OR absent/diminished pulses OR foot deformity. Note the client does not have a current or previous history of foot wound/amputation.	Implement local processes for the client to attend a foot risk screen in 3-6 months for monitoring. Tailor standard education to include information on observations, areas for extra vigilance with daily visual inspection and action plan if changes are observed.
	If the client has absent or diminished pulses.	Implement S-FC02. If Doppler ultrasound does not demonstrate triphasic wave forms, implement S-FC03. If ABI <0.9 but >0.5 or TBI <0.65 refer to GP for further investigation. If ABI <0.5 or absolute ankle systolic pressure <50mmHg or TBI absolute toe pressure <30mmHG facilitate local processes for urgent vascular review.
	Client reports significant pain in the lower limb.	Implement local processes for pain management review e.g. via GP or healthcare team.
	The client presents with a gait abnormality or signs of abnormal footwear changes e.g. limping or uneven stepping pattern due to pain or balance or shoes with uneven wear patterns.	Arrange a gait assessment provided by a health professional with assessment skills in walking e.g. podiatrist, physiotherapist.

	The client shows signs of poor toe nail care including toe nails that are long, thickened, discoloured, poorly cut, callus build up or where there is no management plan in place e.g. carer support, podiatry via a GP management plan.	Implement local processes for the client to access a low risk foot clinic for general foot care e.g. GP management plan.
High risk People with two or more risk factors (neuropathy, peripheral arterial disease or foot deformity) and/or a previous history of foot wound/amputation.	Client does not have any current wounds.	Implement local processes for the client to attend a foot risk screen in 3 months for monitoring. Clients who are at high risk but are self-managing appropriately can generally continue to be monitored in the community.
	A high-risk foot service is required if concerns or changes occur including: <ul style="list-style-type: none"> • New callus or deformity since the last review appointment • Callus has discolouration (darkened appearance or whitish discolouration), signs of inflammation including heat, redness or swelling in the area • Signs of pressure injury, pre-ulcerative lesion, wound or extension to amputation profile • New or worsening pain in the foot or lower limb. 	If in scope for the skill-share trained health professional, implement S-FC04 and S-FC05 if relevant. Arrange for an urgent specialist high risk foot clinic review in 2 working days.
	If the client has absent or diminished pulses.	Implement S-FC02. If Doppler ultrasound does not demonstrate triphasic wave forms implement FC03. If ABI <0.9 but >0.5 or TBI <0.65 refer to GP for further investigation. If ABI <0.5 or absolute ankle systolic pressure <50mmHg or TBI absolute toe pressure <30mmHG facilitate local processes for urgent vascular review.
	Client reports significant pain in the lower limb.	Implement local processes for a pain management review e.g. via GP or healthcare team.
	The client presents with a gait abnormality or signs of abnormal footwear changes e.g. limping or uneven stepping pattern due to pain or balance or shoes with uneven wear patterns.	Arrange a gait assessment provided by a health professional with assessment skills in walking e.g. podiatrist, physiotherapist.
	The client shows signs of poor toe nail care including toe nails that are long, thickened, discoloured, poorly cut, callus build up or where there is no management plan in place e.g. carer support, podiatry via a GP management plan.	Implement local processes for the client to access a low risk foot clinic for general foot care e.g. GP management plan.