NSW GOVERNMENT

AGENCY FOR CLINICAL INNOVATION

Spotlight on virtual care: Dubbo High Risk Foot Service virtual and in-person outreach

Western New South Wales Local Health District

JUNE 2021

Virtual Care Initiative

A collaboration between local health districts, speciality health networks, the ACI and eHealth NSW.

The ‘Spotlight on Virtual Care’ reports showcase innovation and leadership in virtual health care delivery across NSW. The series aims to support sharing of learnings across the health system and outlines the key considerations for implementation as identified by local teams.

Each initiative within the series was selected and reviewed through a peer-based process. While many of the initiatives have not undergone a full health and economic evaluation process, they provide models that others may wish to consider and learn from.

These reports have been documented by the Virtual Care Accelerator (VCA). The VCA is a multi-agency, clinically focused unit established as a key partnership between eHealth NSW and the ACI to accelerate and optimise the use of virtual care across NSW Health as a result of COVID-19. The Virtual Care Accelerator works closely with Local Health Districts (LHDs) and Specialty Health Networks (SHNs), other Pillars and the Ministry of Health.

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Further copies of this publication can be obtained from the Agency for Clinical Innovation website at **www.aci.health.nsw.gov.au**

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Introduction

High Risk Foot Services (HRFSs) offer highly specialised multidisciplinary care for people with diabetes-related foot ulcers and infections. The Dubbo service is the only HRFS in the Western NSW Local Health District (WNSWLHD) and delivers care to a geographically dispersed population. The HRFS offers a hybrid model of virtual and in-person care to people living in the northern sector of WNSWLHD to ensure timely access to appropriate care, close to home and on country.

For people with diabetes, minor injuries (such as cuts and bruises) and stress fractures can rapidly progress to ulcers, infections and amputation. Foot ulceration is one of the leading causes of hospitalisation for people with diabetes. It is estimated that on average, almost one in five people with type 2 diabetes are at risk of foot ulceration.*

WNSWLHD is geographically the largest local health district (LHD) in NSW. At 246,676 square kilometres, it covers 31% of NSW and provides healthcare to a population of over 278,759. Like many rural and remote regions in NSW, WNSWLHD experiences significant challenges in employing a specialist rural workforce to support the health needs of its communities. High risk foot clinicians are highly specialised: there are a limited number of podiatrists employed within NSW Health and just one high risk foot skilled podiatrist in WNSWLHD. The WNSWLHD HRFS was established in 2018 as an outpatient service at Dubbo Base Hospital. The HRFS provides specialised, multidisciplinary management of diabetes-related foot conditions to people living across WNSWLHD. In 2019 the HRFS began delivering virtual services to the northern sector of the LHD. These services are critical to improving access for those living in these remote regions of the district.

The HRFS is also an important service offering for Aboriginal people in the region, as 13% of the population of the WNSWLHD identify as Aboriginal or Torres Strait Islander. Rates of diabetes related foot amputations are much higher in Aboriginal people (53.9 per 100,000 populations) than in non-Aboriginal people (12.7 per 100,000 populations)†. The Dubbo HRFS aims to deliver appropriate and culturally responsive care for Aboriginal people.

Figure 1: A map of WNSWLHD showing the Northern Sector

This report focuses on the provision of a hybrid model of in-person and virtual outreach clinics to four remote sites in the northern sector of WNSWLHD.

*TR Quinton, PA Lazzarini, FM Boyle, AW Russell and DG Armstrong (2015). How do Australian podiatrists manage patients with diabetes? The Australian diabetic foot management survey. Journal of Foot and Ankle Research; DOI: 10.1186/s13047-015-0072-y.

†Centre for Epidemiology and Evidence. HealthStats NSW. Available at: www.healthstats.nsw.gov.au (Accessed 18.10.2016).

Reported benefits of the model

Patient benefits

- Timely access to care through outreach and virtual services, including identification and diagnosis of high-risk foot conditions
- Reduced risk of needing to be admitted to hospital
- Care close to home and on country
- Prevention of amputation or minimised amputation
- Improved outcomes through better access to care for those living in rural communities
- Improved experience as the service seeks to understand patients' needs
- Prevents high risk foot conditions from worsening.

Clinician benefits

- Increased multi-disciplinary collaboration between clinicians across the LHD
- Rural clinicians have early access to a second opinion from a specialised service
- Reduced travel (compared to providing services entirely in-person).

Service benefits

- Better coordination of care and improved access to care
- Improved continuity of care and reduced unwarranted clinical variation
- Increased capability of local staff
- Improved safety and quality of care
- Tertiary LHD services remain connected with local communities across the district
- Reduction in hospital admissions and length of stay.

Overview of the model

Key elements of the model

Element	Detail
Patient cohort	• Patients referred into the service must meet the HRFS criteria. These include patients with any of the following: – Active foot ulcer – Spreading infection – Critical limb ischemia – Gangrene – Hot swollen foot with/or without pain (possible active Charcot neuroarthropathy) • The service has a referral pathway outlining conditions managed by the HRFS and suggests alternate treatments/services for conditions not appropriate to be managed by the service this pathway is available on the Western NSW Primary Health Network Website.
Referral pathway	• A number of clinicians refer patients into the service, and these include: – allied health professionals – nurses – medical officers (general practitioners (GPs), orthopaedic surgeons, vascular surgeons) – diabetes educators • Referrals are sent to the HRFS clinic at Dubbo via email and fax. Once eligibility is confirmed by the HRFS podiatrist an appointment is scheduled.
Healthcare team	Dubbo hub: • Senior podiatrist • Diabetes educator • Social worker • Administration staff • Other clinicians such as pedorthists, dietitians and vascular surgeons are not part of the immediate HRFS team but provide multidisciplinary care as needed. Patient end: • Community nurses • Wound care nurses • Aboriginal health workers • GPs
Technology	• Cisco DX80 at Dubbo • Wallies (mobile videoconferencing units with pan, tilt and zoom capabilities) at patient end • eMR at both ends • NSW health email

Services

The WNSWLHD HRFS is a multidisciplinary outpatient service coordinated by the HRFS senior podiatrist who is based at Dubbo Hospital.

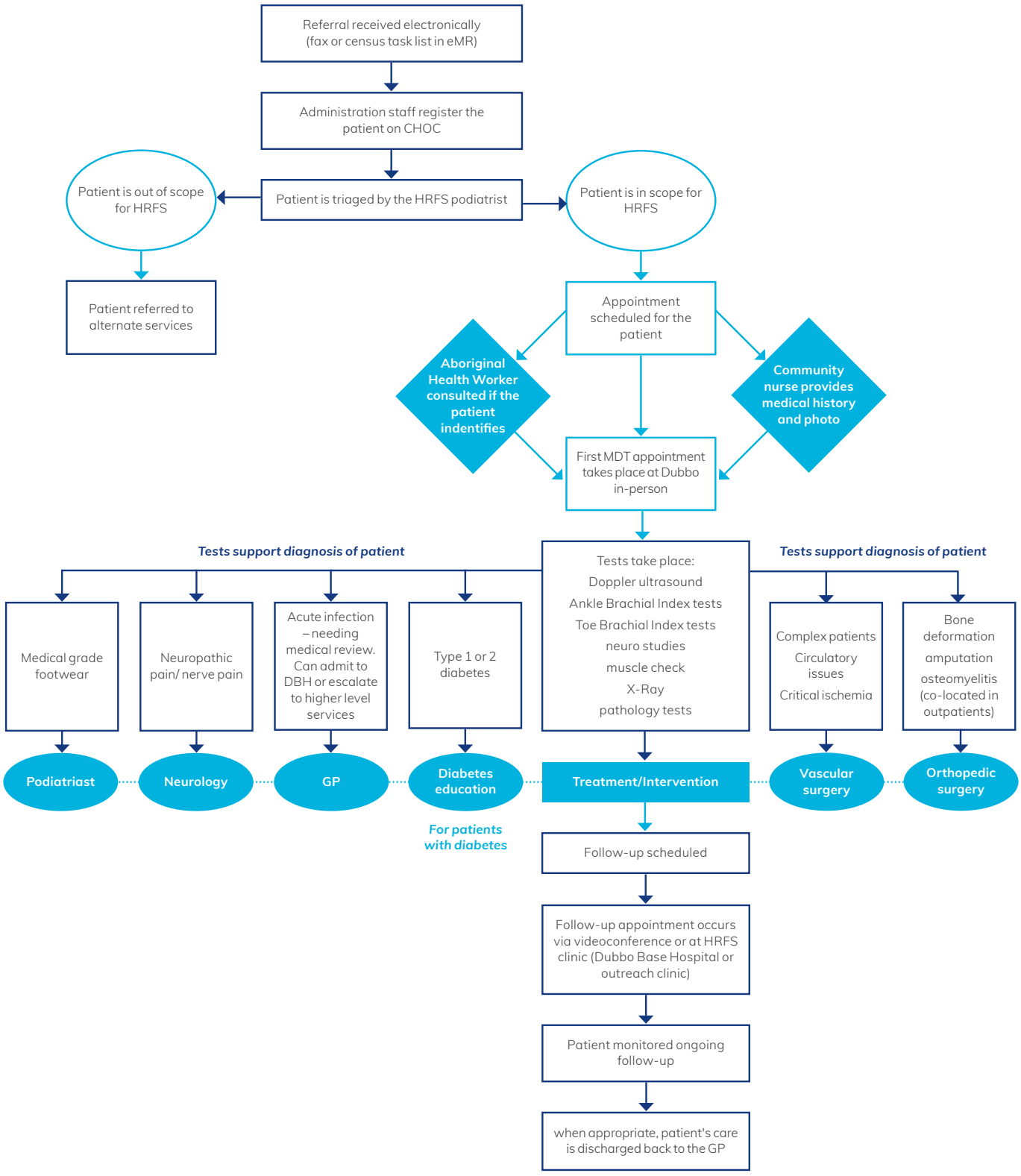
The service provides a combination of in-person and virtual appointments. For service provision to the northern sector, in-person clinics occur in Dubbo, or at six weekly outreach clinics in Mudgee, Walgett, Coonamble and Lightning Ridge. Between in-person appointments patients have the option of a virtual follow up, this is dependent on clinical appropriateness for their condition and their personal preference. Virtual appointments occur at a local outpatient department and are supported by a WNSWLHD clinician. These initiatives help to keep patients close to home.

The WNSWLHD integrated care team (shared care) monitor the overall health conditions of HRFS patients (e.g. diabetes management).

HRFS senior podiatrist, Peter Strickland, reviews a patient by videoconference using a Wallie

Workflow diagram

Figure 1: The workflow of the HRFS



Patient Story

Mark* is an Opal miner living in Lightning Ridge, a town about four hours' drive north of the HRFS in Dubbo.

Mark has type 2 diabetes and accessed the HRFS for an ulcer on his left foot. He accessed the service using a combination of in-person care and videoconferences supported by community nursing in his town. The team spoke to Mark as he attended a virtual appointment from the Walgett Multipurpose Service (MPS) with the assistance of a nurse.

Mark shared the following about his experience:

'I have been seeing Peter for the last six or seven months. I first saw him in Dubbo after I was sent there for an appointment because my foot had a sore on it that had been there for nearly four years and was not getting better. It has a hole there and it was not healing so I knew I needed special treatment.

My friend and I looked it up on the computer and found the service and went down to Dubbo to see Peter and have my foot looked at.

I have now seen Peter on the videoconference two times. The only other option is I would have drive to Dubbo, and I can't drive to Dubbo every 2 weeks. This means that I get to see Peter. Without access to the video calls, I would only be seeing the nurses in Lightning Ridge.

This is alright, and I am happy to keep seeing Peter on the videoconference. Otherwise I would do nothing, as it is too far to travel to Dubbo every two weeks'.

** Name changed to protect client privacy and confidentiality*

Making it happen

This section outlines the key enablers and challenges identified by those involved in implementing this virtual care initiative. Addressing these factors effectively has been critical to successful implementation and these learnings can be used by other health services in the development of local models. The resources listed in the supporting documents section at the end of the report also supplement these learnings and have been identified throughout the following sections.

Local planning, service design and governance

Processes

- All initial appointments with the service occur in person to allow an appropriate multi-disciplinary assessment of the patient.
- When referrals are received, they are triaged by the HRFS senior podiatrist and appointments are then booked through the service in Dubbo.
- When patients attend virtual services, they are always accompanied by a WNSWLHD clinical staff member who will assist with the consultation by conducting assessments, re-dressing wounds, and manoeuvring the camera as required.
- Prior to virtual appointments, the HRFS senior podiatrist contacts the health service where the patient will attend their appointment to book a space and ensure clinical staff will be available to support the consultation.
- Photos may be provided prior to an appointment using email and uploaded into eMR.

Service design and governance

- The HRFS has been designed to provide outreach care close to home where appropriate and chosen by the patient.
- The use of virtual care increases access to outreach services and services can be offered more frequently.
- Clinical governance for the service is in line with existing governance processes for allied health services at Dubbo Base Hospital.

Executive support

- The HRFS is a Leading Better Value Care (LBVC) initiative and has executive support from both the Allied Health and Innovation directorate.
- Operationally, the service reports to the Allied Health Manager at Dubbo Health Service.
- There was limited investment required to set up the virtual component of the service. However, significant investment in specialised clinical equipment was required for in-person services.

Local community needs

- For Aboriginal people, receiving care close to home, within their community and on-country is an important factor when accessing health services.
- 19% of the HRFS cohort and 13% of the total WNSWLHD population identify as either Aboriginal or Torres Strait Islander.
- Consultation was undertaken with local communities to understand their needs and to build relationships to support the success of outreach services.
- In Aboriginal communities, physical connection to country (including foot contact on the ground) is an important aspect of culture[§]. The HRFS works to manage patients to treat foot conditions early with the goal of preventing amputations.
- Aboriginal health workers can be engaged at either the patient end or clinician end of the consultation, if required. The HRFS senior podiatrist will contact the Aboriginal health worker if it aligns to the patient's wishes and is relevant for the virtual consultation.

[§]See Healthy Deadly Feet initiative in Supporting documents list

Building engagement

Key partners and stakeholders

- Clinical teams that support the multidisciplinary HRFS include:
  - pedorthists – support patients with specialised footwear to manage their HRFS condition
  - neurology teams – manage neuropathic pain and nerve damage
  - vascular surgeons – complex patients, circulatory issues, critical ischemia
  - orthopaedic surgeons – bone deformities, osteomyelitis, amputations.
- Nursing teams at rural sites
  - Rural sites support patients to connect to virtual appointments. Generally this assistance is provided by nursing staff. These clinicians assist with assessment and redressing wounds as needed.
  - Where patients have a complex wound, they may be managed by community nursing in addition to the care provided by the HRFS. This means patients may have an ongoing referral to community nurses.
  - Where required, the HRFS will refer patients to local wound clinical nurse consultants (CNCs) for management.
- Aboriginal Medical Services (AMSs)
  - Due to the significant number of Aboriginal people accessing the service, building relationships with the local AMS is essential to ensure patients conditions are managed appropriately. As the AMS often manage patient's ongoing care, the HRFS works closely with the AMS to ensure continuity of care.
- GPs
  - It is important to work with GPs to ensure they understand the HRFS and make appropriate referrals into the service. This helps to ensure patients are referred to the most appropriate service.
  - The HRFS predominately connects with GPs via phone conversations. On occasion, GPs also join virtual appointments if they are able to.
  - GPs provide care to patients who have an acute infection or require a medical review. They also manage patients who have several conditions alongside their HRFS issue.

An enrolled nurse assesses a patient's foot wound with the HRFS podiatrist on videoconference

Staff engagement

- In establishing the service, the HRFS senior podiatrist worked on the ground at rural facilities to identify and build relationships with key staff to support consults.
- Over time, relationships have been developed with services and health service managers to ensure appropriate support at the patient end. These relationships are built on mutual respect between clinicians at both ends of the consultation.
- Staff are comfortable using virtual modalities, however may need to be instructed to move the camera or zoom in as required. As equipment and processes for videoconferencing are the same across all facilities, no additional training is provided to clinicians who support the HRFS.
- Clinical staff at the patient end are supported during the videoconference to make decisions on the most appropriate method to dress any wounds. As required, specialist wound practitioners can be linked in virtually or referred to for in-person care.
- The HRFS senior podiatrist travelled to several sites and presented on the scope and benefits of the service. This assisted with clinician buy-in to the service.

Patient engagement

- The HRFS senior podiatrist is responsible for managing the patients care and works as the care coordinator for the patient.
- It is essential that all patients' initial consultations occur in person to allow them to be appropriately assessed. This also allows the patient to develop a relationship with their clinician.
- Patients are given the opportunity to access care either in person or virtually. A discussion about the best option for each patient often occurs during the initial consultation.
- Patients are encouraged to access care virtually due to the benefits and reduced travel, as well as reduced social isolation associated with travelling for healthcare.
- The service used patient reported experience measures (PREMs) to understand the patient's experience of accessing care in the HRFS. PREMs are used alongside other data collected to identify opportunities to improve the service.

HRFS clinician tips for delivering virtual care

- If working over a screen, have identification clearly displayed or a uniform on so patients recognise you as a clinician.
- Ask targeted questions and think of the practical application for the person, such as:
  - how far can you walk?
  - do you need support?
  - can you please demonstrate [exercise/activity]? (to demonstrate use of a muscle group)
- Where possible, work on building relationships when delivering in-person care – this supports virtual consultations.
- Be smart about involving the patient and their families in communication. Don't just talk to the nurse on the other end.
- Ask probing questions to get more information.

Workforce and resourcing

Appropriate technology

- At the clinician end of the service a Cisco DX80 is used alongside a computer with access to eMR.
- eMR and NSW Health email are used to transmit and store patient images.
- At the patient end a Wallie (portable videoconferencing machine with camera pan, tilt and zoom functionality) or a Cisco DX80 is used in consultation rooms.
- WNSWLHD has extensive existing videoconferencing infrastructure throughout the LHD which this service utilises.

Planning for technology implementation

- When first established, this service provided in-person consultations and then gradually expanded to provide virtual components.
- WNSWLHD's telehealth team supported the HRFS podiatrist with virtual options and provided training on how to use the equipment.
- Prior to offering virtual appointments, staff at rural sites were engaged to provide information on how the HRFS would use videoconferencing and to ensure staff were comfortable supporting care delivery in this way.

Staffing model

- The HRFS is staffed to provide a hybrid model of in-person and virtual multidisciplinary care. Dedicated FTE within the HRFS are:
  - a senior podiatrist: 1.0 FTE
  - administration staff: 0.5 FTE
  - a diabetes educator: 0.5 FTE
  - a social worker: 0.4 FTE.
- Clinical staff providing additional multidisciplinary care (e.g. vascular surgeons) are employed by WNSWLHD but are not funded as part of the HRFS.

Funding considerations

- The service is funded within existing activity-based funding for the LHD. The LHD will receive additional funding for virtual care provided in line with Ministry of Health funding arrangements.
- When virtual services are provided, the service delivery mode is recorded in eMR as a video call or phone call. This is important to ensure accurate capture of service provision.

'It is really important for me to access care close to home and on country, it's also very tiring to go down to Dubbo for a short appointment.'

PATIENT OF HRFS

Benefits of the model

Results

Since establishing virtual services in 2019, the HRFS has saved patients from traveling over 74,000kms to access care in Dubbo or at an in-person outreach clinic.

Through access to the HRFS (both in person and virtual):

- the number of serious amputations (transmetatarsal, above knee, and below knee amputations) reduced to zero in 2019/2020
- less serious amputations of the toe (without amputating metatarsal bone) have increased from five to nine in line with the decrease in serious amputations
- foot conditions are being identified and appropriately managed earlier, resulting in better patient outcomes (see graph below).

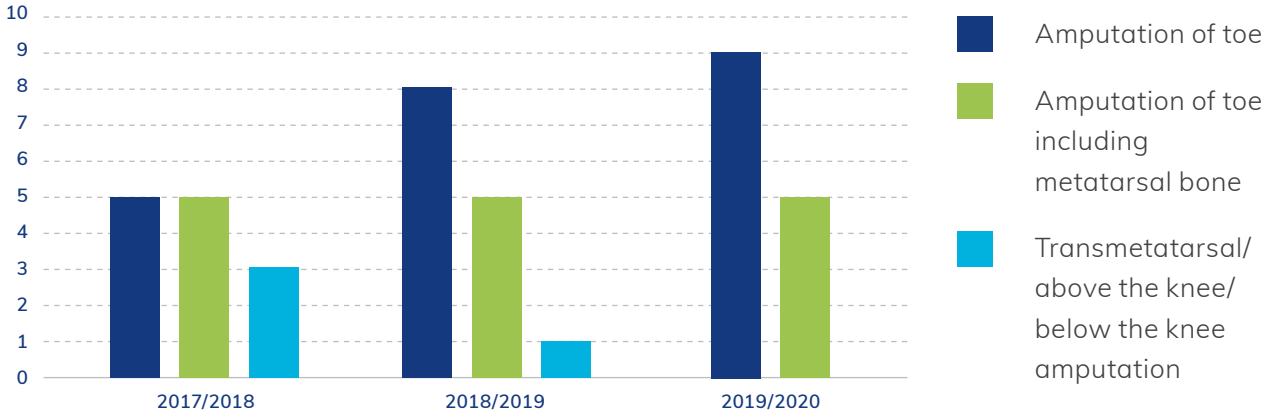
16% of all occasions of service in the 2020/21 year were virtual, this is an increase from 5% in 2018/19.

The service was awarded the WNSWLHD Quality Keeping People Healthy Award in 2020.

Benefits

1. Ability to access timely, specialised care close to home and on country.
2. Reduction in serious amputations.
3. Increased coordination and continuity of care.
4. Access to multidisciplinary services required to support each individual patient.
5. Reduced need to travel for both patients and clinicians.

Dubbo Health Service: HRFS cohort inpatient amputations



Monitoring and evaluation

The HRFS provides a hybrid model of both in-person and virtual care. The service maintains a database of all evaluative statistics related to the overall service, this data is monitored and reported monthly. Key measures monitored include:

- hospital avoidance
- readmission rate
- reduction in amputations
- reduction in admissions for HRFS Cohort
- reduction in length of stay (LOS)
- emergency department presentations
- patient experience.

The service is working with the local Health Intelligence Unit to create a LBVC dashboard which will assist with monitoring key aspects of the service including virtual and in-person components. Data collected from eMR also allows the LHD to monitor other areas of the service, including demographic information and kilometres of travel saved from access to virtual services.

Opportunities

HRFS podiatrists are highly specialised clinicians. With limited HRFS podiatrists across NSW Health, there is an opportunity to apply the hybrid virtual and in-person model used in WNSWLHD in other rural and metropolitan LHDs. They could also be used in metropolitan local health districts to reduce patient travel where the HRFS is only available at one hospital.

A nurse and patient discuss treatment plans with the HRFS podiatrist

References and links

ACI HRFS Standards

Healthy Deadly Feet Initiative

LBVC: Diabetes High Risk Foot Services

Patient Journey Map for HRFS in NSW

TR Quinton, PA Lazzarini, FM Boyle, AW Russell and DG Armstrong (2015). How do Australian podiatrists manage patients with diabetes? The Australian diabetic foot management survey. Journal of Foot and Ankle Research; DOI: 10.1186/s13047-015-0072-y

Centre for Epidemiology and Evidence. HealthStats NSW. Available at: www.healthstats.nsw.gov.au (Accessed 18 October 2016).

Supporting documents

Referral pathway for foot screening and assessment

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We would also like to thank the clinicians, consumers and virtual care experts involved in reviewing this report.

The Agency for Clinical Innovation (ACI) is the lead agency for innovation in clinical care.

We bring consumers, clinicians and healthcare managers together to support the design, assessment and implementation of clinical innovations across the NSW public health system to change the way that care is delivered.

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