Australian Diabetic Foot Ulcer Minimum Dataset Dictionary

Diabetic Foot Australia

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Foreword

A nationwide initiative to improve care for the patient with a diabetic foot ulcer

Foot ulcers are one of the most feared complications of diabetes. From the patient's perspective the burden of disease is high due to factors such as loss of mobility, pain, (fear of) amputation, the need for frequent outpatient visits, hospitalisation and invasive procedures. The longer the ulcer persists, the more quality of life is lost. From a health care perspective these patients use a lot of resources, and need expensive, multidisciplinary care with many disciplines involved. For health care workers it is frequently difficult to understand all the different aspects that have to be addressed in order to effectively treat these patients.

In the last decades much progress has been made in this area. With relative simple tools, as for instance described in the Guidance documents of the International Working Group on the Diabetic Foot (IWGDF), each patient should be systematically evaluated. Subsequently, we can define who is at risk for a poor outcome, who needs urgent treatment, what treatment should be offered and which disciplines should be involved.

Several studies have shown that a multidisciplinary approach can achieve a 45-85% reduction in amputation rates and in several countries amputation rates are progressively going down. But, even in well performing countries still too many patients lose part of their leg. We clearly need initiatives to improve the quality of care in this area and the *Australian Diabetic Foot Ulcer Minimum Dataset* is a major step forward that can help to reduce the burden of disease. The implementation of this easy-to-use document can have a major impact on the quality of care in Australia as it was developed using the evidence based approach of the IWGDF and in consultation with relevant stakeholders. By developing a common language for all the different disciplines involved, standardises evaluation of each patient, defining process and outcome benchmarks, each participating clinic will have instruments to improve the care for its patients.

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Introduction to the minimum dataset

Endorsements

Diabetic Foot Australia would like to thank the following organisation for reviewing and endorsing The Australian Diabetic Foot Ulcer Minimum Dataset Dictionary.

Only through working together will we see an end to avoidable amputations in a generation.

Diabetic Foot Australia

Diabetic Foot Australia (DFA) was established in 2015 with the goal of ending avoidable amputations within a generation in Australia. DFA is a key initiative of the Wound Management Innovation Cooperative Research Centre (WMI CRC) and has engaged the expertise of multiple partner organisations across Australia to create a national diabetic foot ulcer (DFU) body for Australia. DFA's primary objectives are to:

- optimise national DFU evidence-based clinical practice
- stimulate national DFU clinical research
- reduce Australia's national diabetes amputation rate
- empower Australia to become a leading nation in DFU management

DFA is led by a national multi-disciplinary steering committee, co-chaired by A/Professor Paul Wraight and Mr Pete Lazzarini. The committee has members from nearly every Australian state and territory and comprises national DFU experts from medicine, surgery, nursing, allied health, epidemiology, clinical research, biochemical research and industry.

Further information about Diabetic Foot Australia and the national steering committee members can be found at: https://diabeticfootaustralia.org/

Purpose of this document

One of DFA's initial key projects was the establishment of a standardised *Australian Diabetic Foot Ulcer Minimum Dataset* ('the minimum dataset'). The purpose of the minimum dataset is to provide services across Australia with a well-defined core set of nationally-recognised evidence-based diabetic foot ulcer (DFU) data items. These data items are considered necessary to collect for services to meaningfully capture, analyse and benchmark their local DFU processes and outcomes against (inter)national standards.

This document serves as the dictionary explaining the dataset and is entitled the *Australian Diabetic Foot Ulcer Minimum Dataset – Dictionary* ('the dictionary'). The purpose of this dictionary is to provide services across Australia with a comprehensive reference to guide the use of the *Australian DFU Minimum Dataset*. This dictionary will be made readily available to the Australian DFU community to help facilitate efficient and effective analysis, reporting and

interpretation of Australian DFU clinical and research data. In short, the dictionary will help to ensure services using the *Australian DFU Minimum Dataset* are 'speaking the same language'.

The minimum dataset is intended to be the first formal step towards facilitating the development of a future *Australian Diabetic Foot Ulcer Registry Database* ('the database'). All services in Australia who collect DFU data are strongly encouraged to align their data items with the minimum dataset items and definitions contained in this document. Services are welcome to collect additional items to those recommended in the minimum dataset to suit their local needs.

Background of this document

The development of the minimum dataset and this dictionary document has been led by the DFA national steering committee ('the committee'). The committee initially explored similar minimum dataset documents published by DFU organisations across the world, including:

1. International: International Working Group on the Diabetic Foot [1]
2. National: UK National Diabetes Foot Care Audit Group [2-4]; Scottish Diabetes Foot Action Group [5]; German Working Group on the Diabetic Foot [6]; Belgium Audit and Accreditation System [6]
3. State: NSW Agency for Clinical Innovation [7]; Queensland Statewide Diabetes Clinical Network [8-10]; WA Cardiovascular and Diabetes Health Networks [11].

DFA has summarised articles outlining the above national minimum dataset documents on its website[1] and encourages services to familiarise themselves with these articles [2-6]. The key consistent recommendations from these documents were to firstly determine the critical evidence-based DFU processes and outcomes that should be measured to assist services, regions and nations improve their DFU care ('the DFU key performance areas (KPAs)') [1-11]. Once these DFU KPAs are determined then a minimum dataset can be created [1-11]. Five standard DFU KPAs appeared to be consistent across these documents and were chosen by the committee:

A. Access to services: an indicator for the time to access DFU Services
B. DFU assessment: a process indicator for the practice of evidence-based DFU assessment

[1] https://diabeticfootaustralia.org/research-article/national-auditing-accreditation-systems/ and https://diabeticfootaustralia.org/research-article/national-diabetes-foot-care-audit-ndfa/

C. DFU management: a process indicator for the practice of evidence-based DFU management
D. DFU healing: an indicator for DFU healing outcomes
E. DFU hospitalisation: an indicator for DFU hospitalisation outcomes

The committee then drafted the minimum items considered necessary to measure aspects of these five DFU KPAs. All draft items ('data items') and definitions were constructed to align with the two latest endorsed (inter)national evidence-based DFU guideline recommendations (International (2015) [12-16] and Australian (2011) [17]), and any similar existing data sets or data elements contained in the Australian Metadata Online Registry (METeOR) [18]. A draft of this dictionary was completed for consultation.

The consultation draft of the dictionary was circulated to over 20 organisations that were considered to represent the vast majority of Multi-disciplinary Diabetic Foot Services (MDFS) or disciplines with an interest in DFU management across Australia. The committee received feedback from 15 of these organisations and have incorporated the majority of their evidence-based feedback into a final draft of this dictionary. The committee very much appreciates the enthusiastic and constructive feedback received from those organisations. Please refer to the Acknowledgements section for further details.

DFA is proud to publish the official Australian Diabetic Foot Ulcer Minimum Dataset – Dictionary on behalf of the Australian DFU community for use by interested services.

Future of this document

DFA will endeavour to periodically review this *Australian Diabetic Foot Ulcer Minimum Dataset – Dictionary* so as to continually improve this document to be of (inter)national best practice standards. Following a year of use of this document it is anticipated it will be reviewed, improved and updated using the feedback of the Australian DFU community. DFA will then consider submitting the *Australian Diabetic Foot Ulcer Minimum Dataset – Dictionary* to the Australian Government Metadata Online Registry (METeOR) for consideration as the official Australian METeOR DFU Dataset Specification.

For further information on this document

DFA will endeavour to keep the Australian DFU community informed via our website, regular newsletter updates and social media posts on any future developments on the *Australian Diabetic Foot Ulcer Minimum Dataset – Dictionary* and associated documents. To register for these regular newsletter updates and social media posts please refer to the Diabetic Foot Australia website: https://diabeticfootaustralia.org/

For any further information not contained in this document on the *Australian Diabetic Foot Ulcer Minimum Dataset* please email: nationaloffice@diabeticfootaustralia.org

How to use the minimum dataset?

How is the minimum dataset structured?

The *Australian Diabetic Foot Ulcer Minimum Dataset* consists of 22 data items. The data items have been grouped into demographic, service, assessment, management and discharge items. Each data item has been drafted to be as consistent as possible with any existing applicable data element in the Australian METeOR [18]. Therefore, each data item outlined in this dictionary follows similar sub-headings, definitions, codes and value attributes as those used in METeOR [18]. The last sub-heading of each item refers the reader to how the data item can be used to measure a DFU Key Performance Area. The structure for each data item is:

I. Name
II. Metadata item type
III. Official METeOR name (if applicable)
IV. Short METeOR name (if applicable)
V. Synonymous names
VI. METeOR identifier (if applicable)
VII. METeOR registration status (if applicable)
VIII. Definition
IX. Values
X. Relation to DFU Key Performance Area

Who should use the minimum dataset?

The minimum dataset can be used by any service managing people with DFU(s).

DFA strongly advocates services adhere as closely as possible to the following multi-disciplinary foot care recommendations outlined in the NHMRC Australian diabetic foot guidelines:

1. “Best-practice management of diabetes-related foot ulceration requires coordinated and expert multi-disciplinary input in both the inpatient and outpatient settings. Multi-disciplinary teams consist of medical, surgical, nursing, podiatry and allied health professionals – with the appropriate skills and knowledge needed to manage this group of individuals. Some multi-disciplinary teams also include an infectious disease specialist or

microbiologist. The integrated approach acknowledges that no one specialist possesses all the abilities and knowledge to manage the patient" [17].

2. "The following factors should always precipitate referral to a multi-disciplinary foot team:
   - deep ulcers (probe to tendon, joint or bone)
   - ulcers not reducing in size after 4 weeks despite appropriate evidence-based treatment
   - the absence of foot pulses
   - ascending cellulitis and
   - suspected Charcot's neuroarthropathy (e.g. unilateral, red, hot, swollen foot)" [17].

3. "If access to a multi-disciplinary foot care team is limited, foot ulceration or foot complications other than those (factors listed) above should be managed by a GP together with a podiatrist and/or wound care nurse" [17].

4. "Remote expert consultation with digital imaging should be made available to people with diabetic foot ulceration living in remote areas who are unable to attend a multi-disciplinary foot care team/service for management" [17].

When to capture minimum data?

The minimum dataset is intended to be used to monitor the episodes of care of patients with DFU from the initial consultation, through each subsequent consultation, until healing and/or discharge. For those services collecting DFU data, it is strongly recommended that all items contained in the minimum dataset are collected on all patients with DFU at each DFU service consultation. For services sharing the care of the same patient with a DFU it is also recommended that both services still collect all data from the minimum dataset at each consult to monitor the entire episode of care of the patient.

How to capture minimum data?

Services choosing to capture minimum data will need to utilise their local data collection processes to capture and analyse their local data. DFA recommends that services who chose to begin capturing this data firstly consult with their local Safety and Quality Officers and Human Research Ethics Committee to ensure any local data collection of this minimum dataset adheres with local quality improvement and research procedures.

DFA has created an example of a one-page data collection form designed to capture all data items contained in the Minimum Dataset to assist services in their local settings. Services are welcome to use or adapt this example as long as they obtain permission from DFA in writing via email and retain the DFA logo. Please see the *Example: Australian Diabetic Foot Ulcer Minimum Dataset – Data Collection Form* in Appendix 2.

Please note DFA is investigating a number of options to establish a future *Australian DFU Minimum Registry Database* on behalf of the Australian DFU community. DFA envisions such a database will enable services the opportunity to be able to collect local minimum data using a standard national database system such as a web-based data collection form. Such a database system would allow Australian services to pool their local data into a national database and in turn enable the capture and analysis of both local and national DFU KPAs.

Can users capture more than the minimum dataset?

Australian services that collect DFU data are strongly encouraged to align their data items with the minimum dataset items and definitions contained in this document. Once services have incorporated the minimum dataset items they are welcome to collect additional items to suit their local needs. DFA will consider developing an Australian *Diabetic Foot Ulcer Full Dataset* in future, as a menu of all evidence-based data item options available, following the launch of the *Australian Diabetic Foot Ulcer Minimum Dataset Dictionary.*

The minimum dataset dictionary

Demographic Items

The demographic data items contained in this dataset relate to the patient attending the service. They are consistent with most METeOR data set specifications and include the following items:

1. Person identifier
2. Date of birth
3. Gender
4. Postcode
5. Indigenous status

1. Person identifier

Metadata item type	**Data Element**
Official METeOR name	Person – person identifier
Short METeOR name	Person identifier
Synonymous names	Patient code; participant code; medical record number; study code
METeOR identifier	290046
METeOR registration status	Health, Standard 04/05/2005; National Health Performance Authority, Standard 28/05/2014
Definition	Person identifier unique within an establishment or agency. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/290046
Values	Class: Identifier String String XXXXXX[X(14)] Example 631072
Relation to KPAs	This data item should be used for all five KPAs. This data item allows for the longitudinal identification of a unique patient for all service contacts from their initial visit to service discharge. This should be used for the purposes of longitudinal monitoring of specific KPIs and linking to hospitalisation datasets if ethically appropriate.

2. Date of Birth

Metadata item type	**Data Element**
Official METeOR name	Person – date of birth
Short METeOR name	Date of birth
Synonymous names	Age
METeOR identifier	287007
METeOR registration status	Health, Standard 04/05/2005; National Health Performance Authority, Standard 07/11/2013
Definition	The date of birth of the person, expressed as DDMMYYYY. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/287007
Values	Class Date Date DDMMYYYY Example 01041960
Relation to KPAs	This data item can be used for all five KPAs. This data item allows for the identification of a patient's age at the date of service contact for demographic grouping. This should be used for the purposes of stratifying specific KPIs according to age.

3. Gender

Metadata item type	**Data Element**
Official METeOR name	Person – sex
Short METeOR name	Sex
Synonymous names	Sex
METeOR identifier	287316
METeOR registration status	Health, Standard 04/05/2005; National Health Performance Authority, Standard 07/11/2013
Definition	The biological distinction between male and female, as represented by a code. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/287316 Please note: "The Australian Government is primarily concerned with a person's identity and social footprint. As such, the preferred approach is for Australian Government departments to collect gender information. Information regarding a person's sex would not ordinarily be required" https://www.ag.gov.au/Publications/Pages/AustralianGovernmentGuidelinesontheRecognitionofSexandGender.aspx
Values	Class: Code Number *Code Value* *Meaning* 1 Male 2 Female 3 Intersex or indeterminate 9 Not stated/inadequately described
Relation to KPAs	This data item can be used for all five KPAs. This data item allows for the identification of a patient's gender at the date of service contact for demographic grouping. This should be used for the purposes of stratifying specific KPIs according to gender.

4. Postcode

Metadata item type	**Data Element**
Official METeOR name	Address – Australian postcode
Short METeOR name	Postcode
Synonymous names	N/A
METeOR identifier	429894
METeOR registration status	Health, Standard 07/12/2011; National Health Performance Authority, Standard 09/08/2013
Definition	The Australian numeric descriptor for a postal delivery area for an address (for the person's usual residence). For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/429894
Values	Class: Code Number Code XXXX Example 4031
Relation to KPAs	This data item can be used for all five KPAs. This data item allows for the identification of a patient's socioeconomic status and geographical remoteness at the date of service contact for demographic grouping. Postcode is used to link to ABS data for average socioeconomic status (IRSD) [19] and geographic remoteness (ARIA) scores [20]. This should be used for the purposes of stratifying specific KPIs according to socioeconomic status and geographical remoteness.

5. Indigenous status

Metadata item type	**Data Element**
Official METeOR name	Person – indigenous status
Short METeOR name	Indigenous status
Synonymous names	N/A
METeOR identifier	291036
METeOR registration status	Health, Superseded 19/11/2015; Indigenous, Endorsed 11/09/2012
Definition	Whether a person identifies as being of Aboriginal or Torres Strait Islander origin, as represented by a code. This is in accord with the first two of three components of the Commonwealth definition. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/291036

Values

Class:	Code Number
Code Value	*Meaning*
1	Aboriginal but not Torres Strait Islander origin
2	Torres Strait Islander but not Aboriginal origin
3	Both Aboriginal and Torres Strait Islander origin
4	Neither Aboriginal nor Torres Strait Islander origin
9	Not stated/inadequately described

Relation to KPAs	This data item can be used for all five KPAs. This data item allows for the identification of a patient's indigenous status at the date of service contact for demographic grouping. This should be used for the purposes of stratifying specific KPIs according to indigenous status.

Service Items

The service items contained in this dataset relate to the service that the patient with a foot ulcer is consulting on the day of treatment. These service data items are consistent with most METeOR data set specifications and include the following items:

6. Organisation (service) identifier
7. Service referral received date
8. Service contact date
9. Initial visit to service status

Please note the service referral received date is only completed once at the service for each new referral for the treatment of a patient with a DFU. However, a patient may be referred several times to the same DFU service over time for different episodes of DFU care.

6. Organisation (service) identifier

Metadata item type	**Data Element**
Official METeOR name	Healthcare provider – organisation identifier
Short METeOR name	Site Code; Service Code
Synonymous names	N/A
METeOR identifier	426830
METeOR registration status	Health, Standard 03/12/2011
Definition	The Healthcare provider identifier—organisation (HPI-O) is the numerical identifier that uniquely identifies organisations in Australia where healthcare is provided. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/290046
Values	Healthcare provider – organisation identifier Class: Identifier Number Number XXXXXX[X(16)] Example 632156
Relation to KPAs	This data item should be used for all five KPAs. This data item allows for the longitudinal identification of a unique service's collective patient contacts. This should be used for the purposes of longitudinal monitoring of a service's specific KPIs and linking to hospitalisation datasets if ethically appropriate.

7. Service referral received date

Metadata item type	**Data Element**
Official METeOR name	Health service event—service request received date
Short METeOR name	Health service request received date
Synonymous names	Date referral received; Date referred
METeOR identifier	447938
METeOR registration status	Health, Standard 07/12/2011
Definition	The date on which a request (referral) for assessment, care, consultation and/or treatment is received by the health care provider (DFU service), expressed as DDMMYYYY. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/447938 . Only complete this item if this is the person's Initial Visit.
Values	Class Date Date DDMMYYYY Example 01042016
Relation to KPAs	This data item should be used for KPA: A: Access to services

8. Service contact date

Metadata item type	**Data Element**
Official METeOR name	Service contact – Service contact date
Short METeOR name	Service contact date
Synonymous names	Date of consult; Date of visit
METeOR identifier	270122
METeOR registration status	Health, Standard 01/03/2005; National Health Performance Authority, Standard 09/08/2013
Definition	The date of service contact between a health service provider and patient/client. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/270122
Values	Class Date Date DDMMYYYY Example 14042016
Relation to KPAs	Required to identify the period of time a patient was admitted to the service. This data item should be used for all five KPAs. This data item allows for the identification of the date of all service contacts for a patient from their initial visit to service discharge. This should be used in conjunction with other data items for the purposes of longitudinal monitoring of specific KPIs.

9. Initial visit to service status

Metadata item type	Data Element
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Initial visit; initial consultation
METeOR identifier	TBC. Pre-Proposed (Based on 302470)
METeOR registration status	TBC. Pre-Proposed
Definition	Whether the persons visit to this service is the initial (first) visit (consultation) for a diabetes-related foot ulcer under the current service referral (see Data Item 7), as represented by a code. Please note an initial visit will typically occur with each new referral for a new diabetes-related foot ulcer.
Values	Class: Code Number *Code Value* *Meaning* 1 Yes 2 No 9 Not stated/inadequately described
Relation to KPAs	This data item should be used for the KPAs A: Access to services and D:DFU Healing

History Items

The history data items contained in this dataset relate to the medical and foot history of the patient with a foot ulcer on the day of treatment at the service. They are consistent with the METeOR Diabetes data set specifications and include the following items:

10. Diabetes mellitus
11. Foot ulcer history
12. Lower limb amputation history

10. Diabetes mellitus

Metadata item type	**Data Element**
Official METeOR name	Person – Diabetes mellitus status
Short METeOR name	Diabetes status
Synonymous names	Diabetes history; Type of diabetes
METeOR identifier	270194
METeOR registration status	Health, Standard 01/03/2005; Indigenous, Endorsed 13/03/2015
Definition	Whether a person has or is at risk of diabetes, as represented by a code. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/270194

Values

Class:	Code Number
Code Value	*Meaning*
1	Type 1 diabetes
2	Type 2 diabetes
3	Gestational diabetes mellitus (GDM)
4	Other (secondary diabetes)
5	Previous gestational diabetes mellitus (GDM)
6	Impaired fasting glucose (IFG)
7	Impaired glucose tolerance (IGT)
8	Not diagnosed with diabetes
9	Not assessed
99	Not stated/inadequately described

Relation to KPAs

This data item can be used for all five KPAs. This data item allows for the identification of a patient's diabetes type at the date of service contact for medical history grouping. This should be used for the purposes of stratifying specific KPIs according to diabetes type.

11. Foot ulcer history

Metadata item type	**Data Element**
Official METeOR name	Person – Foot ulcer indicator
Short METeOR name	Foot ulcer (history)
Synonymous names	Past Foot ulcer; Previous foot ulcer; Foot wound history
METeOR identifier	302819
METeOR registration status	Health, Standard 21/09/2005
Definition	Whether person has a previous history of (a healed) ulceration on either foot, as represented by a code. For more detailed definition information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/302819 . Please also note preferred detailed definitions from the International Working Group on the Diabetic Foot (IWGDF) [1] http://iwgdf.org/guidelines/definitions-criteria-2015/: ○ A foot ulcer: "full thickness lesion of the skin of the foot … in people with diabetes" ○ A healed foot ulcer: "intact skin, meaning complete epithelization of a previously ulcerated site"
Values	Class: Code Number *Code Value* *Meaning* 1 Yes 2 No 9 Not stated/inadequately described
Relation to KPAs	This data item can be used for all five KPAs. This data item allows for the identification of a patient's foot ulcer history type at the date of service contact for medical history grouping. This should be used for the purposes of stratifying specific KPIs according to foot ulcer history.

12. Lower limb amputation history

Metadata item type	**Data Element**
Official METeOR name	Person – Lower limb amputation due to vascular disease
Short METeOR name	Lower limb amputation
Synonymous names	Past amputations; Previous amputation; Amputation history
METeOR identifier	270162
METeOR registration status	Health, Standard 01/03/2005
Definition	Amputation: “resection of a segment of a limb through a bone” Whether a person has undergone an amputation of toe, forefoot or leg as represented by a code. For more detailed information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/270162 Minor amputation: through or distal of the disarticulation of the ankle. Major amputation: proximal of the ankle. Please also note preferred detailed definitions from the IWGDF [1] http://iwgdf.org/guidelines/definitions-criteria-2015/

Values

Class:	Code Number
Code Value	*Meaning*
1	Lower limb amputation - occurred in the last 12 months
2	Lower limb amputation - occurred prior to the last 12 months
3	Lower limb amputation - occurred both in and prior to the last 12 months
4	No history of lower limb amputation
9	Not stated/inadequately described

Relation to KPAs

This data item can be used for KPA
E: DFU Hospitalisation.

This data item can also be used for all five KPAs. This data item allows for the identification of a patient’s lower limb amputation history type at the date of service contact for medical history grouping. This should be used for the purposes of stratifying specific KPIs according to lower limb amputation history.

Assessment Items

The assessment data items contained in this dataset relate to the minimum evidence-based assessments necessary to properly assess a patient's foot ulcer at each DFU service consultation. The assessment items have been ordered to align with the IWGDF PEDIS (Perfusion Extent Depth Infection Sensation) algorithm [21].

Furthermore, the five assessment items allow for the capture and reporting of the majority of validated internationally-recognised and used DFU composite grading systems, including PEDIS [21], WIfI (Wound Ischaemia foot Infection) [22] and UTWCS (University of Texas Wound Classification System) [23]. These assessment items are not contained in METeOR but are contained in the (inter)national DFU guidelines [12-17]. The assessment items include:

13. P erfusion (Ischaemia)
14. E xtent/size of foot ulcer
15. D epth of foot ulcer
16. I nfection of foot ulcer
17. S ensation (Peripheral Neuropathy) [21]

Please note: If the patient has multiple DFUs then the value for each assessment item should be that of the worst DFU. For example if one patient has a DFU on their right foot that is not infected and another DFU on their left foot that is mildly infected then a mild infection would be recorded.

Please note: The links to the full texts of these (inter)national DFU guidelines [12-17] and DFU grading systems [21-23] are available from the references section of this document.

13. Perfusion (Ischaemia)

Metadata item type	**Data Element**
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Ischaemia grade; Peripheral artery disease grade; Peripheral vascular disease grade
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	Whether a person has nil, mild, moderate or severe ischaemia present, as represented by a code. Please note preferred detailed definitions from the Society for Vascular Surgery (SVS) WIfI classification system [14, 22]: ○ No Ischaemia: "Toe systolic Pressure (TP) >60mmHg, Ankle Brachial Index (ABI) >0.8 or Ankle systolic pressure (AP) >100mmHg" ○ Mild Ischaemia: "TP 40-59mmHg, ABI = 0.6-0.79 or AP = 70-100mmHg" ○ Moderate Ischaemia: "TP 30-39mmHg, ABI = 0.4-0.59 or AP = 50-70mmHg" ○ Severe Ischaemia: "TP <30mmHg, ABI <0.39 or AP <50mmHg" Please also note: "toe pressures are preferred in patients with diabetes mellitus or the elderly, when ABI measurements may be falsely elevated because of medial calcinosis" [14, 22].
Values	Class: Code Number *Code Value* *Meaning* 0 No ischaemia 1 Mild ischaemia 2 Moderate ischaemia 3 Severe ischaemia 9 Not stated/inadequately described

Relation to KPAs

This data item should be used for the KPA:
B: DFU assessment

This data item can also be used for all five KPAs. This data item allows for the identification of a patient's perfusion status and if used in combination with other assessment data items can grade DFU type. This should be used for the purposes of stratifying specific KPIs according to foot ulcer type.

14. Extent/size of foot ulcer

Metadata item type	Data Element
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Foot ulcer extent; foot ulcer surface area
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	The wound size determined after any debridement on a person with foot ulcer(s), as measured in square centimetres. Please note preferred detailed definitions from the IWGDF PEDIS system [21]: Foot ulcer extent/size: "the outer border of the ulcer should be measured from the intact skin surrounding the ulcer. If wound healing is one of the end-points in a study, tracing of the wound, planimetry or the grid technique should be used for sequential measurements of the wound area. If on the other hand, wound size is measured only at the time of recruitment into a study and intact skin is the primary end-point, the surface area can also be estimated by multiplying the largest diameter by the second largest diameter measured perpendicular to the first diameter." Please note services should consistently use only one of the methods to measure wounds size above for each patient. If a patient has multiple foot ulcers the wound size of each foot ulcer should be added together for the purposes of this Data Item.
Values	Class: Identifier String String XXXX Example 0003
Relation to KPAs	This data item should be used for the KPA: B: DFU assessment This data item can also be used for all five KPAs. This data item allows for the identification of a patient's foot ulcer size status and if used in combination with other assessment data items can grade DFU type. This should be used for the purposes of stratifying specific KPIs according to foot ulcer type.

15. Depth of foot ulcer

Metadata item type	**Data Element**
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Ulcer depth grade, wound depth grade
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	Whether a person has no, superficial, deep or extensive foot ulcer depth present, as represented by a code. Please note preferred detailed definitions from the IWGDF PEDIS system [21] and SVS WIfI system [22]: ○ No ulcer: "no wound on foot" ○ Superficial ulcer: "full-thickness ulcer, not penetrating to any structure deeper than the dermis: ○ Deep ulcer: "penetrating below the dermis to subcutaneous structures, involving fascia, muscle or tendon" ○ Extensive ulcer: "all subsequent layers of the foot involved, including bone and/or joint (exposed bone, probing to bone)"
Values	Class: Code Number *Code Value* *Meaning* 0 No ulcer 1 Superficial ulcer 2 Deep ulcer 3 Extensive ulcer 9 Not stated/inadequately described
Relation to KPAs	This data item should be used for the KPAs: B: DFU assessment and D: DFU healing This data item can also be used for all five KPAs. This data item allows for the identification of a patient's foot ulcer depth status and if used in combination with other assessment data items can grade DFU type. This should be used for the purposes of stratifying specific KPIs according to foot ulcer type.

16. Infection of foot ulcer

Metadata item type	**Data Element**
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Infection grade
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	Whether a person has nil, mild, moderate or severe foot infection present, as represented by a code. Please note preferred detailed definitions from the IWGDF classification of infection [15, 21] and SVS WIfI [22]: ○ No infection: "no symptoms or signs of infection" ○ Mild infection: "infection involving the skin and subcutaneous tissue only. At least two of the following items are present: ○ Erythema around the ulcer = 0.5-2cm" ○ Local swelling or induration ○ Local tenderness or pain ○ Local warmth ○ Purulent discharge (thick, opaque to white or sanguineous secretion)" ○ Moderate infection: "Erythema around the ulcer >2cm, plus one of the items described above (swelling, tenderness, warmth, discharge); OR infection involving structures deeper than skin and subcutaneous tissues such as abscess, osteomyelitis, septic arthritics, fasciitis. No systemic inflammatory response signs: ○ Severe infection: "any foot infection with the following signs of a systemic inflammatory response syndrome. This response syndrome is manifested by two or more of the following conditions: ○ Temperature < 38°C or < 36°C ○ Heart rate > 90 beats per minute ○ Respiratory rate > 20 breaths per minute or PaCO2 < 32mmHg ○ White blood cell count > 12,000 cu/mm or <4,000 cu/mm or 10% immature (band) forms"

Values

Class:	Code Number
Code Value	*Meaning*
0	No infection
1	Mild infection
2	Moderate infection
3	Severe infection
9	Not stated/inadequately described

Relation to KPAs

This data item should be used for the KPA:
B: DFU assessment and C: DFU management

This data item can also be used for all five KPAs. This data item allows for the identification of a patient's foot ulcer infection status and if used in combination with other assessment data items can grade DFU type. This should be used for the purposes of stratifying specific KPIs according to foot ulcer type.

17. Sensation (Peripheral neuropathy)

Metadata item type	**Data Element**
Official METeOR name	Person – peripheral neuropathy indicator
Short METeOR name	Peripheral neuropathy (status)
Synonymous names	Peripheral neuropathy grade; Sensation; Loss of protective sensation
METeOR identifier	302457
METeOR registration status	Health, Standard 01/03/2005; Indigenous, Endorsed 13/03/2015
Definition	Whether peripheral neuropathy (or loss of protective sensation) is present, as represented by a code. For more detailed information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/302457 Please also note preferred detailed definitions from the IWGDF [21,24]: ○ Loss of protective sensation: "the absence of perception of one of the following tests in the affected foot: ○ Absent pressure sensation, determined with a 10-gram monofilament, on two out of three sites on the plantar side of the foot ○ Absent vibration sensation (determined with a 128-Hz tuning fork) or vibration threshold >25 V (using semi-quantitative techniques), both tested on the hallux".
Values	Class: Code Number *Code Value* *Meaning* 1 Yes; the person has a loss of protective sensation 2 No; the person does not have a loss of protective sensation 9 Not stated/inadequately described
Relation to KPAs	This data item should be used for the KPA: B: DFU assessment This data item can also be used for all five KPAs. This data item allows for the identification of a patient's sensations status and if used in combination with other assessment data items can grade DFU type. This should be used for the purposes of stratifying specific KPIs according to foot ulcer type.

Management Items

The management data items contained in this dataset relate to the management items with the best level of evidence according to (inter)national DFU guidelines to heal a DFU [12-17]. Furthermore, the four management items allow for the interaction of items to capture and report combined management performed. These management items are not contained in the METeOR but are contained in the (inter)national DFU guidelines [12-17] and include the following items:

18. Multi-disciplinary input for foot ulcer
19. Offloading interventions for foot ulcers
20. Antimicrobial therapy for foot ulcer infection
21. Hospitalisation for foot ulcer

Please note: The links to the full texts of these (inter)national DFU guidelines [12-17] are available from the references section of this document.

18. Multi-disciplinary input for foot ulcer

Metadata item type	Data Element
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Multi-disciplinary team members; multi-disciplinary foot care
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	Whether a person with a foot ulcer is seeing multiple different disciplines, for management related to their foot ulcer, during this service consultation or since the last service consultation (maximum of 2 weeks prior to this service consultation), as represented by a code. Please note preferred definitions from the NHMRC Prevention, Identification and Management of Foot Complications in Diabetes [17]: ○ Best-practice management of diabetes-related foot ulceration: "requires coordinated and expert multi-disciplinary input in both the inpatient and outpatient settings" ○ Multi-disciplinary teams: "consist of medical, surgical, podiatry and allied health professionals – with the appropriate skills and knowledge needed to manage this group of individuals. Some multi-disciplinary teams also include an infectious disease specialist or microbiologist" Please Note: Record a code sequentially for each health professional attended [For example if a person attended an Endocrinologist, Vascular Surgeon, Podiatrist during this service consultation and a Pedorthist and Aboriginal Health Worker since the last service consultation then code: 1,2,4,5,7] For more detailed definitions of Health Practitioners please refer to the Australian Health Practitioner Regulation Agency website: https://www.ahpra.gov.au/

Values	Class:	Code Number
	Code Value	*Meaning*
	1	Medical health practitioner
	2	Surgical health practitioner
	3	Nursing health practitioner
	4	Podiatry health practitioner
	5	Allied health practitioner
	6	Infectious disease specialist or microbiologist
	7	Other health practitioner
	9	Not stated/inadequately described
Relation to KPAs	This data item should be used for KPA: C: DFU management	

19. Offloading interventions for foot ulcer

Metadata item type	Data Element
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Offloading pressure; offloading device
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	Whether a person with a foot ulcer has been currently using or is being prescribed an offloading intervention to heal their foot ulcer, as represented by a code Please note preferred detailed definitions from the IWGDF Guidance on footwear and offloading [13]: ○ Non-removable knee-high device: includes “both Total Contact Casts (TCCs) and prefabricated knee-high walkers rendered irremovable (instant Total Contact Casts (iTCCs))” ○ Removable knee-high device: “prefabricated removable knee-high walker” ○ Removable ankle-high device: includes “prefabricated removable ankle-high walker, forefoot offloading shoe, cast shoe or custom-made temporary shoe” ○ Therapeutic footwear: includes “custom-made shoes, extra-depth shoes, custom-made insoles or orthosis” ○ Surgical offloading: includes “Achilles tendon lengthening, joint arthroplasty, single or pan metatarsal head resection, osteotomy or digital flexor tenotomy” ○ Other offloading interventions: includes “felted foam, appropriate footwear”. Please Note: Record a code sequentially for each option chosen for offloading interventions. For example, if a person is currently using a non-removable knee-high device for their right foot and therapeutic footwear for their left foot, then code: 1, 4.

Values	Class:	Code Number
	Code Value	*Meaning*
	0	No offloading intervention (from those defined above)
	1	Non-removable knee-high device
	2	Removable knee-high device
	3	Removable ankle-high device
	4	Therapeutic footwear
	5	Surgical offloading
	6	Other offloading intervention
	9	Not stated/inadequately described
Relation to KPAs	This data item should be used for KPA: C: DFU management	

20. Antimicrobial therapy for foot ulcer infection

Metadata item type	Data Element
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Antibiotic treatment; Infection treatment
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	Whether a person is currently receiving or is being prescribed antimicrobial therapy for the treatment of a clinically infected foot ulcer (See Data Item 16), as represented by a code. Please note preferred detailed definitions from the IWGDF Guidance on the diagnosis and management of foot infections in persons with diabetes [15]. Please Note: Record a code sequentially for each option chosen for antimicrobial therapy [For example if a person is currently receiving oral antimicrobial therapy and outpatient parenteral antimicrobial therapy, then code: 1, 2]. For more detailed prescription information please refer to Therapeutic Guidelines (Australia), *Antibiotic version 15 (2014): Diabetic Foot Infection* [25].
Values	Class: Code Number *Code Value* *Meaning* 0 No antimicrobial therapy 1 Oral antimicrobial therapy 2 Outpatient parenteral antimicrobial therapy 3 Inpatient parenteral antimicrobial therapy 9 Not stated/inadequately described
Relation to KPAs	This data item should be used for KPA: C: DFU management

21. Hospitalisation for foot ulcer

Metadata item type	Data Element
Official METeOR name	TBC. Pre-Proposed
Short METeOR name	TBC. Pre-Proposed
Synonymous names	Admission;
METeOR identifier	TBC. Pre-Proposed
METeOR registration status	TBC. Pre-Proposed
Definition	Whether the person had to be hospitalised overnight(s) for the principal or additional reason(s) of foot ulcer management since the previous service consultation, as represented by a code. Please Note: Record a code sequentially for each reason for hospitalisation. For example if a person was discharged from hospital for foot ulcer management since the last service consultation and received antimicrobial therapy, revascularisation, minor amputation procedure, then major amputation, and then Hospital-in-the-Home, then code: 1, 2, 4, 5, 7.

Values

Class:	Code Number
Code Value	*Meaning*
0	Not hospitalised
1	Hospitalised for antimicrobial therapy (See Data Item 20 for definitions)
2	Hospitalised for revascularisation
3	Hospitalised for surgical debridement
4	Hospitalised for minor amputation procedure (See Data Item 12 for definitions: below ankle procedure)
5	Hospitalised for major amputation procedure (See Data Item 12 for definitions: above ankle procedure)
6	Hospitalised for surgical offloading procedure (See Data Item 19 for definitions)
7	Hospital-in-the-Home
8	Hospitalised for other procedures/investigations
9	Not stated/inadequately described

Relation to KPAs

This data item should be used for KPA:
E: DFU hospitalisation

Discharge Item

The discharge data item contained in this dataset relates to the DFU service that the patient with a foot ulcer is consulting on the day of treatment. The item is consistent with most METeOR data set specifications and includes the following item:

22. Service discharge

Please note a patient can have a DFU(s) heal several times and therefore can be discharged from a service several times. However, each time a patient is discharged from the current referral it ends their current episode of DFU care. Therefore, they should require a new DFU referral to return to this DFU service and record a new service referral received date and initial visit.

22. Service discharge

Metadata item type	Data Element
Official METeOR name	Episode of admitted patient care – separation mode
Short METeOR name	Mode of separation
Synonymous names	Discharge destination
METeOR identifier	270094 or Pre-Proposed
METeOR registration status	Health, Standard 01/03/2005 Commonwealth Department of Health, Candidate 16/07/2015
Definition	Status at separation of the person (discharge/transfer/death) (from the service) and place to which person is released (from the current referral), as represented by a code. For more detailed information please visit: http://meteor.aihw.gov.au/content/index.phtml/itemId/270094 Please note: Separation in this instance relates to the current episode of care and the service that will primarily manage the person's foot ulcer. Therefore, the patient will be receiving their primary foot care elsewhere unless another referral is made back to this service.

Values

Class:	Code Number
Code Value	*Meaning*
0	Not discharged/transferred/death
1	Discharge/transfer to (an)other acute hospital
2	Discharged to a residential aged care service
3	Discharge/transfer to palliative care
4	Discharge/transfer to (an)other (diabetic foot service) health care accommodation
5	Discharged as healed (to foot protection team)
6	Left against medical advice/discharge at own risk
7	Discharged/transfer to other health care providers (non-diabetic foot service)
8	Died
9	Other

Relation to KPAs	This data item can be used for KPA: D: DFU healing

This data item is very useful to determine the % patients who left the service without healing.

Please see the section ‘Key Performance Areas’ for further information.

Please note: this data item denotes the date (Data Item 7) of discharge from the service (Code Value 1, 2, 3, 4, 5 ,6 , 7, 8 or 9). Therefore, a new referral would be required for the patient to re-enter the DFU service and start a new episode of care and KPAs for this patient.

Key Performance Areas

DFA recommends services use the minimum data collected on all their DFU patients to calculate, analyse and report their DFU Key Performance Areas (KPA) for at least each 6 month period. As a starting point DFA recommends the formulas provided on the following pages using the data items contained in this minimum dataset to calculate specific Key Performance Indicators (KPIs) for each DFU KPA.

All suggested specific KPIs are based on those demonstrated in the literature to predict or analyse evidence-based process and outcomes of DFU services [1-11]. DFA recommends services analyse and report at least one of the specific KPIs for each KPA. Services may also choose to analyse their KPIs by stratifying according to demographic (e.g. age group, sex), history (e.g. diabetes type, foot ulcer history) or assessment (ulcer grade) items (e.g. ischaemia grade, depth grade).

A: Access to services

This key performance area indicates the time needed to access DFU services. The recommended specific KPI for this KPA is the “mean time to access DFU service for all new patients”.

One of the major objectives of any DFU service is to provide access to patients with a DFU to evidence-based services as quickly as possible. This KPA aims to determine how long it takes on average for a patient with a DFU to access a DFU service once the service is aware of a new referral. The recommended formula for this specific KPI for each patient is:

No.	Patient	Unit	End Date	Start Date	Formula
A1	Time to access DFU service	Days or Weeks	Date of service (Data Item 8) of the initial visit (Data Item 9: Option 1)	Date of Service Referral Received (Data Item 7)	= End date – Start date

B: DFU assessment

This key performance area indicates the evidence-based DFU assessments taken place during the clinical process. The recommended specific KPIs for this KPA are the assessment of perfusion, ulcer size, ulcer depth, presence of infection, sensation and percentage of complete assessment according to PEDIS.

One of the major objectives of any DFU service is to assess their patients with a DFU using evidence-based assessment strategies. This KPA aims to determine the proportion of patients with a DFU that are receiving evidence-based assessments from the DFU service. The recommended formula for these specific KPIs for each patient are:

No.	Patient KPI	Unit	Numerator	Denominator	Formula
B1	Perfusion assessed*	%	Minimum of one perfusion item completed with a valid code in the last 12 months per patient (Data Item 13)**	Number of unique patients (Data Item 1)	= (Numerator / Denominator) x 100%
B2	Extent/size foot ulcer assessed	%	Number of extent/size items completed with a valid code (Data Item 14)**	Number of services completed (Data Item 8)	= (Numerator / Denominator) x 100%
B3	Depth foot ulcer assessed	%	Number of depth items completed with a valid code (Data Item 15)**	Number of services completed (Data Item 8)	= (Numerator / Denominator) x 100%
B4	Infection foot ulcer assessed	%	Number of Infection items completed with a valid code (Data Item 16)**	Number of services completed (Data Item 8)	= (Numerator / Denominator) x 100%
B5	Sensation assessed*	%	Minimum of one sensation items completed with a valid code in the last 12 months per patient (Data Item 17)**	Number of unique patients (Data Item 1)	= (Numerator / Denominator) x 100%

* Perfusion and sensation need to be assessed a minimum of once per year. Both can also be calculated similar to B2-B4, as number of items completed per service visit. **Please note the code “9 Not stated / inadequately described” is not a valid code.

C: DFU management

This key performance area indicates the evidence-based DFU managements taken place during the clinical process. The recommended specific KPIs for this KPA are provision of multidisciplinary input, provision of gold standard offloading and antimicrobial therapy, and the percentage of complete management received by all patients.

One of the major objectives of any DFU service is to manage their patients using evidence-based management strategies. This KPA aims to determine the proportion of patients with a DFU that are receiving evidence-based management from the DFU service. The recommended formula for these specific KPIs for each patient are:

No	Patient KPI	Unit	Numerator	Denominator	Formula
C1	Multi-disciplinary input	%	Number of services recording input from 2+ disciplines (Data Item 18: Code Value 1, 2, 3, 4, 5 &/or 6)	Number of services completed (Data Item 8)	= (Numerator / Denominator) x 100%
C2	Gold standard offloading	%	Number of services (Data Item 8) when an active foot ulcer was registered (Data Item 15: Code Value 1, 2, 3 or 9)recording use of non-removable knee-high device (Data Item 19: Code Value 1)	Number of services (Data Item 8) registering an active foot ulcer (Data Item 15: Code Value 1, 2, 3 or 9)	= (Numerator / Denominator) x 100%
C3	Antimicrobial therapy for infection	%	Number of services (Data Item 8) when a clinical infection was registered (Data Item 16: Code Value 1, 2 or 3) recording use of oral or parenteral antimicrobial therapy (Data Item 20: Code Value 1, 2 or 3)	Number of services (Data Item 8) registering a clinical infection (Data Item 16: Code Value 1, 2 or 3)	= (Numerator / Denominator) x 100%

D: DFU healing

This key performance area indicates the outcomes reached with regard to ulcer healing. The recommended specific KPIs for this KPA are the mean time to healing, the median time to healing, and the percentage of patients with a healed ulcer within 12 and 24 weeks from initial visit.

One of the major objectives of any DFU service is to heal their patient's DFU(s) as quickly as possible. This KPA aims to determine the average healing times, or proportion of patients healed at a certain time-point. The recommended formula for these specific KPIs for each patient is:

No.	Specific KPI	Unit	End Date	Start Date	Formula
D1	Mean time to DFU healing	Days or Weeks	Date of first service (Data Item 8) recording no foot ulcer (Data Item 15: Code Value 0)	Date of service (Data Item 8) of an initial visit (Data Item 9: Code Value 1) with foot ulcer (Data Item 15: Code Value 1, 2 or 3)	= End date – Start date

E: DFU hospitalisation

This key performance area indicates the outcomes reached with regard to hospitalization. The recommended specific KPIs for this KPA are the percentage of patients hospitalized and the percentage of patients having an amputation procedure.

One of the major objectives of any DFU service is to prevent their patients with a DFU from needing hospitalisation or an amputation. This KPA aims to determine if a patient with a DFU needs hospitalisation or amputation during their episode of DFU care. The recommended formula for these specific KPIs for each patient are:

No.	Specific KPI	Unit	Numerator	Denominator	Formula
E1	Hospitalisation for DFU	%	Number of unique patients (Data Item 1) with one or more services (Data Item 8) recording hospitalisation for a foot ulcer (Data Item 21: Code Value 1-8) in a specified 12 months period	Total number of unique individuals (Data Item 1) with one or more services in the same 12 month period	= (Numerator / Denominator) x 100%
E2	Amputation for DFU	%	Number of unique patients (Data Item 1) with one or more services (Data Item 8) recording an amputation (Data Item 21: Code Value 4, 5) in a specified 12 months period*	Total number of unique individuals (Data Item 1) with one or more services in the same 12 month period	= (Numerator / Denominator) x 100%

* Separate reporting of minor (Data Item 21: Code Value 4) and major (Data Item 21: Code Value 5) is also possible

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Australian organisations

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Advanced Practicing Podiatrists High Risk Foot Group

Australasian Podiatry Council

Australasian Society for Infectious Diseases

Australian Diabetes Society

Diabetes Australia

Monash Health

New South Wales Agency for Clinical Innovation

Queensland Statewide Diabetes Clinical Network

The Freemantle Hospital

The Queen Elizabeth Hospital

The Royal Adelaide Hospital

The Royal Melbourne Hospital

The Royal Perth Hospital

The Royal Prince Alfred Hospital

Wounds Australia

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References

1. International Diabetes Federation and International Working Group on the Diabetic Foot, *Diabetes and Foot Care: Time to Act*. 2005, Brussels: IDF Communications.
2. Health & Social Care Information Centre, Public Health England, and Diabetes UK, *National Diabetes Foot care Audit (NDFA): Guidance notes for foot treatment services*, 2015: United Kingdom.
3. Holman, N., et al., *Pilot study to assess measures to be used in the prospective audit of the management of foot ulcers in people with diabetes.* Diabetic Medicine, 2015. 32(1): p. 78-84.
4. Health & Social Care Information Centre, Public Health England, and Diabetes UK, *National Diabetes Foot Care Audit Report: 2014-2015*, 2016, Diabetes UK, HQIP, HSCIC: United Kingdom.
5. Leese, G.P. and D. Stang, *When and how to audit a diabetic foot service.* Diabetes/Metabolism Research and Reviews, 2016. 32: p. 311-317.
6. Morbach, S., et al., *The German and Belgian accreditation models for diabetic foot services.* Diabetes/Metabolism Research and Reviews, 2016. 32: p. 318-325.
7. NSW Agency for Clinical Innovation, *Standards for High Risk Foot Services (HRFS) in NSW*, 2014, Chatswood: NSW.
8. Lazzarini, P.A., et al., *The Queensland high risk foot form (QHRFF) - is it a reliable and valid clinical research tool for foot disease?* Journal Of Foot And Ankle Research, 2014. 7(1): p. 7-7.
9. Lazzarini, P.A., et al., *Queensland's high risk foot database: Tracking the length and width of Queensland's foot ulcers.* Journal of Foot & Ankle Research, 2013. 6(Suppl 1): p. O21.
10. Queensland Health, *Queensland High Risk Foot Form Guideline: Statewide Diabetic Foot Working Group*, Statewide Diabetes Clinical Network, 2011, Queensland Health: Brisbane.
11. Department of Health, *High Risk Foot Model of Care*, 2010, Health Networks Branch, Department of Health, Western Australia: Perth.
12. Bus SA, Van Netten JJ, Lavery LA, Monteiro-Soares M, Rasmussen A, Jubiz Y, et al. IWGDF Guidance on the prevention of foot ulcers in at-risk patients with diabetes. Diabetes Metab Res.Rev. 2016: 32(S1): 16-24.
13. Bus SA, Armstrong DG, Van Deursen RW, Lewis J, Caravaggi CF, Cavanagh PR. IWGDF Guidance on footwear and offloading interventions to prevent and heal foot ulcers in patients with diabetes. Diabetes Metab.Res.Rev. 2016: 32(S1): 25-36.
14. Hinchliffe RJ, Brownrigg JR, Apelqvist J, Boyko EJ, Fitridge R, Mills JL, et al. IWGDF Guidance on the Diagnosis, Prognosis and Management of Peripheral Artery Disease in Patients with Foot Ulcers in Diabetes . Diabetes Metab Res Rev 2016: 32(S1): 37-44.

15. Lipsky BA, Aragón-Sánchez J, Diggle M, Embil J, Kono S, Lavery LA, et al. IWGDF Guidance on the Diagnosis and Management of Foot Infections in Persons with Diabetes. Diabetes Metab.Res.Rev. 2016: 32(S1): 45-74.
16. Game FL, Apelqvist J, A,C., Hartemann A, Hinchliffe RJ, Löndahl M, et al. IWGDF guidance on use of interventions to enhance the healing of chronic ulcers of the foot in diabetes. Diabetes Metab.Res.Rev. 2016: 32(S1): 75-83.
17. National Health & Medical Research Council (NHMRC) Guidelines, *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, Baker IDI Heart & Diabetes Institute: Melbourne. Available from: https://www.nhmrc.gov.au/guidelines-publications/di21
18. Australian Institute of Health & Welfare (AIHW). *Metadata Online Registry (METeOR)*. 2016; Available from: http://meteor.aihw.gov.au/content/index.phtml/itemId/181162 .
19. Australian Bureau of Statistics (ABS), *Information Paper: An introduction to Socio-economic Indexes for Areas (ABS Cat. No. 2039.0)*, 2006: Canberra.
20. Australian Bureau of Statistics (ABS), *Australian Standard Geographical Classification (ABS Cat No. 1216.0)*, ABS, Editor 2010, ABS: Canberra.
21. Schaper, N.C., *Diabetic foot ulcer classification system for research purposes: a progress report on criteria for including patients in research studies.* Diabetes/Metabolism Research And Reviews, 2004. 20 Suppl 1: p. S90-S95.
22. Mills, J.L., Sr., et al., *The Society for Vascular Surgery Lower Extremity Threatened Limb Classification System: risk stratification based on wound, ischemia, and foot infection (WIfI).* Journal Of Vascular Surgery, 2014. 59(1): p. 220-34.e1-2.
23. Armstrong, D.G., L.A. Lavery, and L.B. Harkless, *Validation of a diabetic wound classification system. The contribution of depth, infection, and ischemia to risk of amputation.* Diabetes Care, 1998. 21(5): p. 855-859.
24. Schaper NC, Van Netten JJ, Apelqvist J, Lipsky BA, Bakker K, on behalf of the International Working Group on the Diabetic Foot (IWGDF). Prevention and Management of Foot Problems in Diabetes: a Summary Guidance for Daily Practice 2015, based on the IWGDF Guidance Documents. Diabetes Metab Res Rev, 2016: 32(S1): 7-15.
25. Therapeutic Guidelines. *Antibiotic version 15: Skin and soft tissue infections: Diabetic foot infection*. 2014; Available from: http://www.tg.org.au/index.php?sectionid=41.

Appendices

1. **Version tracking**
2. **Disclaimer**
3. **Example: Australian Diabetic Foot Ulcer Minimum Dataset – Data Collection Form**

Appendix 1: Version tracking

Version	Who	Comment
D1.0	WMI CRC	Original AWR Data Dictionary
D1.2	WMI CRC	Removed fields not used in the DFA Minimum Dataset Add version tracking table Add numbers in headings to correspond with "DFA_MinimumDataSet_v1.0_20151111.xlsx" table
D1.3	WMI CRC	Changed version from 2.0 to 1.2 (now 1.3) to be consistent with DFA versioning. Added new terms
D1.4	DFA	Changed introduction to purpose of this document Re-arranged data item flow Added references
D1.5	DFA	Final draft incorporating consistent recommendations for improvements from stakeholders in original consultation round.
D1.6	DFA	Final version incorporating endorsements and lay-out.
1.0	DFA	Official version 1.0 published on July 13, 2016. Available at http://diabeticfootaustralia.org

Disclaimer

Diabetic Foot Australia, Wound Management Innovation CRC and Wound Management Pty Ltd have exercised due care, diligence and skill in the preparation and compilation of the Australian Diabetic Foot Ulcer Minimum Dataset, Implementation Kit and associated documents however these documents have been provided as a guide only and do not constitute professional advice. Before relying on the Australian Diabetic Foot Ulcer Minimum Dataset, Implementation Kit and associated documents, users should carefully evaluate the accuracy, currency, completeness and relevance of the documents for their purposes, and should obtain their own independent professional advice. For more information see https://diabeticfootaustralia.org/legal/

Appendix 2: Data collection form example

Demographic	
Person identifier	_ _ _ _ _ _ _ _ _ _
Date of birth	_ _ / _ _ / _ _ _ _
Gender	O Male O Female O Intersex/Indeterminate O Not stated/described
Postcode	_ _ _ _
Indigenous status	O Aboriginal O Torres Strait Islander O Both Aboriginal & Torres Strait Islander O Neither Aboriginal & Torres Strait Islander O Not stated/described
Service	
Service identifier	_ _ _ _ _ _ _ _ _ _
Service date (today)	_ _ / _ _ / _ _ _ _
Referral received date	_ _ / _ _ / _ _ _ _
Initial visit status	O No O Yes O Not stated/described
History	
Diabetes mellitus status	O No diabetes O Type 1 O Type 2 O Not assessed for diabetes O Other (secondary diabetes) O Gestational O Previous Gestational O Impaired fasting glucose O Impaired glucose tolerance O Not stated
Foot ulcer history	O No O Yes O Not stated/described
Amputation history	O No O Yes in last 12 months O Yes prior to last 12 months O Yes in & prior to last 12 months O Not stated/described
Assessment	[If multiple foot ulcers please select option that applies to the worst foot ulcer]
Perfusion (Ischaemia)	O No ischaemia O Mild O Moderate O Severe O Not stated/described
Extent/size of foot ulcer	_ _ _ _ cm^2 [If multiple foot ulcers please add the sizes of all foot ulcers together]
Depth of foot ulcer	O No ulcer O Superficial O Deep O Extensive O Not stated/described
Infection of foot ulcer	O No infection O Mild O Moderate O Severe O Not stated/described
Sensation (Neuropathy)	O No O Yes O Not stated/described
Management	[If multiple foot ulcers please select option that applies to the worst foot ulcer]
Multi-disciplinary input [multiple options allowed]	O Medical O Surgical O Nurse O Podiatrist O Other Allied Health O Infectious Diseases / Microbiologist O Other Health Practitioner O Not stated/described
Offloading interventions [multiple options allowed]	O No offloading O Non-removable knee-high device O Surgical offloading O Removable knee-high device O Removable ankle-high device O Therapeutic footwear O Other offloading O Not stated/described
Antimicrobial therapy [multiple options allowed]	O No antimicrobial therapy O Oral O Outpatient parenteral O Inpatient parenteral O Not stated/described
Hospitalisation [multiple options allowed]	O No hospitalisation O Antimicrobial therapy O Revascularisation O Surgical debridement O Surgical offloading O Hospital-in-the-Home O Minor amputation procedure O Major amputation procedure O Other procedure/investigation O Not stated/described
Discharge	
Service discharge destination [multiple options allowed]	O No discharge O Discharged as healed (to foot protection team) O Another diabetic foot service O Non-diabetic foot health care providers O Acute hospital O Palliative care O Residential aged care service O Patient discharged self at own risk O Died O Other