ACI NSW Agency for Clinical Innovation

Standards for High Risk Foot Services (HRFS) in NSW

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ACI Endocrine Network: Diabetic Foot work group

The Standards for High Risk Foot Services (HRFS) in NSW were developed by the Agency for Clinical Innovation (ACI) Endocrine Network: Diabetic Foot work group. The time, expertise and willingness to attend meetings around busy schedules and a collaborative approach were invaluable in providing direction and guidance for the development of the standards.

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EXECUTIVE SUMMARY

The National Evidenced Based Guidelines on the Prevention, Identification and Management of Foot Complications in Diabetes Mellitus recommend that foot ulceration as a serious complication needs immediate management and is best managed by a multidisciplinary foot care team.[1]

While there is evidence that specialised, co-ordinated, multidisciplinary management of foot complications improves patient outcomes in a cost-effective manner, there is no definition or standards in NSW to support a broad implementation of High Risk Foot Services (HRFS). A lack of service coordination across the metropolitan and rural areas; geographic and workforce inequalities; unclear referral mechanisms with multiple barriers to access; and a lack of awareness of the need for foot screening by non-specialist clinicians represent current barriers to access to appropriate care for people in NSW.

The Agency for Clinical Innovation (ACI) Endocrine Network has identified the need for standards for the Management of Diabetes-Related Foot complications as a priority due to the increase in the number of people being diagnosed with diabetes mellitus each year and the absence of an articulated state-wide approach to improving care for people with diabetic foot complications and preventing unnecessary hospital admissions and amputations. Defining the Standards for HRFS will form a component of this overall strategy.

The main objective of this document is to outline the key elements of High Risk Foot Services in the form of standards. It is anticipated that the standards will be used to:

- Provide a consistent definition of HRFS
- Reduce clinical variation, aligning existing services to State, National and International guidelines
- Guide the implementation of new HRFS
- Identify services with the capacity to provide Telehealth services to support rural services
- Facilitate equity of access to an appropriate level of foot care for all patients in NSW by supporting a basis for standardising the clinical services
- Improve care co-ordination and strengthen the multi-disciplinary approach to management of the high risk foot
- Form part of the overall NSW Model of Care.

This document provides standards which are specifically targeted at high risk foot services. The primary care sector provides services which are are not targeted at high risk foot disease, such as the Annual Cycle of Care provided by a GP coordinated multidisciplinary team.

Key components of High Risk Foot Services included in the Standards:

1. A multidisciplinary team approach
2. Clinical leadership and co-ordination
3. Administrative support
4. Evidence-based treatment guidelines
5. Continuity of care across care settings
6. Prompt access for urgent cases
7. Location within health facility with access to on-site services
8. Appropriate equipment
9. Pressure offloading and medical grade footwear
10. Access to wound care products
11. Recording and monitoring of clinical outcomes

The standards have been widely reviewed and accepted by the ACI Endocrine Network and executive.

2. BACKGROUND

The NSW Agency for Clinical Innovation (ACI) Endocrine Network identified the need to define the characteristics of a clinical service most appropriate for the management of patients with diabetes-related foot complications and established a diabetic foot working group, made up of endocrinologists, podiatrists and diabetes educators. Nine high risk foot clinics in NSW were audited for the purpose of documenting current practices in the provision of foot care services for people with diabetes in NSW. The Diabetic Foot Unit at Royal Melbourne Hospital in Victoria was also visited to review the service delivered. The experiences of local clinicians implementing services in our state were considered along with National and International guidelines to establish these standards and inform the NSW Standards for HRFS.

The review found a trend towards hospital-based podiatry services prioritising access for people at high risk of foot complications and amputations. This is an appropriate response to the increasing number of patients with diabetes, the ageing population and the reality of finite public health resources. The introduction of the Medicare item number for podiatry care, albeit restricted to a maximum of five per year, has made private podiatry care more affordable (and hence accessible) to more people with diabetes, most of whom do not require intensive or hospital-based foot care. The outcome is that hospital-based podiatry services have been able to focus more intensely on the high risk foot and development of services for people with diabetes-related ulceration.

It was noted that locally championed services for people with foot ulceration and other more acute foot complications were operational in some hospitals. These HRFS' were driven by local clinicians identifying the need to provide a level of care that extended beyond that of the traditional podiatry only services and knowledge of international guidelines. Local resources meant that the services varied significantly in their mix of disciplines, access to multidisciplinary care, treatment and ability to provide inpatient consultation.

Available resources and infrastructure did not always support their activities and they were vulnerable to under resourcing and the competing demands on specialist staff. Furthermore, not all patients had access to a HRFS.

The ACI Endocrine Network identified the need for standards of care for people with diabetes and those with diabetic foot complications, and in 2013 elevated the NSW Model of Care for people with diabetes mellitus and diabetic foot complications to its highest priority.

These standards for HRFS have been developed by clinicians for clinicians and health managers.

3. SCOPE

This document is intended for use by clinicians, health service managers, administrators and policy makers to guide their planning and implementation of multidisciplinary HRFS. The scope of this document is to describe HRFS that provide treatment for people with limb threatening diabetes-related foot complications, chiefly foot infections, foot ulceration and Charcot neuroarthropathy. This level of care extends beyond that which can is readily provided in a podiatry (only) outpatient clinic and involves a coordinated multidisciplinary approach.

While the HRFS described exists primarily to serve the needs of people with serious foot complications such as diabetes-related foot ulceration, infection and acute Charcot's neuroarthropathy, it is recognised some people who suffer these complications will not have diabetes. It is not the purpose of these standards to exclude those people without diabetes from accessing this type of service.

The document is designed to complement local guidelines and policies. Clinical services should ensure they are compliant with their Hospital and Local Health Work Health and Safety (WHS) and Infection Control Policies that are not covered in this document.

4. NON-METROPOLITAN SERVICE DELIVERY

There is a high variation in the clinical outcomes for people with diabetic foot disease in NSW as indicated by amputation rates that may be explained by the inequitable access to preventive foot care. An Australian study found that there was a considerable difference between hospital and outpatient costs of treating foot ulcers[5]. It stated that the average cost of hospitalisation for treatment for a diabetic foot ulcer was A$12,474, whereas the outpatient costs by a specialist foot care team reduced this cost by 85%.

These standards while outlining the key components for successful high risk foot services will not overcome existing barriers to implementation, for example, access to health professionals in rural areas.

Initiatives such as telehealth and outreach services should be explored within each local health district to ensure that people with diabetic foot disease can access clinical services and pathways that will optimise their treatment. Such models of care have been established and shown to be of benefit.[5]

The standards do outline the responsibility of centres providing best practice to accept patients outside their geographical area. This is important to ensure patients needing services not provided locally can receive necessary specialist treatment when required.

5. COMPONENTS OF NSW STANDARDS FOR HIGH RISK FOOT SERVICES (HRFS)

These standards have been developed based on National and International Guidelines.

Standard 1: The HRFS provides a multidisciplinary team approach

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• Patient management is provided by a co-located multidisciplinary team with expertise in the management of diabetic foot disease • The minimum staffing should include a senior podiatrist, nurse and a senior physician • A podiatrist should be available five days a week as a central point of contact, and for urgent consultations, with access to a physician in business hours • Patient care is co-coordinated with all relevant members of the clinical team contributing to the management plan and treatment of the patient • Patient is involved in development of care plan • Staff adopt patient centred and goal orientated approach.	Dedicated staffing as described in the minimum standard with access to regular onsite consultation with the health care professionals including (but not limited to) the following as required: • Endocrinologist • Wound care nurse • Vascular surgeon • Orthopaedic surgeon • Diabetes educator • Dietitian • Orthotist and/or pedorthist. Other health professionals that may be consulted include: • Psychiatrist • Social worker • Rehabilitation specialist • Indigenous health worker • Infectious disease specialist • Psychologist.	• Podiatrists, endocrinologists, vascular specialists and orthopaedic surgeons have dedicated time available to provide care for patients attending the HRFS within their scope of practice and that this is recognised by their employer/manager as part of their duties/roles and responsibilities • Team meetings are attended by clinical staff • Multidisciplinary case conferences are held for complex cases • The patients' management plan is communicated to all relevant health professionals involved in the patients care including the GP and patient • Patient health care records reflect multidisciplinary team discussion / treatment strategies in long and short term management plans.

Standard 2: The HRFS team is led and co-ordinated by an experienced senior clinician

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• A co-ordinator who is a senior member of staff with expertise in the management of diabetic foot disease is appointed from the HRFS team to provide overall coordination of the HRFS, ensuring adherence to standards and a coordinated approach to clinical care of the patient.	• The co-ordinator has dedicated non-clinical time that is commensurate with the clinical load and acknowledges the need to maintain a co-ordinated service as well as provide continuous quality improvement.	The co-ordinator of the HRFS: • Has the scope of their authority clearly defined • Has demonstrated experience in the management of patients with diabetic foot disease • Maintains an environment in which the standards of the HRFS are being met • Holds regular team meetings to facilitate care conferencing and dissemination of information to all staff • Identifies and seeks to resolve problems • Maintains lines of communication with patients and staff involved with the HRFS and across inpatient and community care for patients managed at the HRFS.

Standard 3: Administrative support is available to make effective use of clinician time

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• Clinical staff are supported by administrative staff to allow clinical staff to maximise their time dedicated to the care of patients, maintain important communication with other relevant health professionals (i.e. letters) and obtain medical records and results relevant to care of complex patients.	• Administrative staff can be accessed by the clinical team to support patient care, bookings, communication and access to medical records and relevant documents.	• Clerical staff have time allocated to support the HRFS administratively and this is reflected in the position description.

Standard 4: There is agreement with and adherence to evidence-based clinical treatment guidelines by the HRFS team

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• Clinical staff agree on treatment guidelines and protocols for the management of patients which are based on published evidence and documented best practice.	• Clinical staff have written or adapted treatment guidelines and protocols for the management of their patients which are agreed upon and adhered to by the HRF team.	• Clinical staff are aware of the agreed treatment guidelines for the management of patients with diabetic foot disease and adhere to these guidelines • Continuous review and updating of guidelines and protocols according to current research and evidence is occurring.

Standard 5: There is continuity of care across inpatient and outpatient/ambulatory care settings

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• The HRF team is contacted regarding patients admitted to hospital with diabetic foot disease (who meet the referral criteria) and provides treatment or advice as indicated including outpatient/ ambulatory care post-discharge.	• HRF team is involved in ward consultations for patients with diabetes-related foot disease and is involved in the clinical decision making and discharge planning of such patients • The HRF team is contacted when patients present to the Emergency Department (ED) (in business hours) • A formal mechanism exists to identify and refer patients that present to ED after hours e.g. by flag or fax • Patients attending the HRFS can be directly admitted by the relevant consultant for inpatient treatment when indicated without going through the ED within clinic hours.	• Hospital staff are aware of the HRFS and refer appropriately during the patients admission • Inpatients receive consultation and treatment from HRFS staff when appropriate on referral from the admitting doctor • Patients of the HRFS are admitted by the relevant consultant without attending the ED during clinic hours • All patients are allocated an appointment at an appropriate HRFS service on discharge • Clinical handover processes are in place to ensure continuity of care for all patients discharged.

Standard 6: Patients are able to access HRFS for treatment according to referral guidelines and intake criteria that are defined, communicated and adhered to

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• There is a clearly defined criteria for referral which includes diabetes-related foot ulceration, foot infection and acute Charcot's neuroarthropathy • Where broader referral criteria exist, this does not impede urgent access to treatment for people with the above conditions • Referral criteria are articulated and communicated to referral sources including general practice, community nursing, podiatry services, aged care and other hospital services • Patients are referred according to National Guidelines that recommend referral for patients with ulcers that are deep (probe to tendon, joint or bone), not reducing in size, are associated with impalpable foot pulses, ascending cellulitis and referral is immediate if Charcot's neuroarthropathy is known or suspected[1] • New referrals are triaged on day of receipt on clinic days to ensure urgent cases are identified and seen urgently (same day if indicated) or referred to the ED.	• Web based service directs referrers to the HRFS • HRFS has the capacity to accept clinically appropriate referrals from outside their geographical zoning when there is no suitable HRFS locally or when the patient's condition is complex and requiring a higher level of service than is available locally. • HRF team provides outreach services / clinics / telemedicine to rural, regional areas and specific client populations including Indigenous people.	• Intake criteria are clearly defined and articulated to referrers ideally via web page • Timeliness and appropriateness of patient referrals is monitored to ensure that patients are able to access treatment according to national guidelines. • Processes are in place for referrals to be received by senior clinicians to ensure urgent cases are identified and managed • Time from referral to appointment is recorded and monitored for safety. • The HRFS receives clinically appropriate referrals from within their catchment area.

Standard 7: The HRFS located within a health care facility with onsite access to relevant clinical investigations and services on referral from HRFS team

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• Located within a health care facility that has access to multidisciplinary care, pathology and radiology. Access to pathology and radiology may be offsite. • There is allocated space for the HRFS that meets infection control and WHS requirements.	Located within a public hospital with access to: • Pathology • Radiology and nuclear medicine • Vascular investigations • Direct admission for inpatient care (without going via ED) • Inpatient consultation by the Specialist team • Intravenous antibiotic therapy • Surgery • Endovascular procedures • Dietetic services.	–

Standard 8: HRFS Team has access to relevant equipment required for patient care

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
Instruments and equipment essential for the assessment and treatment of patients are available and include: • Sterilised reusable or disposable Podiatry instruments (nail clippers, files, scalpel handles, curettes, forceps, scissors and probes) • Podiatry treatment chair(s) which can be raised and lowered electronically using foot or hand controls. • Tools for the assessment of vibratory perception and protective sensation including a calibrated monofilament and tuning fork. • Hand held Doppler for the detection of pedal pulses (+/- ABI or TBI) • Tools, equipment for safe manufacture or modification of pressure offloading devices: grinder, heat gun/oven, scissors • Equipment for application and removal or total contact casts.	• Computerised gait assessment / analysis of plantar pressure in shoe to evaluate pressure offloading • Access to in-house negative pressure wound therapy • Onsite orthotic laboratory	• Equipment is available

Standard 9: Patients are provided with pressure offloading methods and access to medical grade footwear according to treatment guidelines and as indicated

MINIMUM STANDARD	BEST PRACTICE	INDICATORS

• Access to on-site pressure offloading modalities that facilitate healing and reduce the risk of recurrence including:
  • Post-operative/ healing sandals
  • Prefabricated walking braces
  • Paddings and foot orthoses
  • Total contact casting
• Staff are competent in the prescription of footwear and footwear modifications, can provide education to patients, refer patients for medical grade footwear and assist patients with applications for funding of footwear and orthoses.
	• Access to in-house orthotic and/or pedorthic services
	• Access to computerised gait analysis and in-shoe pressure analysis to assess effectiveness of interventions for clinical practice and research.
		• There is budget allocation for pressure offloading devices for patients
		• Medical records show patients are provided with appropriate pressure offloading modalities, chosen for their suitability based on the patients circumstances
		• There is on-site access to foot orthoses and or patients are able to access affordable foot orthoses prescribed by the treating team
		• At least one member of the podiatry staff is skilled and experienced in the application and monitoring of total contact casting
		• Eligible patients are receiving footwear supplied by Enable NSW
		• Patients are being referred to orthotists, pedorthists and/or medical grade footwear suppliers as indicated. The footwear needs of patients are included in discharge planning and secondary prevention.

Standard 10: Patients have access to appropriate wound care products and these are prescribed according to best practice or local clinical treatment guidelines

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
• There is access to a variety of consumables readily available to treat wounds including: • Absorbent dressings • Foam dressings • Antimicrobial dressings • Hydrogels	• In addition to the minimum standard, advance wound healing products and modalities are available for patients where there is evidence of benefit. E.g. Negative pressure wound therapy • Dressings are supplied to patients for use in between service appointments.	• There is budget allocation for wound care products • The HRFS has access to a range of dressings for specific indications including; foams, absorptive dressings, non-adherent dressings, hydrogels, antimicrobials and hydrofibres or alginates • Dressings are being used to address specific clinical indications according to identified evidence and clinical guidelines.

Standard 11: The HRFS monitors clinical outcomes to maintain and improve quality of patient care

MINIMUM STANDARD	BEST PRACTICE	INDICATORS
The HRFS collects minimum data and develops key performance indicators used to assess safety and efficacy of the clinical service, assist with allocation of resources and service improvement. At a minimum data should include: • Wound severity using validated wound grading system • Time to presentation • Date of ulcer occurrence and healed date • Outcome: healed, amputation, deceased. Suggested Dataset: • Patient demographic information; age, sex, ethnicity, diabetes type • Grading of ulcer severity at presentation using a recognised wound grading system • Duration of ulcer prior to appointment • Date treatment commenced • Date of healing • Hospitalisations • Amputations including extent • Ulcer recurrence • Non-adherence to treatment. Key performance indicators to include: • Time to healing based on the severity of the wound • Proportion of wounds healed • Rate and time to ulcer recurrence • Admissions • Amputations including level • Time to presentation/referral.	• The HRFS uses electronic methods to collect the same Key Performance Indicators (KPI's) as other like services so that data can be aggregated or compared for benchmarking • The HRFS collects and uses data for research to improve patient care through research and quality improvement.	• Regular reports are available • Data is reported and shared with the clinical team.

5. RECOMMENDATIONS

It is recommended that Local Health Districts:

- Undertake a gap analysis of existing services to identify current access to foot care for people with diabetic foot complications
- Identify variation in service delivery and outcomes
- Align existing services with the standards for High Risk Foot Services
- Explore local capacity to use Telehealth as one of the mechanisms to deliver equity of access to specialist services for those living in rural, remote and isolated communities across NSW.

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