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Diabetic Foot Model of Care

National Clinical Programme for Diabetes
Clinical Design and Innovation, HSE

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DIABETES

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Scope	Model of Care for all adults living with diabetes in Ireland
Author	National Clinical Programme for Diabetes, HSE Please see Appendix 1 for list of working group members and contributors to this Model of Care
Final Approval date	Thursday 05th August 2021
Document Approved by	HSE Chief Clinical Officer (CCO), Clinical Forum Dr. Siobhan Ni Bhriain, National Lead integrated Care. Dr. Orlaith Reilly, National Clinical Advisory Group Lead for Chronic Disease (NCAGL), Integrated Programme for the Prevention and Management of Chronic Disease. Irish College of General Practitioners
Revision Date	2024

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Glossary of Acronyms

CHN	Community Healthcare Network
COPD	Chronic Obstructive Pulmonary Disease
CVD	Cardiovascular disease
DFU	Diabetic Foot Ulcer
FPT	Foot Protection Team
GMS	General Medical Services Scheme
GP	General Practitioner
HCP	Health Care Professional
HIPE	Hospital In-Patient Enquiry System
HSCP	Health and Social Care Professional
HSE	Health Service Executive
ICGP	Irish College of General Practitioners
ICPCD	Integrated Care Programme for the Prevention and Management of Chronic Disease
IWDGF	International Working Group on the Diabetic Foot
KPI	Key Performance Indicator
MDFT	Multidisciplinary Foot Team
MECC	Making Every Contact Count
MOC	Model of Care
NAEMS	National Adverse Event Management System
NCP	National Clinical Programme
NICE	National Institute for Health and Care Excellence
NIMS	National Incident Management System
OPD	Out-patient Department
PAD	Peripheral Arterial Disease
SRE	Serious Reportable Events
T1DM	Type 1 Diabetes Mellitus
T2DM	Type 2 Diabetes Mellitus
WTE	Whole time equivalent

1. Foreword

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The National Clinical Programme for Diabetes was established in 2010 with the overarching aim of reducing the mortality, vision loss and limb loss associated with diabetes. One of the first significant outputs from the Programme was a Diabetic Foot Model of Care published in 2011 (Health Service Executive, 2011).This called for diabetic foot screening to occur in General Practice, management of the at-risk foot to be delivered mainly by podiatrists and care of people with active foot disease to occur in hospitals. While little has changed in terms of the overall approach to management of the diabetic foot in the ensuing decade this update to the Diabetic Foot Model of Care is necessary because of significant changes across the wider health service. These changes provide a real opportunity for the Irish health service to achieve and maintain improved health outcomes and lower limb preservation. Some of these system-wide changes (or enablers) are summarised here:

- Slaintecare, the all-party 0ireachtas vision for a more community-oriented health service emphasising care closer to a person's home, is influencing thinking and encouraging excellence and innovation in integrated approaches to chronic disease management including diabetic foot care (Houses of the 0ireachtas, 2017).
- A new chronic disease management (CDM), General Practitioner (GP) Contract has been agreed and is being implemented on a phased basis over the next 4 years (Department of Health, Irish Medical Organisation, Health Service Executive, 2019). This emphasises good chronic disease management delivered in primary care and reimburses GPs for opportunistic case finding, prevention and care of people living with diabetes and its complications.The HSE chronic disease management programme for diabetes specifically incorporates a detailed foot assessment.
- The discipline of podiatry is expanding and maturing in Ireland. The School of Podiatry in the National University of Ireland Galway has been educating Podiatric Medicine healthcare professionals since 2012. These highly skilled professionals are eager to make a difference within the Irish health system. The health and social care professions regulatory body, CORU, opened a register for Podiatrists in 2021 representing another important milestone in the development of the profession in Ireland.
- Since its inception in 2013, the Diabetic RetinaScreen programme has demonstrated what can be achieved in terms of high quality, population-wide screening and treatment of a feared complication of diabetes. This programme is reducing vision loss from diabetes in Ireland. A similar whole-system, co-ordinated approach is needed to impact on limb loss from diabetes.

We would like to thank all those who have contributed to this update to the Diabetic Foot Model of Care. We hope that over the next 10 years we will come to realise the ambition and the potential for improvement in diabetic foot services set out in this document.

2. Executive Summary

Limb loss is one of the most devastating complications of diabetes (Hurley et al., 2013) and represents an enormous burden on individuals, their families and on the health and social care system in general. In addition, research has demonstrated the economic impact of diabetic foot disease and estimated that it accounts for almost 0.6% of health service expenditure (Kerr, Rayman, & Jeffcoate, 2014). Reducing the number of diabetes-related amputations is a major goal of the National Clinical Programme for Diabetes. To achieve this, those living with diabetes in Ireland need to receive the right foot care, at the right time, by the right team and in the right place.

In line with the Model of Care for the Prevention and Management of Chronic Disease (See Figure 1) (Health Service Executive, 2020), this document outlines a model of diabetic foot care which is delivered over five different levels of service (See Figure 2) with each level bringing more intensive intervention to individuals with increasing needs:

LEVEL 0: Living well with chronic disease:
Self-management support with a focus on prevention of foot complications.

LEVEL 1: General Practice:
Focus on foot screening of all those with newly diagnosed type 2 diabetes (T2DM) and annual review of those at low-risk of diabetic foot ulceration.

LEVEL 2: Community Specialist Ambulatory Care:
Foot Protection Teams will manage those who are at moderate- and high- risk of diabetic foot ulceration including shared care of those who have had prior diabetic foot ulceration (herein referred to as 'in remission').

LEVEL 3: Acute Specialist Ambulatory Care:
Multidisciplinary Foot Teams (MDFTs) are responsible for care of the person with active foot disease including shared care of those who are in-remission.

LEVEL 4: Specialist Hospital Care:
MDFTs are also involved in the care of inpatients in hospital with active foot disease.

This model of care calls for implementation of a standardised diabetic foot screening process. In line with international best practice, risk status is defined for those in the low-, moderate- and high-risk group, those in-remission and those with active foot disease. A clinical care and management plan is recommended for each category.

The management of diabetic foot disease requires a collaborative, multi-disciplinary approach involving (but not limited to) podiatrists, GPs and Practice Nurses, Consultant Endocrinologists, Diabetes Nurse Specialists, Diabetes Dietitians, Vascular and Orthopaedic Surgeons, Orthotists, Psychologists, Tissue Viability Nurses and Public Health Nurses. The importance of integrated working and good communication between all health and social care professionals (HSCPs) involved in diabetic foot care cannot be overstated.

Podiatrists, as specialists in this area, are the cornerstone of diabetic foot care delivery. To ensure successful implementation of this model of care and to make a significant positive impact on clinical outcomes, this model of care recommends a significant increase in the number of podiatrists dedicated to diabetic foot care and the implementation of robust podiatry discipline line- management and governance structures for the profession. It will also require dedicated recruitment for most of the HCP involved in the prevention and management of diabetic foot disease.

3. Rationale and Role of Model of Care

Diabetic foot disease is one of the most common, serious, feared and costly complications of diabetes (Hurley et al., 2013). In Ireland, an individual with diabetes is 22 times more likely to undergo a non-traumatic amputation than an individual without diabetes (Buckley et al., 2012). Ulceration and limb loss represent an enormous burden on individuals, their families and on the health and social care system in general. A major goal of the National Clinical Programme for Diabetes is to significantly reduce the number of diabetes related ulcers and amputations in Ireland. Research consistently shows that significant reductions in amputation rates can occur when foot care services for people with diabetes improve, including the introduction of multidisciplinary teams (Armstrong, et al., 2012; Driver, Madsen, & Goodman, 2005; Krishnan, Nash, Baker, Fowler, & Rayman, 2008). This Model of Care (MOC), which is built on the premise of multidisciplinary teamwork, outlines the principles of a high-quality foot care service.

The Diabetic Foot MOC outlined in this document details how doctors, podiatrists, nurses, and other HSCPs will work with people who have diabetes to make the clinical decisions most appropriate to their circumstances, to allow empowerment of people with diabetes to self-manage where possible and to promote collaboration with and between specialist colleagues in providing optimal care within the Irish healthcare system.

Current international guidelines recommend a comprehensive annual foot examination for all people with diabetes to identify risk status and assign an appropriate foot care pathway (American Diabetes Association, 2021; International Working Group on the Diabetic Foot, 2019; National Institute for Health and Care Excellence, 2019). This MOC sets out the care pathway for people with diabetes based on ulceration risk-status and places particular emphasis on the timely, evidence-based and integrated management of active foot disease, with the primary goal of amputation prevention.

The goal of this MOC is to prevent and reduce diabetes related ulcers and amputations. To achieve this goal, the health service needs:

- a comprehensive population-wide, primary-care based screening programme;
- additional podiatrists across our health system;
- a commitment to multidisciplinary teamwork, by all disciplines involved in the care of the diabetic foot, with podiatrists as the cornerstone of the multidisciplinary diabetic foot team;
- significant investment in professional education programmes associated with the implementation of this MOC and chronic disease including opportunities for clinical placements in level 2 and 3 services;
- a commitment to track prevalence through investment in a National Diabetes Registry and joined-up electronic clinical information systems.

In line with the Slaintecare Report (Houses of the Oireachtas, 2017) and the Slaintecare Action Plan (Department of Health, 2021), a key feature of this Model of Care is that people with diabetes get the right foot care, at the right time, by the right team and in the right place.

4. Integrated Model of Care for the Prevention and Management of Chronic Disease

Within an integrated health service, individuals receive a variety of health promotion, disease prevention, diagnosis, treatment, disease-management, rehabilitation and palliative care services that are coordinated across different providers and healthcare sites, both within and outside the health sector. Such an approach places people at the centre of care, with services planned around them according to need.

- **Slaintecare defines integrated care as:**

  "Healthcare delivered at the lowest appropriate level of complexity through a health service that is well organised and managed to enable comprehensive care pathways that patients can easily access, and service providers can easily deliver. This is a service in which communication and information support positive decision-making, governance and accountability; where patients' needs come first in driving safety, quality and the coordination of care:'

  (Houses of the Oireachtas, 2017, p.19)

There are a number of Integrated Care Programmes in operation in Ireland which aim to design, implement and embed integrated models of care that treat individuals at the lowest level of complexity appropriate to the condition in a safe, timely and efficient manner. The Integrated Care Programme for the Prevention and Management of Chronic Disease (ICPCD) focuses on improving the standard of care for four major chronic diseases that affect over one million people in Ireland: cardiovascular disease, diabetes, chronic obstructive pulmonary disease (COPD) and asthma (Health Service Executive, 2020). Underlining the need to move away from a siloed, disease-specific approach to healthcare, there are three National Clinical Programmes working closely together as part of the ICPCD, namely, National Heart Programme, National Respiratory Programme and the National Clinical Programme for Diabetes.

The Integrated Model of Care for the Prevention and Management of Chronic Disease, developed by ICPCD *(See Figure 1)* (Health Service Executive, 2020), depicts the five levels of service, and examples of each service, that need to be provided for a population in order to deliver integrated 'end-to-end' care for chronic disease.

This MOC supports people to live well within the community, with ready and equitable access to GP review, diagnostics, specialist nursing and HSCP input and other specialist opinion, as required. The focus is on keeping people well and on providing care as close to home as possible.

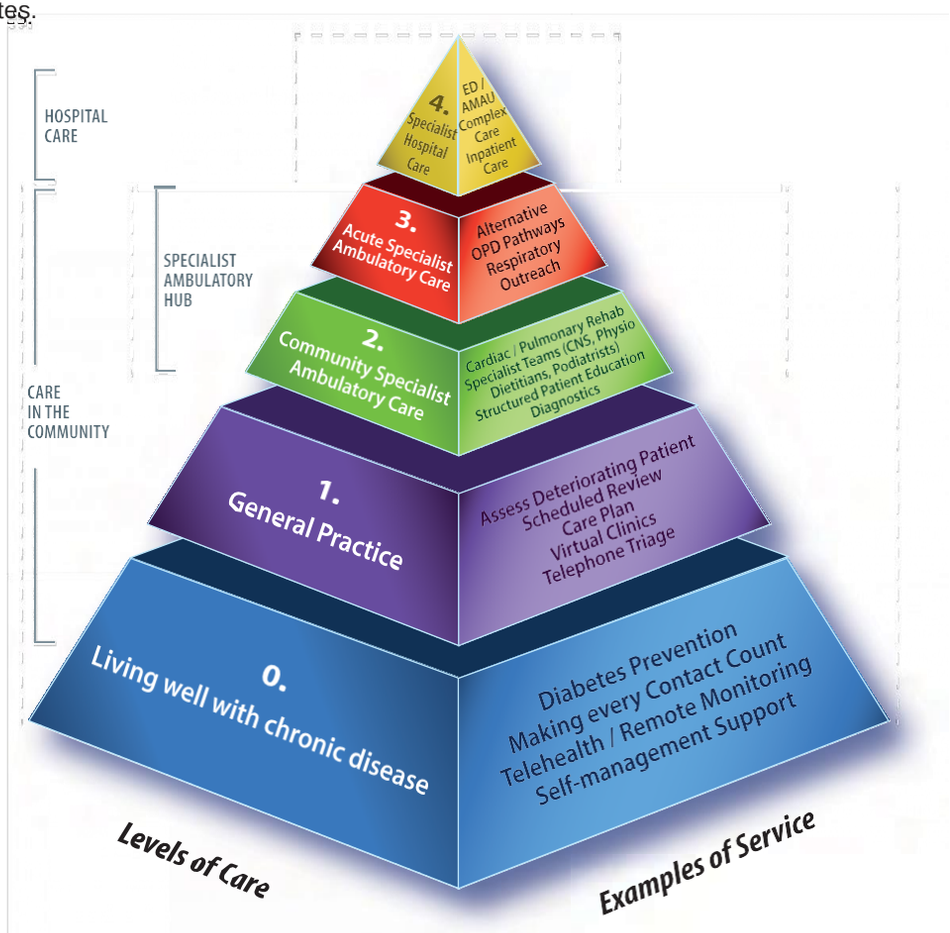


Figure 7: Integrated Model of Care for the Prevention and Management of Chronic Disease

Ref. Figure 1: Integrated Model of Care for the Prevention and Management of Chronic Disease

LEVEL O - Living well with chronic disease:

ICPCD is working to develop services to support and empower individuals to prevent and/or manage their chronic disease and associated complications. Such services include self-management support, 'Making Every Contact Count'(See Appendix 2), education sessions, goal-setting and the development of action plans to support chronic disease management at home.

LEVEL 1 - General Practice:

General Practice care is provided at Community Health Network (CHN) level. The new Chronic Disease Management Programme in General Practice will provide additional supports to GPs in caring for individuals living with chronic disease in the community (Health Service Executive, 2021).

LEVEL 2 - Community Specialist Ambulatory Care:

This will provide a further layer of support to the GP to care for people in the community through ready access to diagnostics, community specialist teams, pulmonary and cardiac rehabilitation and diabetes self-management education services which will be based in the specialist ambulatory care hub in the community.

LEVEL 3 - Acute Specialist Ambulatory Care:

Traditionally known as specialist acute out-patient department (OPD) services. While these services are governed and delivered by acute hospital teams, some of them may be delivered in the specialist ambulatory care hub in the community, facilitating integrated working between specialist teams in the community and in the hospital.

LEVEL 4 - Specialist Hospital Care:

Inpatient care may be required for the management of complex issues requiring hospital resources. However, an emphasis on early supported discharge home, with the appropriate supports in place in the community, will be a priority for the health services.

5. Diabetic Foot Model of Care

This MOC (See Figure 2) is a risk-based tiered level of surveillance, with a particular emphasis on foot screening, foot protection and the timely, evidence-based and integrated management of the in-remission foot and active foot disease, with the primary goal of lower limb preservation. This model aligns closely with the Integrated Model of Care for the Prevention and Management of Chronic Disease, with care provided at five levels of service:

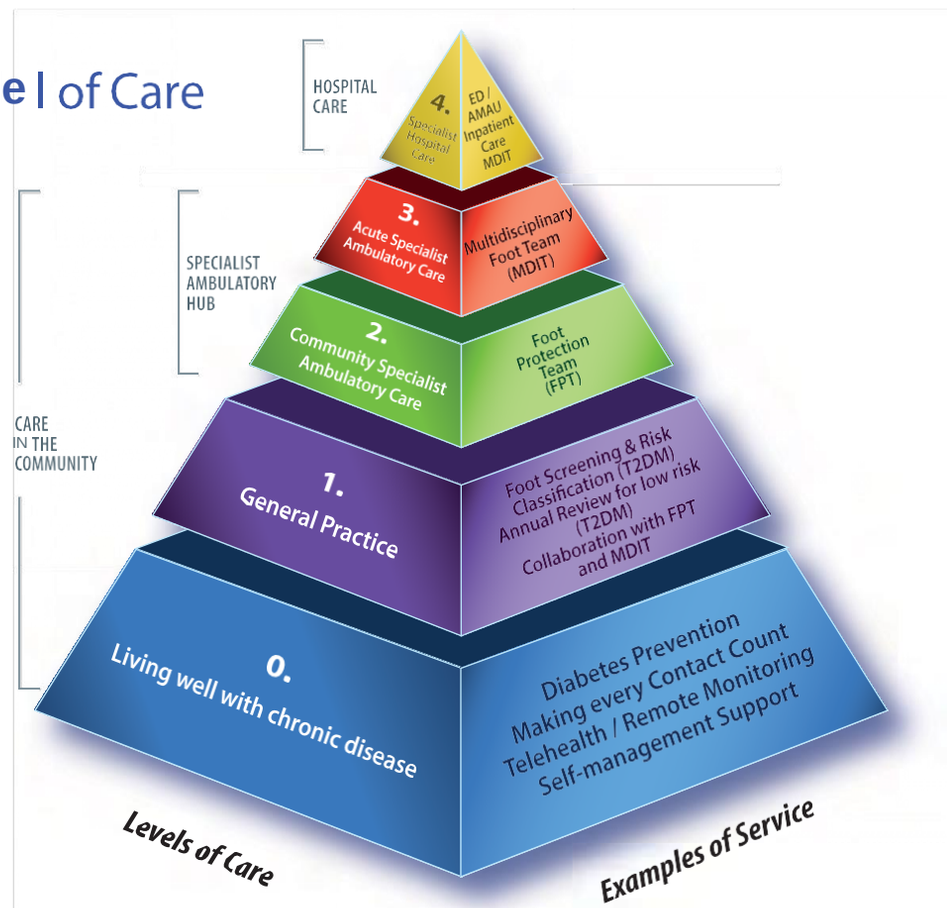


Figure2: Diabetic Foot Model of Care

LEVEL O - Living Well with Chronic Disease:

All HCP's involved in the management of the diabetic foot will support people to have an awareness of, understand and manage their risk status or active foot disease effectively. In line with the goals of Making Every Contact Count (See Appendix 2), they will use their routine consultations to empower them to make healthier choices to achieve positive long-term health outcomes in an effort to prevent the onset, slow the progression or reduce the complications associated with diabetes and diabetic foot disease.

LEVEL 1 - General Practice:

The GP and Practice Nurse are key to the implementation of this model of care.They are responsible for initial foot screening within general practice of people with newly diagnosed type 2 diabetes; annual foot screening of people with type 2 diabetes who are classified as being at low risk of diabetic foot ulcer (DFU); and close working and communication with the Foot Protection Team and Multidisciplinary Foot Team as required.

LEVEL 2 - Community Specialist Ambulatory Care:

Foot Protection Teams (FPTs) are specialist teams, primarily based in the specialist ambulatory care hub in the community, led by the podiatrist and are responsible for care of the person with the'at-risk foot; i.e. those classified as being at moderate or high-risk of DFU including those in-remission.

LEVEL 3 - Acute Specialist Ambulatory Care:

Multidisciplinary Foot Teams (MDFTs) are primarily based in the acute hospital led by the podiatrist and are responsible for care of the person with active foot disease and provide shared care with the FPT for those who are in-remission. This care will include an integrated clinical care and management plan. MDFT clinics may be delivered from the specialist ambulatory care hub in the community as well as the acute 0PD setting.

LEVEL 4 - Specialist Hospital Care:

MDFTs are also involved in the care of inpatients in hospital with active foot disease.

Ref. Figure 2: Diabetic Foot Model of Care

Diabetic foot disease is much more common in adults with diabetes rather than children with diabetes. Therefore, this MOC is focused on adult diabetes services. However, as per the HSE Model of Care for Children and Young People with Type 1 Diabetes (Health Service Executive, 2015) and NICE guidelines for diabetic foot problems (National Institute for Health & Care Excellence, 2019), all children with diabetes who are under 12 years should receive basic foot care advice from their diabetes team. For young people with diabetes who are 12 to 17 years, all diabetes teams should perform foot screening and provide foot education as part of their annual review with onward referral as appropriate.

5.1. Diabetic Foot Care Pathways

5.1.1. Self-Management of Diabetic Foot

People living with diabetes play an important role in preventing diabetic foot complications. This MOC seeks to empower the individual in the management of their foot care. An important goal of high-quality diabetic foot care is that the person with diabetes once diagnosed and assessed:

- has an understanding of their foot risk status,
- receives ongoing education on diabetic foot care from the HCP leading their footcare,
- performs regular foot inspection and implements appropriate self-management strategies,
- is aware of and has contact details for the appropriate services that they need to access.

5.1.2. Type 1 Diabetes

- Diabetic foot screening and management will primarily be provided by:
  - Secondary Care Endocrinology Team
  - Foot Protection Teams (FPTs)
  - Multidisciplinary FootTeams (MDFTs)
- Upon diagnosis of type 1 diabetes (TIDM), a person should have initial foot screening and risk classification within secondary care by the Endocrinologist and their team.
- A person with TIDM, who is deemed at low risk of DFU, should have annual foot screening and care provided within secondary care by the Endocrinologist and their team.
- A person with TIDM who is deemed at moderate risk of DFU should be referred to the FPT and have annual foot screening and review by the Foot Protection Team.
- A person with TIDM who is deemed at high risk of DFU should be referred and have 6-monthly foot screening and review by the Foot Protection Team.
- A person with TIDM who is in remission from DFU should have 3-6 monthly review by the Foot Protection Team.
- **A person with TIDM who has active foot disease must be referred, treated and managed by the MDFT.** Clear and explicit referral pathways to the MDFT should exist to ensure access to this team in a timely manner. The MDFT should aim to review those with active foot disease within 24 hours of referral (or next working day). Where there are signs of sepsis the person should be referred immediately to the Emergency Department and the MDFT should be notified as a matter of urgency.

5.1.3. Type 2 Diabetes

- Diabetic foot screening and management will primarily be provided by:
  - General Practitioners (GP) and Practice Nurses
  - Foot Protection Teams (FPT)
  - Multidisciplinary Foot Care Teams (MDFT)
- At diagnosis of type 2 diabetes (T2DM), a person should have initial foot screening and risk classification within General Practice.
- A person with T2DM, who is deemed at low risk of diabetic foot ulcer (DFU), should have annual foot screening and care provided within General Practice as part of their annual diabetes review.
- A person with T2DM who is deemed at moderate risk of DFU should have annual foot screening and review by the Foot Protection Team.
- A person with T2DM who is deemed at high risk of DFU should have 6-monthly foot screening and review by the Foot Protection Team.
- A person with T2DM who is in remission from DFU should have 3-6 monthly foot screening and review by the Foot Protection Team.
- **A person with T2DM who has active foot disease must be referred, treated and managed by the MDFT.** Clear and explicit referral pathways to the MDFT should exist to ensure access to this team in a timely manner. The MDFT should aim to review those with active foot disease within 24 hours of referral (or next working day). Where there are signs of sepsis the person should be referred immediately to the Emergency Department and the MDFT should be notified as a matter of urgency.

[1] Exception: Those with very complicated T2DM (managed solely by the Secondary Care Endocrinology Team), who are at low risk of diabetic foot ulcer, should have annual foot screening and care provided by the Endocrinologist and their team.

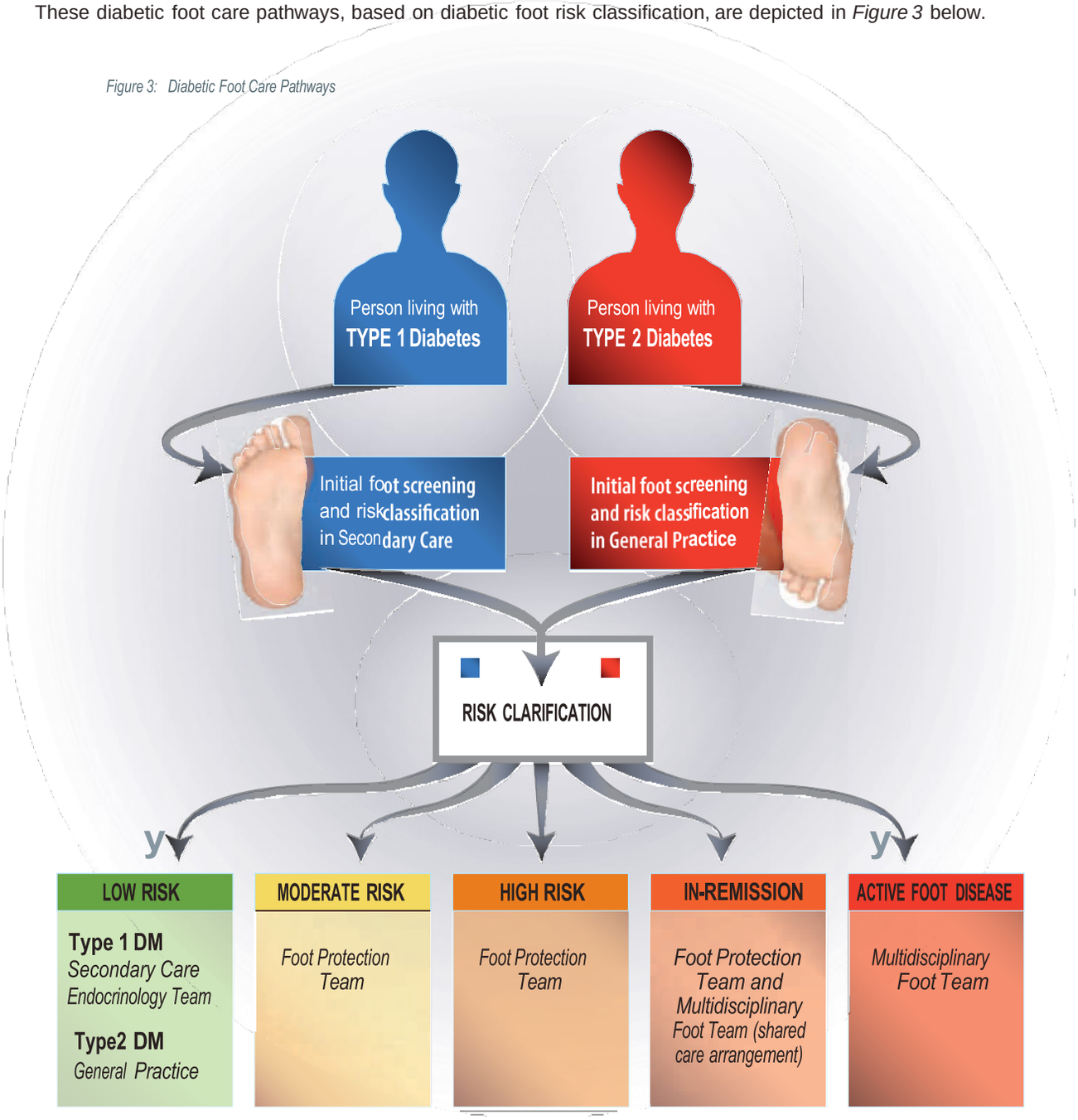
5.1.4. Referral Pathways

To ensure that people are seen by the right team, at the right time, it is crucial that HCPs involved in the care of the diabetic foot communicate and share information with each other effectively.

- Clear and explicit referral pathways between General Practice, acute hospitals, the FPT and the MDFT shall be developed and agreed locally. The importance of good communication and close collaboration between these teams cannot be overstated. Development of an integrated clinical notes system and national directory between primary and secondary care are key enablers in this regard.
- Development and monitoring of these pathways is the responsibility of the Clinical Specialist Podiatrist and Podiatry Manager in the community setting and the Clinical Specialist Podiatrist and Podiatry Manager in secondary care.
- All parties should work towards using an electronic referral system in line with HSE e-Health service developments.

These diabetic foot care pathways, based on diabetic foot risk classification, are depicted in *Figure 3* below.

Figure 3: Diabetic Foot Care Pathways



5.2. The Foot Protection Team (FPT)

5.2.1. Role of FPT

This team will manage those who are at moderate and high risk of diabetic foot disease and those in remission from DFU. Integrated care with the FPT/MDFT is essential for those in-remission from DFU. This will allow timely access to the MDFT once the in remission foot in the community setting becomes Active foot disease. It also allows for the integration of the in remission foot from the MDFT to the FPT. At all times ensuring communication with the GP +/- Endocrinologist. Although MDFTs led by the podiatrist will lead on the assessment, diagnosis and management of active foot disease, it is acknowledged that the FPT community podiatrists are involved in the care of people with active foot disease. The FPT podiatrists work in close collaboration with their MDFT podiatry colleagues, to implement the integrated clinical care and management plan developed by the MDFT.

5.2.2. Membership

Membership of the FPT comprises the following HSCP's:

- GENERAL PRACTITIONER [2]
- PRACTICE NURSES
- CLINICAL SPECIALIST PODIATRIST - DIABETES
- DIABETES NURSE SPECIALIST/ ADVANCED NURSE PRACTITIONER IN DIABETES
- SENIOR PODIATRIST - DIABETES
- STAFF GRADE PODIATRIST - DIABETES [3]
- ORTHOTIST
- ADMINISTRATIVESTAFF

Please refer to appendix 3 for an overview of the roles of the individual FPT members. The FPT will work in close collaboration with the person who has diabetes, their family and/or carers. The FPT will have clear referral pathways to the Consultant Endocrinologist/Podiatrist in secondary care to access the MDFT.

5.2.3. Location of FPT

FPT's will be based in the community and will operate primarily from the specialist ambulatory care hub serving the catchment population for that hub (approximately 3 CHNs or 150,000 general population).

5.2.4. Access to FPT

Referrals to the FPT should be directed to the FPT podiatrist through the GP. Referrals should be triaged by the FPT podiatrist and scheduled for review in line with the clinical care plan based on identified risk status.

5.2.5. Diabetic foot education

In collaboration with all members of the FPT, the FPT podiatrist will lead on providing diabetic foot education to HSE community healthcare workers within their CHN. The FPT and the MDFT podiatrist will work together, in collaboration with other team members, to provide diabetic foot education to GPs and Practice Nurses.

[2] GP's main responsibility is referral to podiatry

[3] If a staff grade podiatrist is working in a FPT, there must be an appropriate supervisory structure in place involving Podiatrist Manager, Clinical Specialist and/ or Senior Podiatrists.

5.2.6. Budget for medical devices

As part of the preventative focus of the FPT, they will frequently need to prescribe use of specialist footwear, orthotics and/or utilise intervention techniques such as off-loading. Local administrative processes should be put in place to ensure that the FPT have access to a budget to allow timely access to these essential devices.

5.2.7. Professional governance for foot protection team podiatrist

It is recommended that FPT podiatrists are employed by the HSE (or section 38 agencies). They will work primarily in the community setting. Professional discipline clinical governance should be provided by a CORU registered Podiatrist Manager.

5.2.8. Common onward referral pathways

Core members of the foot protection team are listed above. However, people with diabetes and diabetic foot disease may require onward referral and additional assessment and intervention from a wide range of other HCPs including, but not limited to:

- CLINICAL SPECIALIST PODIATRIST - MUSCULOSKELETAL (AT-RISK AND ACTIVE FOOT)
- DIETITIAN
- MEDICAL SOCIAL WORKER
- OCCUPATIONAL THERAPIST
- PHYSIOTHERAPIST
- PSYCHOLOGIST
- PRIMARY CARE NURSE (INCLUDING COMMUNITY REGISTERED NURSES, PUBLIC HEALTH NURSES AND REGISTERED NURSES WORKING IN OLDER PERSONS' SERVICES)
- TISSUE VIABILITY NURSE

Please refer to appendix 3 for an overview of the roles of these HCPs.

5.3. The Multidisciplinary Foot Team (MDFT)

5.3.1. Role of MDFT

MDFTs will be based primarily in hospitals and serve the relevant catchment population for management of active foot disease and provide shared care arrangement with FPT's for those in remission (see 5.2.1).

[4]It is imperative that FPT service provision is maintained at all times. To that end, appropriate cover should be provided for FPT members to accommodate leave arrangements and ensure service continuity. At a minimum, a podiatrist and administrative staff member should be available to triage, register and offer people a timely appointment.

5.3.2. Membership

Membership of the MDFT comprises the following HSCPs:

- CONSULTANT ENDOCRINOLOGIST
- CLINICAL SPECIALIST PODIATRIST - DIABETES
- SENIOR PODIATRIST - DIABETES
- STAFF GRADE PODIATRIST - DIABETES
- DIABETES NURSE SPECIALIST/ ADVANCED NURSE PRACTITIONER IN DIABETES
- CONSULTANT VASCULAR SURGEON
- TISSUE VIABILITY NURSE SPECIALIST/ ADVANCED NURSE PRACTITIONER IN TISSUE VIABILITY
- INFECTIOUS DISEASE CONSULTANT AND/OR MICROBIOLOGIST
- CONSULTANT ORTHOPAEDIC SURGEON
- ORTHOTIST
- PSYCHOLOGIST
- DIABETES DIETITIAN
- ADMINISTRATIVE STAFF (DEDICATED TOTHE DIABETIC FOOT SERVICE)

Please refer to appendix 3 for an overview of the roles of the individual MDFT members. All MDFT members will work in close collaboration with person who has diabetes, their family and/or carers, General Practice and the FPT.

5.3.3. Location of MDFT

All model 4 hospitals should have a MDFT on-site. In addition, model 2 and 3 hospitals may also operate as a MDFT provided that they have direct referral pathways to tertiary services, for example vascular and orthopaedic surgery in another hospital (See Appendix 4). Every effort should be made by model 2 and 3 hospitals to operate as a MDFT and develop relevant referral pathways. In more rural areas, to avoid people having to travel long distances, the option of outreach clinics for tertiary services should be explored to allow smaller centres to operate as a MDFT.

Direct and explicit referral pathways should be developed to ensure integrated working between all hospitals within a hospital group to facilitate access to services for those with diabetic foot disease. If one hospital does not have a MDFT, there should be a clear referral pathway to the MDFT in a neighbouring hospital.

In line with international best practice, initial assessment of the person (with active foot disease) by the MDFT will take place in the hospital setting. However, in order to provide care closer to the person's home as well as to promote discipline integrated working and to provide shared care for the in remission foot, some MDFT review clinics could be run outside of the hospital in the community, for example, in specialist ambulatory care hubs.

[5] If a staff grade podiatrist is working in an MDFT, there must be an appropriate supervisory structure in place involving Clinical Specialist and/or Senior Podiatrists.

5.3.4. Access to MDFT

Referrals to the MDFT should be directed to the Consultant Endocrinologist/Podiatrist and should be triaged by the clinical specialist podiatrist or senior podiatrist with the aim of reviewing the person referred within 24 hours of referral (or next working day). The Consultant Endocrinologist and the Podiatry discipline manager should work together closely to ensure that clear and explicit pathways are developed in the acute sector for Active foot disease. And to ensure prioritised and timely access to the MDFT for those with active foot disease and that access is not delayed by long waiting lists [6].

Within the Irish healthcare system, emergency care networks (ECNs) include 24/7 emergency departments, local injury units and local emergency units. In line with the National Emergency Medicine Programme Strategy (Health Service Executive, 2012), all those who attend these settings and particularly those with diabetic foot disease should have appropriate access to podiatry services. It is essential that there is a care pathway agreed locally for optimal care of those who present to ECNs with active foot disease. They should be referred to the MDFT as standard and assessed by the MDFT within 24 hours of referral (or next working day)6 either as an inpatient or outpatient as appropriate.

5.3.5. Diabetic foot education

In collaboration with all members of the MDFT, the MDFT podiatrist will lead on providing diabetic foot education to all HSE hospital workers. The FPT and the MDFT podiatrist will work together and in collaboration with other team members to provide diabetic foot education to GPs and Practice Nurses.

5.3.6. Professional governance for MDFT podiatrist

It is recommended that MDFT Podiatrists are employed by the HSE (or section 38 agencies). They will work primarily in the hospital setting. Professional discipline clinical governance should be provided by a CORU registered Podiatrist Manager. Diabetes specific clinical governance will be provided by the Consultant Endocrinologist on the MDFT. If locally agreed by the Consultant Endocrinologist, a shared governance arrangement with other consultants on the MDFT e.g. Vascular Surgery, Orthopaedics, or Infectious Diseases, can be put in place.

5.3.7. Common onward referral pathways

Core members of the MDFT are listed above. However, people with diabetes and diabetic foot disease may require onward referral and additional assessment and intervention from a wide range of other HCPs including, but not limited to:

- CLINICAL SPECIALIST PODIATRIST- MUSCULOSKELETAL (AT-RISK AND ACTIVE FOOT)
- MEDICAL SOCIAL WORKER
- OCCUPATIONAL THERAPIST
- OUTPATIENT PARENTERAL ANTIMICROBIAL THERAPY (OPAT) SERVICE
- PHYSIOTHERAPIST
- PRIMARY CARE NURSE (INCLUDING COMMUNITY REGISTERED NURSES, PUBLIC HEALTH NURSES AND REGISTERED NURSES WORKING IN OLDER PERSONS' SERVICES)
- PLASTIC SURGEON
- VASCULAR PHYSIOLOGIST

Please refer to appendix 3 for an overview of the roles of these HCPs.

[6] It is imperative that MDFT service provision is maintained at all times. To that end, appropriate cover should be provided for MDFT members to accommodate leave arrangements and ensure service continuity. At a minimum, a senior or clinical specialist podiatrist and administrative staff member should be available to triage, register and offer the person a timely initial appointment (within 24 hours of referral or next working day).

5.4. Risk Classification and Clinical Care Plan

5.4.1. Aim of diabetic foot screening

The aim of diabetic foot screening is to determine a person's risk of diabetic foot ulceration. As outlined in section 5.1., and reiterated in table 1 below, diabetic foot screening and risk classification will be completed by different HCPs depending on a person's status:

Table 1

CATEGORY	WHO IS RESPONSIBLE FOR DIABETIC FOOT SCREENING?
People who have newly diagnosed type 2 diabetes	**General Practitioner or Practice Nurse**
People who have type 2 diabetes and are at low risk of diabetic foot disease [7]	**General Practitioner or Practice Nurse**
People who have newly diagnosed type 1 diabetes	**Secondary Care Endocrinology Team**
People who have type 1 diabetes at low risk of diabetic foot disease	**Secondary Care Endocrinology Team**
All people with diabetes who are at moderate or high risk of diabetic foot disease	**Foot Protection Team Podiatrists**
All people with diabetes who are in remission from diabetic foot disease	**Foot Protection Team Podiatrists**
All people with diabetes who have active foot disease	**Multidisciplinary Foot Team Podiatrists**

Based on this screening, the person shall be assigned a risk category and where appropriate be referred for ongoing foot screening, a foot assessment and a clinical care plan. This care plan should ensure that all people with diabetes receive annual (or more frequent) foot screening, foot care, education and review according to their clinical need, and in a setting most appropriate to their need.

Please note that diabetic foot screening is only one part of a comprehensive and holistic healthcare assessment for a person living with diabetes. All aspects of general diabetes care should continue to be assessed, monitored and optimised as per best-practice clinical management guidelines.

[7] Exception: Those with very complicated T2DM (managed solely by the Secondary Care Endocrinology Team), who are at low risk of diabetic foot ulcer, should have annual foot screening and care provided by the Endocrinologist and their team.

5.4.2. Diabetic Foot Screening Process

Foot screening for a person with diabetes should include:

- **MEDICAL HISTORY**
  HISTORY OF CHARCOT FOOT
  HISTORY OF FOOT SURGERY
  HISTORY OF PREVIOUS FOOT ULCER OR AMPUTATION (ON EITHER FOOT)
  PRESENCE OR ABSENCE OF INTERMITTENT CLAUDICATION OR REST PAIN
  KIDNEY FUNCTION

- **FOOT INSPECTION**
  INSPECTION OF SKIN AND NAILS
  INSPECTION FOR STRUCTURAL FOOT DEFORMITY
  INSPECTION OF ANY EXISTING FOOT WOUNDS
  EXAMINATION OF FOOTWEAR
  REVIEW OF ORTHOTIC DEVICES AND AIDS AND APPLIANCES.

- **PERIPHERAL SENSORY ASSESSMENT**
  VIBRATION PERCEPTION TESTING (128 HZTUNING FORK)
  CUTANEOUS PRESSURE PERCEPTION TESTING (SEMMES WEINSTEIN TEST: IOG MONOFILAMENT)

- **PERIPHERAL VASCULAR ASSESSMENT:**
  PALPATION OF FOOT PULSES

Based on the findings of this screening, the person is then categorised as being at low, moderate or high risk of future diabetic foot ulceration or (if known to have had prior foot ulceration) will be categorised as being in-remission or categorised as active foot disease if foot ulceration is present or active Charcot is suspected. (See Table 2).

A **National Diabetic Foot Screening and Risk Stratification Form** is available to support the Diabetic Foot Screening process (Appendix 6).

The clinical reasoning for risk classification should be fully documented in the person's clinical notes. Foot screening occurring in General Practice should be clearly documented in GP clinical notes. Some GPs may use clinical note templates for this purpose (Quinlan, 2019).

The onward referral and clinical care plan is developed based on this risk classification.

5.4.3. Risk Classification of the Diabetic Foot

Risk classification of the diabetic foot for Type 1 and Type 2 Diabetes

Table 2:

Risk Classification of the diabetic foot (National Institute for Health and Care Excellence, 2079)

LOW RISK	• Normal Inspection • Normal peripheral sensory assessment [8] • Normal peripheral vascular assessment [9] • No previous ulcer or lower limb amputation [13] • No foot deformity [14]
MODERATE RISK	***ONE OF THE FOLLOWING RISK FACTORS IS PRESENT:*** • Impaired peripheral sensation [10], OR • Impaired circulation [11], OR • Foot deformity
HIGH RISK	***TWO OR MORE RISK FACTORS ARE PRESENT:*** • Impaired peripheral sensation [10] and impaired circulation [11], OR • Impaired peripheral sensation [10] in combination with significant callus/deformity (based on clinical judgement), OR • Impaired circulation [11] In combination with significant callus/ deformity (based on clinical judgement) OR • End stage renal failure and chronic kidney disease (Stage 4 or 5) [12]
IN - REMISSION	***DIABETIC FOOT IN-REMISSION IS DEFINED AS:*** • Previous foot ulcer [13], OR • Previous lower limb amputation (all types) [12], OR • Previous Charcot arthropathy
ACTIVE FOOT DISEASE	***ACTIVE FOOT DISEASE IS DEFINED AS:*** • Current foot ulcer, OR • Spreading infection, OR • Critical limb ischaemia, OR • Suspicion of an acute Charcot arthropathy, OR an unexplained hot, red, swollen foot with oR without pain.

5.4.4. Clinical Care Plan based on identified risk status

Following risk categorisation, a clinical care plan can be developed, as outlined in table 3 (for type 1 diabetes) and table 4 (for type 2 diabetes). An effective care plan for diabetic foot care will benefit the person with diabetes and likely reduce adverse outcomes such as chronic or recurrent foot ulceration, infection and lower limb amputation.

Clinical care plans for people with diabetic foot disease are described by type of diabetes and are intended to provide a structure and organisation to the foot care needs of the person. The clinical care plan starts at the point of diagnosis of diabetes and continues indefinitely. It should be flexible to respond to the needs of the person as developments occur during the course of their disease progression.

Figure 4 combines the risk classification and clinical care plan for all categories (low, moderate and high-risk; in-remission; and active foot disease) and can be used as a convenient aide-memoire in clinic settings.

[8] Normal peripheral sensory assessment: Cutaneous pressure perception (10g monofilament test) and vibration perception (128 Hz tuning fork test) both present

[9] Normal peripheral vascular assessment: At least one palpable pedal pulse present in each foot.

[10] Impaired peripheral sensation: Cutaneous pressure perception (10g monofilament test) or vibration perception(128 Hz tuning fork test) absent

[11] Impaired circulation: Absence of both pulses in either foot.

[12] End stage renal failure (ESRF) and chronic kidney disease (CKD) stages 4-5 (eGFR < 29 ml/min/1.73m2) are independent risk factors for diabetic foot disease. Dialysis is associated with a >4-foldrisk of foot ulceration.

[13] No timespan limitation.Ulceration on either foot.

[14] All types of lowerlimb amputation should be considered including toe, partial foot and major (above/below knee) amputation

Table 3:

Clinical Care Plan based on identified diabetic foot risk status for Type 7 Diabetes

CLINICAL CARE PLAN BASED ON IDENTIFIED DIABETIC FOOT RISK STATUS FOR TYPE 1 DIABETES

RISK CATEGORY	CARE PLAN
LOW RISK 	Annual foot review in secondary care Ongoing diabetes care in secondary care Education on diabetic foot care and risk status Referral to diabetes education programme Ongoing self-care
MODERATE RISK 	Annual[15] foot review by Foot Protection Team Podiatrist Ongoing diabetes care in secondary care Referral to diabetes education programme Lifestyle interventions: smoking cessation, alcohol reduction, exercise. Education on diabetic foot care and risk status Biomechanical Assessment Footwear assessment Consider need for onward referral to Dietetics; Occupational Therapy; Physiotherapy; Psychology; Medical Social Work etc. Ongoing self-care
HIGH RISK 	6-monthly[15] foot review by Foot Protection Team Podiatrist Ongoing diabetes care in secondary care Referral to diabetes education programme Lifestyle interventions: smoking cessation, alcohol reduction, exercise. Education on diabetic foot care and **risk** status Biomechanical Assessment Footwear assessment Consider need for onward referral to Dietetics; Occupational Therapy; Physiotherapy; Psychology; Medical Social Work etc. Ongoing self-care
IN - REMISSION 	3-6 monthly[15] review by the Foot Protection Team (Multidisciplinary FootTeam Podiatrist- shared care arrangement) Ongoing diabetes care in secondary care Referral to diabetes education programme Lifestyle interventions: smoking cessation, alcohol reduction, exercise. Education on diabetic foot care and **risk** status Biomechanical Assessment Footwear assessment Consider need for onward referral to Dietetics; Occupational Therapy; Physiotherapy; Psychology; Medical Social Work etc. Ongoing self-care
ACTIVE FOOT DISEASE 	Refer within 24 hours to MDFT Referral triaged: Clinical Specialist or Senior Podiatrist to review person within 24 hours of referral (or next working day). Frequency of MDFT review based on clinical need Ongoing diabetes care by the MDFT diabetes specialist team with collaboration with GP as required Education on diabetic foot care and risk status Biomechanical Assessment Footwear assessment Dietetic referral for malnutrition screening and appropriate dietetic advice for diabetes and wound management Consider need for onward referral to and involvement of Occupational Therapy; Physiotherapy; Psychology; Medical Social Work; OPAT; Public Health Nursing etc. Ongoing self-care

[15] Thistimeframe is recommended as a minimum review schedule.The person may requiremore frequent review if deemed clinically necessary.

CLINICAL CARE PLAN BASED ON IDENTIFIED DIABETIC FOOT RISK STATUS FOR TYPE 2 DIABETES

Table 3:

Clinical Care Plan based on identified diabetic foot risk status for Type 7 Diabetes

RISK CATEGORY	CARE PLAN
LOW RISK 	Annual review in general practice Ongoing diabetes care in general practice Education on diabetic foot care and risk status Referral to diabetes education programme Ongoing self-care
MODERATE RISK 	Annual[16] foot review by Foot Protection Team Podiatrist Ongoing diabetes care in general practice Referral to diabetes education programme Lifestyle interventions: smoking cessation, alcohol reduction, exercise. Education on diabetic foot care and risk status Biomechanical Assessment Footwear assessment Consider need for onward referral to and involvement of Dietetics, Occupational Therapy, Physiotherapy, Psychology, Medical Social Work etc. Ongoing self-care
HIGH RISK 	6-monthly[16] foot reviews by the Foot Protection Team Podiatrist Ongoing diabetes care with general practitioner/ secondary care *(shared care arrangement)* Referral to diabetes education programme Lifestyle interventions: smoking cessation, alcohol reduction, exercise. Education on diabetic foot care and **risk** status Biomechanical Assessment Footwear assessment Consider need for onward referral to and involvement of Dietetics, Occupational Therapy, Physiotherapy, Psychology, Medical Social Work etc. Ongoing self-care
IN - REMISSION 	3-6 monthly[16] review by the Foot Protection Team or Multidisciplinary Foot Team Podiatrist (shared care arrangement) Ongoing diabetes care in general practice/ secondary care (shared care arrangement) Referral to diabetes education programme Lifestyle interventions: smoking cessation, alcohol reduction, exercise. Education on diabetic foot care and **risk** status Biomechanical Assessment Footwear assessment Consider need for onward referral to and involvement of Dietetics, Occupational Therapy, Physiotherapy, Psychology, Medical Social Work etc. Ongoing self-care
ACTIVE FOOT DISEASE 	Refer within 24 hours to MDFT Referral triaged: Clinical Specialist or Senior Podiatrist to review person within 24 hours (or next working day). Frequency of MDFT review based on clinical need Ongoing diabetes care by the MDFT diabetes specialist team with collaboration with GP as required Education on diabetic foot care and risk status Biomechanical Assessment Footwear assessment Dietetic referral for malnutrition screening and appropriate dietetic advice for diabetes and wound management Consider need for onward referral to and involvement of Occupational Therapy, Physiotherapy, Psychology, Medical Social Work, OPAT, Public Health Nursing etc. Ongoing self-care

[16] Thistimeframe is recommended as a minimum review schedule.The person may requiremore frequent review if deemed clinically necessary.

DIABETIC FOOT SCREENING AND CLASSIFICATION PROTOCOL

DIABETIC FOOT SCREENING

On diagnosis of diabetes and at every diabetic foot review thereafter, a clinician will examine patient's feet and lower limbs for risk factors. This should include:

Medical History

Review of medical history and comorbidities including kidney function

- History of Charcot foot; foot surgery; previous ulceration and/or amputation (all types; on either foot)
- Presence of intermittent claudication or rest pain

Foot Inspection

Skin and nail inspection

- Inspection for structural foot deformity
- Inspection of any existing foot wounds
- Examination of footwear
- Review of orthotic devices and aids and appliances

Peripheral Sensory Assessment

- Vibration perception testing (128 Hz tuning fork)
- Cutaneous pressure perception testing (Semmes Weinstein Test: I0g monofilament)

Peripheral Vascular Assessment

- Palpation of dorsalis pedis and posterior tibial pulses in both feet

LOW RISK	MODERATE RISK	HIGH RISK	IN-REMISSION	ACTIVE FOOT DISEASE
Clinical Findings • Normal inspection • Normal peripheral sensory assessmentl • Normal peripheral vascular assessment2 • No previous ulcer 6 **or** lower limb amputation 7 • No foot deformily	**Clinical Findings** **One** of the following risk factors is present: • Impaired peripheral sensation3, **or** • Impaired circulation4, **or** • Foot deformity	**Clinical Findings** Two or more of the following risk factors are present: • Impaired peripheral sensation3 and impaired circulation4, **or** • Impaired peripheral sensation3 with significant callus/deformily, **or** • Impaired circulation4 with significant callus/ deformily, **or** • End stage renal failure **or** • Chronic kidney disease (stage 4 or 5)5	**Clinical Findings** • Previous foot ulcer 6, **or** • Previous lower limb amputation?, **or** • Previous Charcot arthropathy	**Clinical Findings** • Current foot ulcer, **or** • Spreading infection, **or** • Critical limb schaemia, **or** • Suspicion of an acute Charcot arthropathy, **or** • An unexplained hot, red, swollen foot with or without pain.
Geneal Practice (T2DM)/Hospital Endocrinology Team (T1DM)	**Community Foot Protection Team**			**Hospital Multidisciplinary FootTeam**
Management Plan for TYPE 1 DIABETES • Annual Rveiew in Secondary Care • Ongoing diabetes care in Secondary Care • Education on diabetic footcare and risk status • Referral to diabetes self-management education programme • Ongoing Self-care **Management Plan for TYPE 2 DIABETES** • Annual review in General Practice • Ongoing diabetes care in General Practice • Education on diabetic footcare and risk status • Referral to Diabetes Self-Management Education (DSME) • Ongoing self- care	**Management Plan for TYPE 1 DIABETES** • Ongoing diabetes care in Secondary Care **Management Plan for TYPE 2 DIABETES** • Ongoing diabetes care in General Practice **Management Plan for both TYPE 1 + TYPE 2 DIABETES** • Annual Review by FPT Podiatrist • Referral to DSME • Lifestyle interventions: smoking cessation; alcohol reduction; exercise • Education on diabetic foot care and risk status • Biomechanical assessment • Footwear assessment • Consider need for onward referral to other HSCP • Ongoing self- care	**Management Plan for TYPE 1 DIABETES** • Ongoing diabetes care in Secondary Care **Management Plan for TYPE 2 DIABETES** • Ongoing diabetes care in General Practice and secondary care *(shared care)* **Management Plan for TYPE 1 + TYPE 2 DIABETES** • Annual Review by FPT Podiatrist • Referral to DSME • Lifestyle interventions: smoking cessation; alcohol reduction; exercise • Education on diabetic foot care and risk status • Biomechanical assessment • Footwear assessment • Consider need for onward referral to other HSCP • Ongoing self- care	**Management Plan for TYPE 1 DIABETES** • Ongoing diabetes care in Secondary Care **Management Plan for TYPE 2 DIABETES** • Ongoing diabetes care in General Practice and secondary care *(shared care)* **Management Plan for TYPE 1 + TYPE 2 DIABETES** • 3-6 monthly review by FPT Podiatrist • Referral to DSME • Lifestyle interventions: smoking cessation; alcohol reduction; exercise • Education on diabetic foot care and risk status • Biomechanical Assessment • Footwear Assessment • Consider need for onward referral to other HSCP • Ongoing Self- care	**Management Plan for TYPE 1 + TYPE 2 DIABETES** • Refer within 24 hours toMDFT • M DFT Clinical Specialist Podiatrist or Senior podiatrist to review patient within 24 hours of referral (or next working day) • Frequency of MDFT review based on clinical need • Ongoing care by the MDFT diabetes specialist team with collaboration with GP as required • Education on diabetic footcare and risk status • Biomechanical Assessment • Footwear Assessment • Consider need for onward referral to other HSCP • Ongoing Self- care

1. Normal peripheral sensory assessment: Cutaneous pressure perception (10g monofilament test) and vibration perception (128 Hz tuning fork test) both present.
2. Normal peripheral vascular assessment: At least one palpable pedal pulse present in each foot.
3. Impaired peripheral sensation: Cutaneous pressure perception (10g monofilament test) or vibration perception (128 Hz tuning fork test) absent
4. Impaired circulation: Absence of both pulses in either foot
5. End stage renal failure (ESRF) and chronic kidney disease (CKD) stages 4-5 (eGFR < 29 ml/min/1.73 m2) are independent risk factors for diabetic foot disease. Dialysis is associated with a > 4-fold risk of foot ulceration.
6. No timespan limitation. Ulceration on either foot.
7. All types of lower limb amputation should be considered incldiuing toe.partial foot and major (above/below knee) amputation

5.5. Clinical Governance

5.5.1. People who are at low, moderate, high risk of DFU or in remission from DFU

Type 2 diabetes

Clinical Governance: For those who are solely attending their GP for management of their diabetes, clinical responsibility rests with the GP. For those receiving combined GP/hospital care for their diabetes, clinical responsibility rests with the Consultant Endocrinologist in secondary care.

Type 1 diabetes

Clinical Governance: For those with Tl DM, clinical responsibility rests exclusively with the Consultant Endocrinologist in secondary care.

5.5.2. People with active foot disease

Type 1 and Type 2 diabetes

For outpatients with active foot disease, clinical responsibility rests with the Consultant Endocrinologist and Podiatrist leading the MDFT in the model 4 hospital. Where a model 2 or 3 hospital is operating as an MDFT, they may refer to tertiary services in larger hospitals, for example, vascular and orthopaedic surgery. In this case, clinical responsibility for overall diabetes and diabetic foot care remains with the Consultant Endocrinologist and podiatrist (and MDFT members) in the (local) model 2 or 3 hospital with sessional speciality input provided by tertiary services as required.

If the person is admitted to hospital, the named Consultant under whose care they are admitted will be responsible for the care of the person with input provided by the MDFT.

6. Podiatry and diabetic foot care

Podiatry is a healthcare profession that specialises in the prevention, diagnosis and management of foot and ankle problems. The foot is a highly complex structure, which can develop problems affecting a person's overall health and quality of life. Podiatry can significantly improve a person's quality of life by promoting and maintaining mobility. Podiatrists work with a wide range of people living with a wide variety of conditions affecting the feet including people with soft tissue pathology to complex biomechanical and structural dysfunction; people who are in a high risk category e.g. people with vascular problems, arthritis; people with musculoskeletal disorders; people with dermatological disorders; and people living with diabetes who are at risk of, or experiencing, diabetic foot ulceration.

Diabetes is a systemic disease that affects many different parts of the body, therefore, best-practice care involves multiple HSCPs who specialise in diabetes, including, Consultant Endocrinologists, Diabetes Nurse Specialists and Diabetes Dietitians among others. The need for a collaborative multi-disciplinary approach is especially important in the management of those who are at-risk from or who have diabetic foot disease. These people must navigate a complex care pathway involving multiple HSCPs to treat or manage their foot complication. Podiatrists, as specialists in this area, are well-placed to take a crucial leadership role in these care pathways, working collaboratively with multi-disciplinary colleagues both in the community and hospital setting to ensure that people with diabetes get the right foot care, at the right time, by the right team and in the right place.

A podiatrist should be the central point of contact for any person with diabetes who is at-risk from or who has diabetic foot disease. This model of care outlines a structured approach for the management of diabetic foot disease and podiatrists are the cornerstone of service provision in this regard. They are core members of the FPT and MDFT and will take a lead role in the assessment, diagnosis, and treatment of diabetic foot complications.

6.1. Podiatry service provision

Currently podiatry services within the HSE are delivered in a variety of ways, including:

- Podiatrists directly employed by the HSE;
- Private podiatrists employed on a sessional/contracted basis for clients eligible under the GMS Scheme;
- Some areas have a Service Level Agreement in place with external providers for the provision of podiatry services to eligible persons;
- Grant aid provided to voluntary agencies for the provision of podiatry services under Section 39 Grant aid.

The variation in service delivery models, as well as a lack of podiatry management structures within the HSE (in comparison to other HSCPs) poses challenges for the development of podiatry services and the standardisation of podiatry care pathways nationally. Over the past 1O years, the NCP Diabetes has been successful in securing funding for approximately 31 HSE podiatry posts dedicated to diabetic foot care. The first 22 of these posts were deployed in the acute (hospital) setting with a focus on dealing with the management of people with active foot disease. The most recent HSE podiatry appointments in diabetes have been made in primary care.The NCP Diabetes is aware of many examples of excellent multidisciplinary care pathways that have been put in place around these new appointments with positive clinical and service outcomes.

However, in light of the rising population and increasing prevalence of diabetes and diabetic foot disease, many more podiatry posts dedicated to diabetic foot care are required. In order to maximise the impact of this podiatry workforce, it is recommended that these podiatry posts are directly employed by the HSE (or section 38 agencies); comprise of a mixture of staff grade, senior, clinical specialist and manager appointments; and have appropriate podiatry line management and governance structures in place. Please see appendix 5 for an overview of the podiatry grading structure for clinical staff.

6.2. Recommended podiatry staffing levels

To implement this model of care, podiatry staffing levels need to be commensurate with internationally recognised best practice for the delivery of specialist diabetic foot care.

Recommended **minimum** staffing levels:

- Foot Protection Team Podiatry: a minimum of 3 whole time equivalent (WTE) per 150,000 population (approximating to 3 community healthcare networks, the catchment area that will be served by each specialist ambulatory care hub). The 3 Podiatry WTE should comprise of 1WTE Clinical Specialist Podiatrist (Diabetes); 1 WTE Senior Podiatrist (Diabetes); 1 WTE Staff Grade Podiatrist (Diabetes).
- Multi-disciplinary Foot Team Podiatry: a minimum of 1.5 WTE per 100,000 population. The MDFT must have Clinical Specialist Podiatrist (Diabetes) and Senior Podiatrist (Diabetes) as part of this MDFT WTE allocation.

Clinical governance structures for the community and hospital-based podiatrists should be standardised nationally. Podiatrist discipline manager positions should be developed commensurate with international best practice and in-line with other HSCPs nationally and CORU regulation and registration.

7. Clinical resources for management of the diabetic foot

This model of care document outlines how care should be organised to ensure that people with diabetes receive optimal diabetic foot care. It is not intended to be a clinical guidance document. There are many up-to-date, evidence based, comprehensive clinical guidance resources that can be accessed by HCPs to assist them in their clinical care. A selection of these resources have been linked below for convenience:

- The International Working Group on the Diabetic Foot (IWGDF) produces international, multi-disciplinary, evidence-based guidance documents to inform health professionals all over the world on the prevention and management of diabetic foot disease (International Working Group on the Diabetic Foot, 2019). They have developed clinical guidance on a comprehensive range of topics, including:

  - Prevention of foot ulcers in persons with diabetes
  - Offloading foot ulcers in persons with diabetes
  - Diagnosis, prognosis and management of peripheral artery disease in people with a foot ulcer and diabetes
  - Diagnosis and treatment of foot infection in persons with diabetes
  - Interventions to enhance healing of foot ulcers in persons with diabetes
  - Classification of diabetic foot ulcers

  This guidance can be accessed here: https://iwgdfguidelines.org/guidelines/guidelines/

- In 2015, the National Institute for Health and Care Excellence (NICE) in the UK published clinical guidance on preventing and managing foot problems in children, young people and adults with diabetes (National Institute for Health and Care Excellence, 2019). It aims to reduce variation in practice, including antibiotic prescribing for diabetic foot infections.

  This guidance can be accessed here: https://www.nice.org.uk/guidance/ng19

- The Irish College of General Practitioners developed and published 'Diagnosis and Management of uncomplicated Type 2 Diabetes in Adults (T2DM)' (Quinlan, 2019). This succinct practical guide for General Practice includes a section on diabetic foot screening and classification.

  This guidance can be accessed here:
  https://www.icgp.ie/go/library/catalogue/item/635EAD13-8305-4A73-9A 19FB346193CBD5/

- The HSE Office of the Nursing and Midwifery Services Director developed and published National Wound Management Guidelines (Health Service Executive, 2018). This guideline aims to support all clinicians in the clinical decision making process in their wound care practice and support the implementation of standardised wound care in healthcare organisations nationally.

  This guidance can be accessed here:
  https://h ealthservice.hse.ie/filelibrary/onmsd/hse-wound-management-g uidelines-2018.pdf

- In 2016, the International Wound Infection Institute published 'Wound Infection in Clinical Practice: Principles of Best Practice' (International Wound Infection Institute, 2016).

  This guidance can be accessed here:
  https://www.woundinfection-institute.com/wp-content/uploads/2017/03/IWII-Wound-infection-in-clinical-practice.pdf

- In addition, in 2021 the HSE Office of the Nursing and Midwifery Services Director developed an elearning module titled The Nursing Management of Adults with Type 2 Diabetes Mellitus. This module primarily developed for nursing but aims to support all clinicians in the management of patients with Type 2 Diabetes Mellitus.

  This can be accessed via the online HSE training and education portal: HSelanD

- The NCP Diabetes has developed a package of resources to support clinicians to deliver on diabetic foot screening and to support this model of care for the diabetic foot. An elearning module which can be accessed via the on line HSE training and education portal: HSelanD and is titled: Diabetic Foot Screening. Also information leaflets outlining Self-Management advice for those at low, moderate and high risk of diabetic foot ulceration.These should be provided to all people with diabetes following foot screening and classification.

  These leaflets can be accessed here:
  https://www.hse.ie/eng/about/who/cspd/ncps/diabetes/resources/education/

- A on line diabetic foot care patient explainer, Foot care for people with Diabetes, provides tips to take care of your feet, which can be delivered to patients via IT /digital platforms or accessed on the **HSE website here:**
  https://www2.hse.ie/conditions/type-2-diabetes/living-with/foot-care.html
  or accessed via the **HSE YouTube channel here: https://youtu.be/LMabG9olwLI**

8. Implementation of the Diabetic Foot Model of Care

8.1. Serious Reportable Events

The HSE requires that all incidents are managed, reported and investigated in line with the HSE's Safety Incident Management Policy, including all incidents that result in death and serious harm (Health Service Executive, 2017). Incidents that require reporting and subsequent Investigation can be defined as events occurring in HSE funded healthcare (including in the community) which could have or did result in unintended and/or unnecessary serious harm.

One subset of all serious incidents are described by the HSE as Serious Reportable Events (SREs) (Health Service Executive, 2015). These are serious, largely preventable patient safety incidents that should not occur if the available preventative measures have been implemented by healthcare

providers. It is a mandatory requirement of the HSE that all SREs are reported on the National Incident Management System (NIMS) formally the National Adverse Event Management System (NAEMS) and the STARS Web System and through the Safety Incident Management Communication/ Escalation Form process (Health Service Executive, 2017).

In the context of in-patient diabetic foot care, all stage 3 or 4 pressure ulcers acquired after admission to a health and social care residential facility are deemed a SRE.

8.1.1. Definition of stage 3 and 4 pressure ulcers

- **STAGE 3: Full thickness skin loss**

  Subcutaneous fat may be visible but bone, tendon or muscle is not exposed. Slough may be present but does not obscure the depth of tissue loss.

- **STAGE 4: Full thickness tissue loss**

  Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present.

  (European Pressure Ulcer Advisory Panel, National Pressure Ulcer Advisory Panel, Pan Pacific Pressure Injury Alliance, 2014; Health Service Executive, 2015)

8.1.2. Reporting requirements

- SREs must be reported within 24 hours to the Senior Accountable Officer in the hospital/ facility.
- It is also mandatory that investigations commence within 48-hours of the organisation becoming aware of the incident and that these investigations are completed within four months of commencing.
- Further details can be obtained from the **SRE Guidance Document.**

8.2. Key Performance Indicators

8.2.1. Why measure outcomes?

A foot care service for people with diabetes needs easily measurable, consistent and have definable outcomes to justify and focus spending. By examining and interpreting these outcomes, we can ensure ongoing quality improvement measures. Meaningful and consistent reporting of outcomes inform clinicians and managers in their efforts to drive quality improvement in terms of identifying the potential for improvement and monitoring the results of new initiatives.

Systems should be in place to ensure the routine collection of data regarding throughput and outcomes. The most robust data collection would involve electronic collection at all stages of the diabetic foot care journey. In the absence of integrated patient information systems, we must currently rely on what electronic data is available, such as data that is captured by the Hospital In-Patient Enquiry (HIPE) system.

8.2.1. Why measure outcomes?

Three key performance indicators (KPIs) have been selected to monitor performance of this Model of Care. These KPIs are specific, measurable and feasible in that they use existing data. They have considered the domains of'structure, process and outcome'with particular emphasis on quality and cost (Health Information and Quality Authority, 2013).

KPI 1 **Reduction in the number of lower limb amputations (by type) performed on people with diabetes**	**Structure** Adherence to the Model of Care in addition to integrated diabetes care and a multidisciplinary approach to diabetic foot care should demonstrate a reduction in the number of diabetes related lower limb amputations. **Process** Data will be collected on a monthly basis from HIPE and reported annually per hospital, hospital group, and nationally. Type of lower limb amputation should be distinguishable. **Outcome** This KPI should demonstrate person-centered care, effective care and safe care.
KPI2 **Reduction in the average length of stay for inpatients with diabetic foot ulcers**	**Structure** Adherence to the Model of Care and a multidisciplinary approach to diabetic foot care should demonstrate a reduction in the mean length of stay for inpatients with diabetic foot ulcers. **Process** Data will be collected on a monthly basis from HIPE and reported annually per hospital, hospital group, and nationally. **Outcome** This KPI should demonstrate person centered care, effective care, better health and wellbeing, and good governance, leadership and management
KPI3 **Reduction in the readmission rate (within two weeks of discharge) for inpatients with diabetic foot ulcers**	**Structure** Adherence to the Model of Care in addition to integrated diabetes care and a multidisciplinary approach to diabetic foot care should demonstrate a reduction in the readmission rate for inpatients with diabetic foot ulcers. **Process** Data will be collected on a monthly basis from HIPE and reported annually per hospital, hospital group, and nationally. **Outcome** This KPI should demonstrate person centered care, effective care, better health and wellbeing, and good governance, leadership and management.

8.3. Clinical Audit

One of the objectives of this model of care is to significantly improve outcomes of care over the next five to ten years provided that ongoing investments are made in foot care services for people with diabetes. Critical to evaluating quality of care and patient safety is the development of a system of audit. Audit of a service can provide useful information on both the processes and outcomes of care enabling comparison with national and international standards and can help drive service developments and improved care delivery.

8.3.1. Diabetic foot care audits

One of the objectives of this model of care is to significantly improve outcomes of care over the next five to ten years provided that ongoing investments are made in foot care services for people with diabetes. Critical to evaluating quality of care and patient safety is the development of a system of audit. Audit of a service can provide useful information on both the processes and outcomes of care enabling comparison with national and international standards and can help drive service developments and improved care delivery.

Clinical outcomes

- Amputation rate
- Ulceration rate (including classification of ulcers)
- Ulceration healing rate
- Re-ulceration incidence rates and frequency
- Rate of osteomyelitis
- Foot Health Status (pain, disability, function)
- Functional Status/ Occupational Independence
- HbA1c levels
- Nutritional Status
- Quality of Life
- Diabetes-related emotional distress

Processes of care

- Admission avoidance for those presenting with diabetic foot ulcers
- Foot Screening Rates within General Practice
- Number (and proportion) of people with Type 2 diabetes having (at least) an annual foot examination
- Number (and proportion) of people with Type 1 diabetes having (at least) an annual foot examination
- Number (and proportion) of people identified at each level of risk
- Access to FPT assessment and intervention (waiting times)
- MDFT: Initial appointment within 24 hours of referral (or next working day)
- 0rthotic service provision across HSE
- Access to orthotic services/ orthotic intervention (time between orthotist referral to orthoses provision)
- Time between assessment of need for orthotic device to prescription and fitting either by Foot protection team Podiatrist and/or orthotist
- Access to Planter Pressure Measurement Systems

Processes of care (contd)

- Use of antibiotics
- Access to and uptake of diabetic foot education for HSCPs
- Audit of all people who have undergone an amputation - were they known to podiatry prior to amputation.
- Number of onward referrals to specific disciplines e.g. referrals for assessment for rehabilitation intervention with occupational therapy and/or physiotherapy.
- Uptake of diabetes education programme by people with DFU

8.4. Implementation of the Diabetic Foot Model of Care

MODEL OF CARE RECOMMENDATION	ACTION/ INTERVENTION/ TASK TO IMPLEMENT RECOMMENDATION
Screening and Classification	
People with type 2 diabetes (T2DM) should have initial foot screening and risk classification upon diagnosis.	• Initial foot screening will take place within General Practice. • For those individuals with T2DM who have a General Medical Scheme (GMS) or GP visit card, foot screening has been included in the GP Chronic Disease Management Programme which has been rolled out to all who are over the age of 70. This will be expanded to include further age groups over the coming years. Private patients who do not have a GMS or GP visit card currently have to pay for their visit with the GP or Practice Nurse.
People with type 1 diabetes (Tl DM) should have initial foot screening and risk classification upon diagnosis.	• Initial foot screening will take place within the secondary care endocrinology service responsible for care of those with type 1 diabetes.
Management of the Low Risk Group	
People with T2DM, who are deemed at low risk of diabetic foot ulcer (DFU), should have annual foot screening.	• Annual foot screening for those at low risk of DFU will take place within General Practice. • For those individuals with T2DM who have a General Medical Scheme (GMS) or GP visit card, foot screening has been included in the GP Chronic Disease Management Programme which has been rolled out to all who are over the age of 70. This will be expanded to include further age groups over the coming years. Private patients who do not have a GMS or GP visit card currently have to pay for their visit with the GP or Practice Nurse.
People with Tl DM, who are deemed at low risk of DFU, should have annual foot screening.	• Annual Foot Screening for those at low risk of DFU will be completed within the secondary care endocrinology service responsible for care of those with type 1 diabetes.

MODEL OF CARE RECOMMENDATION	ACTION/ INTERVENTION/ TASK TO IMPLEMENT RECOMMENDATION
Management of the Moderate Risk Group	
People with TI DM or T2DM who are deemed at moderate risk of DFU should have annual foot screening and review by a podiatrist.	○ Each Specialist Ambulatory Care Hub should have a Foot Protection Team (FPT) podiatry service, based in the community, to serve the catchment population for that hub (approximately 3 community health networks or 150,000 general population). The FPT podiatrist will complete annual foot screening and review of those at moderate risk of diabetic foot ulcer. Referral pathways between general practice, the FPT and the MDFT should be developed and agreed locally. ○ Local and national administrative processes should be put in place to ensure that the FPT have access to a budget for medical devices e.g. specialist footwear, off-loading devices.
Management of the High Risk Group	
People with TI DM or T2DM who are deemed at high risk of DFU should have 6-monthly foot screening and review by a podiatrist.	O Each Specialist Ambulatory Care Hub should have a Foot Protection Team (FPT) podiatry service, based in the community, to serve the catchment population for that hub (approximately 3 community health networks or 150,000 general population). The FPT podiatrist will complete 6-monthly foot screening and review of those at high risk of diabetic foot ulcer. Referral pathways between general practice, the FPT and the MDFT should be developed and agreed locally. O Local and national administrative processes should be put in place to ensure that the FPT have access to a budget for medical devices e.g. specialist footwear, off-loading devices.
Management of the In-Remission Sub-Group	
People with TI DM or T2DM who are in remission from DFU should have 3-6 monthly foot screening and review by a podiatrist.	O Each Specialist Ambulatory Care Hub should have a Foot Protection Team (FPT) podiatry service, based in the community, to serve the catchment population for that hub (approximately 3 community health networks or 150,000 general population). 0 All model 4 hospitals should have a MDFT on-site. In addition, model 2 and 3 hospitals may also operate as a MDFT provided that they have direct referral pathways to tertiary services, for example vascular and orthopaedic surgery in another hospital (See Appendix 4). Every effort should be made by model 2 and 3 hospitals to operate as a MDFT and develop relevant referral pathways. Direct and explicit referral pathways should be developed to ensure integrated working between all hospitals within a group to facilitate access to services for those with diabetic foot disease. If one hospital does not have a MDFT, there should be a clear referral pathway to the MDFT in a neighbouring hospital. MDFTs are based primarily in secondary care and serve the relevant catchment population for management of active foot disease and provide integrated care with FPT's for those in remission. 0 The FPT will provide 3-6 monthly review at a minimum for those in remission. O The FPT and MDFT podiatry services will work together to provide integrated care ensuring the in remission foot that becomes Active foot disease will have a seamless transition to the MDFT, and once healed will transition to the FPT. Ensuring excellent communication with the GP/ Endocrinologist throughout this integrated care.

Contd.

Management of the In-Remission Sub-Group (Contd.)

People with TI DM or T2DM who are in remission from DFU should have 3-6 monthly foot screening and review by a podiatrist.

- Referral and communication pathways between the FPT and the MDFT should be developed and agreed locally.
- Local and national administrative processes should be put in place to ensure that the FPT podiatry services have access to a dedicated budget for medical devices e.g. specialist footwear, off-loading devices.

Management of Active Foot Disease

People with TI DM or T2DM who have active foot disease should be treated and managed by a multidisciplinary foot team (MDFT). Where there are signs of spreading infection or sepsis the person should be referred immediately to the Emergency Department and the MDFT should be notified as a matter of urgency.

- All model 4 hospitals should have a MDFT on-site. In addition, model 2 and 3 hospitals may also operate as a MDFT provided that they have direct referral pathways to tertiary services, for example vascular and orthopaedic surgery in another hospital (See Appendix 4). Every effort should be made by model 2 and 3 hospitals to operate as a MDFT and develop relevant referral pathways. Direct and explicit referral pathways should be developed to ensure integrated working between all hospitals within a group to facilitate access to services for those with diabetic foot disease. If one hospital does not have a MDFT, there should be a clear referral pathway to the MDFT in a neighbouring hospital. MDFTs are based primarily in secondary care and serve the relevant catchment population for management of active foot disease and provide integrated care with FPT's for those in remission.
- Referral pathways should be developed and agreed locally between General Practice and the MDFT.
- Referral pathways should be developed and agreed locally between the FPT and the MDFT for the in remission foot.
- Local and national administrative processes should be put in place to ensure that the FPT have access to a dedicated budget for medical devices e.g. specialist footwear, off-loading devices.

Education and Training

Promote a culture of education and learning amongst HCPs providing diabetic foot screening and care

- Provision of specialist diabetes training to ensure that all members of the multidisciplinary team have the level of skill required to optimally manage people with diabetes and lower limb complications.
- GPs and Practice Nurses should be supported in training and continuing professional development in diabetic foot screening.
- Podiatrists, nursing, health and social care and medical healthcare professionals should be supported in training and continuing professional development in diabetic foot care. This may require additional investment for management and leadership positions to support training and education; post-graduate training bursaries; and development of clinical and peer support networks.
- Integrated research should be supported.

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Appendix 1: Diabetic Foot Model of Care Update Working Group & Contributors

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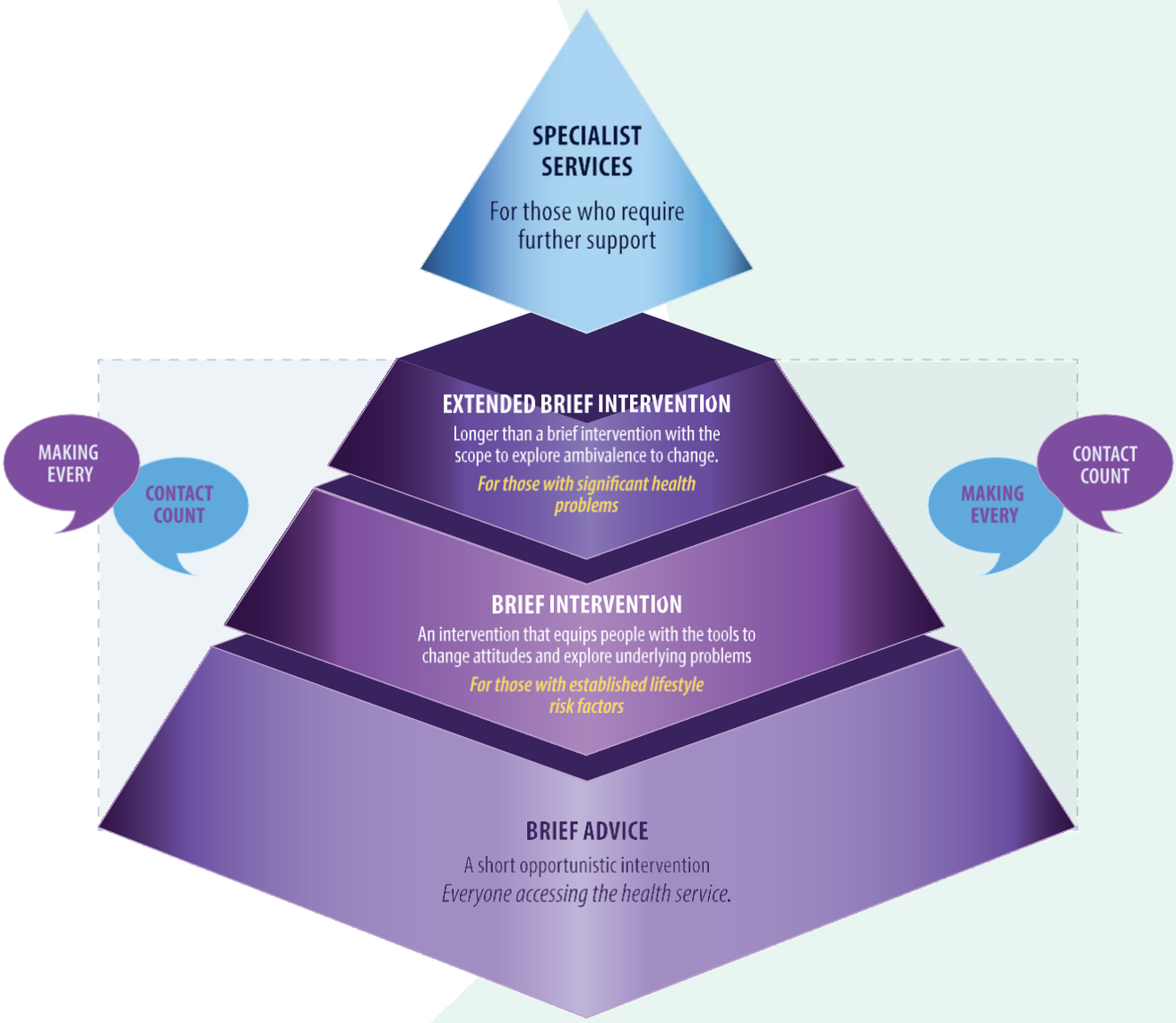
Appendix 2 : Making Every Contact Count

Chronic diseases, comprising of cancer, cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD) and diabetes, are the leading cause of mortality in the world. Despite the fact that the immediate risk factors for the development of chronic diseases are known and most are modifiable, tackling them continues to be one of the major challenges both now and into the future. HSCPs have millions of contacts each year with patients and these are all potential opportunities to improve the health and wellbeing of their patients.

Making Every Contact Count (MECC) Programme, established by the HSE in 2016, is about HSCPs using their routine consultation to empower and support people to make healthier choices to achieve positive long-term health outcomes. MECC focuses on modifiable health behaviours that are known risk factors for chronic disease (tobacco use, physical inactivity, harmful alcohol consumption and unhealthy eating) in an effort to prevent the onset, slow the progression or reduce the complications associated with the major chronic diseases. MECC is an important aspect of living well in the community, the foundation level of the Integrated Model of Care for the Prevention and Management of Chronic Disease.

The model for MECC (Figure 5) is presented as a pyramid with each level representing an intervention of increasing intensity with the low intensity interventions at the bottom of the pyramid and the specialised services at the top.



Appendix 2: Making Every Contact Count

Implementing the Making Every Contact Count approach seeks to begin the process at the basic levels of brief advice and brief intervention. In practice this will mean that all health professionals and healthcare assistants will to be trained to a level that enables them to conduct a brief intervention with their patients.

It is envisaged that extended brief intervention will be conducted by health professionals with greater capacity to carry out this more lengthy intervention, because of their specialist role or due to the specific service that they work in. This intervention should be delivered to patients requiring more intensive support in their behaviour change efforts and/or who may be self-managing an existing chronic disease.

The specialist services are delivered by practitioners who use specialised or advanced approaches to support patients to change behaviour. These services include smoking cessation and dietetic services, along with services delivered by staff with in-depth counselling skills in the wider arena of supporting people to change. These services are part of existing clinical pathways for patients and while not the main focus of Making Every Contact Count they are an integral part of a comprehensive model for behaviour change, hence their inclusion in the model. In the implementation of this framework health professionals working in these services are being asked to make every contact count in terms of lifestyle behaviour change. In the future, the Making Every Contact Count model will be an integral part of the clinical pathway for patients.

For further information and to register for MECC training visit: **www.makingeverycontactcount.ie**

Appendix 3: Roles of health and social care professionals involved in diabetic foot care

Advanced Nurse Practitioner (ANP)/ Clinical Nurse Specialist (CNS) Diabetes

The CNS/ANP diabetes plays a pivotal role in diabetic foot care both in the community and acute setting. The FPT and MDFT CNS/ANP diabetes is frequently required to attain patient specific glucose targets to ensure prevention of and/or timely ulcer healing. They provide education, self-management support and advice with regards to the practical management of blood glucose control and some of the more complex aspects of diabetes care. Referral to a local self-management education programme should be considered where appropriate.

In the hospital setting the CNS/ ANP plays a central role in perioperative glucose management which is vital to reduce inpatient stay and post-operative wound infection. The CNS/ANP diabetes completes diabetic foot screening as necessary and can advise, help and works closely with the podiatrists.

The CNS Diabetes Integrated Care can provide support and guidance to general practice on the diabetic foot care pathway. The CNS may also work closely with other teams e.g. primary care nurses and public health nurses to ensure safe and timely care for the person with diabetes.

Consultant Endocrinologist

An endocrinologist is a physician who specialises in treating disorders of the endocrine system, such as diabetes. The MDFT is usually led by a Consultant Endocrinologist in close collaboration with podiatry. The Consultant Endocrinologist should coordinate the person's care with the other members of the team and establish and regularly update the person's management plan. As well as participating in management of the diabetic foot, the Consultant Endocrinologist is also involved in overall diabetes care, in optimising glycaemic control and reducing cardiovascular risk.

Surgeon (Vascular, Orthopaedic and Plastic Surgeon)

Foot ulceration in people with diabetes is frequently complex and multi-factorial and may require surgical debridement and/ or revascularisation. The MDFT should have good links with an appropriate surgeon who has an interest in diabetic foot problems. This could include a vascular, orthopaedic, and plastic surgeon. The surgeon should be involved early in the management of those with foot ischaemia, deep or complex tissue infection and osteomyelitis.

The presence or absence of peripheral arterial disease (PAD) should be established at initial presentation, and if present, this can contribute to ulceration and failure of healing. A specialist vascular surgeon should be involved at the point of presentation (either admission to hospital or at an out-patient MDFT service) to guide management and facilitate timely investigation and intervention in people with ulceration and clinical evidence of PAD. Close liaison with radiological specialists in interpreting foot x-rays, MRI scans and vascular physiologists to provide non-invasive vascular studies will aid acute care. To prevent major amputation further endovascular interventions or distal bypass procedures may be required.

Dietitian

The dietitian has a primary role in preventing diabetic foot ulcers. Dietitians support people with diabetes through self-management education and support such as DISCOVER Diabetes Type 2, DESMOND, and CODE and in clinic settings. Part of this care includes education regarding possible complications of diabetes and support to prevent and minimise complications through behaviour change. Dietitians support people with diabetes to make diet and lifestyle changes to improve glycaemic control to reduce risk of diabetic foot ulceration. Dietitians work collaboratively with a range of other HSCPs, but especially GPs, Practice Nurses, Public Health Nurses and Diabetes Nurse Specialists to improve and maintain glycaemic control. Additionally, dietitians support people to

Appendix 3: Roles of health and social care professionals involved in diabetic foot care

prevent diabetic foot ulceration by educating them regarding podiatry services and foot check entitlements and supporting people to reporting foot issues and access appropriate services. Dietitians also have a role in active foot disease. People with active foot disease are at risk of malnutrition. Therefore, dietitians prevent and treat malnutrition, which left untreated can prevent healing and worsen prognosis. Dietitians promote healing of active foot disease through dietary counselling and/or oral nutritional supplements.

General Practitioner (GP) and Practice Nurse

The GP and the Practice Nurse are key to the success of the delivery of this Model of Care for the Diabetic Foot. The GP and Practice Nurse are the primary care givers and are involved in the delivery of diabetes and non-diabetes care over a person's lifetime. The GP and Practice Nurse work in close collaboration with the FPT and MDFT in the management of the person with diabetes. The importance of good communication between these teams cannot be overstatedJ8lThe□Model of Care for the Diabetic Foot□asks for: Initial foot screening within general practice of people with newly diagnosed type 2 diabetes and annual foot screening of those with type 2 diabetes that are classified as being at low risk of foot ulceration

Medical Social Worker

Social work is a profession that has its basis in the promotion of social justice. Social work aims to empower individuals, groups and communities to take charge of their own lives within their own environment and social context. It does this through its unique knowledge base which has developed from the integration of sociological, psychological and other relevant theories and practice.

Social workers take a holistic view of people and their difficulties. This perspective guides the range of interventions social work can take. These interventions include individual counselling and family work, group work, crisis intervention, problem-solving, assessment, advocacy with and on behalf of service users, community work and social action to influence organisational, social, political and economic structures.

Those with diabetes confront an array of challenges, from both the disease and its treatment. Given the nature of diabetes, its escalating presence, and person-dependent treatment regimen, social workers have immense potential to improve the lives of people facing this chronic illness through well-established roles of educator, advocate, counsellor, therapist, community developer, and resource broker (Decoster, 2001).Traditionally, many interventions for diabetes focus on biologic and behavioural factors, such as symptoms, diet and physical activity. However, it is equally important to address the influence of physical and social environments, which may include low income, employment insecurity, low educational attainment, and poor living conditions, on health outcomes. The profession of medical social work is located precisely at the intersection of health and inequality and practitioners are uniquely trained and skilled to address the broad scope of social determinants of health from a systemic perspective. As such, medical social workers are ideally placed to make a key contribution to the care of people with diabetes and diabetic foot disease.

Microbiologist/ Infectious Diseases Specialist

Infectious disease specialists typically serve as consultants who specialise in the diagnosis and treatment of complex infections providing inpatient and outpatient services. They also collaborate with other consultants and GP's to provide treatment for the patient with difficult to treat infections. Microbiologists undertake scientific research studies to identify new ways of diagnosing, treating and preventing infectious diseases. They study the micro-organisms that cause illness in humans and animals. They identify bacterial, viral, fungal and parasite pathogens, helping to prevent disease. The Infectious disease consultant/ microbiologists will work closely with the MDFT and the patients to treat complex infections in the diabetic foot.

Appendix 3: Roles of health and social care professionals involved in diabetic foot care

Foot infections in those with diabetes can be complex and potentially life threatening. Advice should be sought from specialists in microbiology and infectious diseases. Current and locally approved guidelines should be established and used in decision making. Empirical antibiotics are frequently required in the acute setting with tailoring of antibiotics when culture and sensitivity data are available. Outpatient parenteral antibiotic therapy (often referred to as OPAT) protocols should be used where appropriate.

Occupational Therapist

Occupational Therapy is a healthcare profession offering support to people with physical, psychological and social problems to enable them to live life to the fullest. Occupational Therapists understand how illness, injury, disability or challenging life events can affect a person's ability to do the day-to-day things that are important for them and know how to support them to reach their maximum level of independence and autonomy.

Occupational Therapists deliver one-to-one and /or group interventions and practice in a range of care contexts such as Acute, Community, Social care (Disability and the Older Person) and Mental Health. Occupational therapists help people to achieve their goals by addressing engagement and participation in daily tasks (occupations) for example, showering, dressing, household and community mobility, shopping, cooking, work and hobbies.

Occupational therapists provide support and interventions to people diagnosed with diabetes and those diagnosed with diabetic foot disease including education and health promotion regarding maximising functional performance and occupational participation, chronic disease prevention and management, prevention of diabetes related complications and diabetes self-management techniques. Occupational therapist provide person-centered holistic assessment of activities of daily living (self-care, leisure, work, social participation), functional mobility, falls risk, environmental review, need for adaptive equipment, seating and/or wheelchair assessment, driving assessment and cognitive and perceptual assessment. Occupational Therapists specialise in rehabilitation and they have a pivotal role in functional rehabilitation especially post-surgery and lower limb amputation.

Orthotist- Prosthetists

Often referred to as 'Orthotists'these specialist healthcare professionals are trained as Orthotists and Prosthetists. Once qualified they can work to combine the roles or to specialise as a Prosthetist or as an Orthotist.

Orthotists are responsible for the assessment, measurement, design, manufacture, fitting and management of splints, braces, specialist footwear or orthotics. Orthotics are devices to enhance, support, correct and reduce the pressure on a limb. Prosthetists design and provide gait analysis to create artificial limbs/ body parts that match the missing limb as closely in function as possible.

Custom made foot orthoses and footwear or modifications to footwear are often recommended for those with diabetes and foot complications. The diabetic foot will often have deformity, or areas of the foot that are at risk of high- pressured areas, often as a consequence of neuropathy or a particular gait pattern. This can often be complicated by reduced blood flow and/or sensation in the foot. Orthotics and prescription footwear can reduce the high pressure on the feet therefore reducing the risk of ulceration or re-ulceration in the diabetic foot.

There are a limited number of Orthotist / Prosthetists positions in the HSE at present and service provision is often via external private orthotist/prosthetists companies. People requiring referral to the orthotist/prosthetists for the diabetic foot, should be referred by FPT or the MDFT.

Appendix 3: Roles of health and social care professionals involved in diabetic foot care

Outpatient parenteral antimicrobial therapy (OPAT) Service

OPAT is a treatment option for people who require parenteral antibiotic administration and are clinically well enough not to require inpatient hospital care. OPAT is an established, safe, and cost-effective treatment modality that enables the early discharge, or admission avoidance, of people with clinically-responding infections whilst maintaining safe, structured care, with ongoing specialist medical, nursing, and pharmacy input. The OPAT team is led by the Infectious Diseases Consultant or Clinical Microbiologist. Infections frequently treated via OPAT services include skin and soft tissue infections, deep-seated infections (including osteoarticular and endovascular infections) and infections caused by resistant organisms where oral therapy is not possible.

Physiotherapist

Physiotherapists are health care professionals who are responsible for developing, maintaining or restoring movement and functional ability throughout the lifespan across the health spectrum using evidence-based practice. Physiotherapists play a pivotal role in the treatment of the person diagnosed with diabetes and diabetic foot disease. The role of the physiotherapist is multifaceted and includes education and health promotion regarding exercise and physical activity limitations/progression, chronic disease management and prevention, prevention of diabetes related complications and diabetes self-management techniques. Physiotherapists complete biomechanical and musculoskeletal assessment to take account of joint restriction/disturbances of the foot and ankle complex, muscle imbalances and instabilities, gait pattern and overall lower limb kinetics and movement patterns. Physiotherapists specialise in rehabilitation and address balance and motor control retraining, with particular focus due to peripheral neuropathy, lower limb stretching and flexibility programs, falls frailty and sarcopenia identifiers and markers. Physiotherapists deliver one-to-one and /or group interventions and practice in a range of care contexts such as Acute, Community, Social care (Disability and the Older Person) and Mental Health.

Podiatrist

Podiatrists are specialist healthcare professionals dedicated to the diagnosis, treatment, management and prevention of disease and disorders affecting the foot, ankle and lower limb. There are many clinical areas that podiatrists work in, including, renal, vascular, rheumatology, paediatric, orthopaedics and diabetes to name but a few. A podiatrist's core training includes, wound management vascular assessment, musculoskeletal and biomechanical assessment and management, skin and nail assessment and management, neurological assessment, surgical debridement, offloading management and diabetic footwear and foot appliances i.e. casting.

It is these inclusive elements of their training that make the podiatrist an integral team member and a central point of contact for any person diagnosed with diabetes and foot and ankle complications.

The Clinical Specialist Podiatrist in Diabetes is expertly trained in the overall holistic management of the foot as detailed above as well as extensive clinical, mentorship, research experience in the management and prevention of diabetic foot disease and ulcerations.

The Clinical Specialist Podiatrist in Musculoskeletal /Biomechanics is expertly trained in the overall holistic management of the diabetic foot as detailed above, as well as having extensive clinical, mentorship, research experience in MSK /biomechanical assessment and management.

Primary Care Nurse *(Community Registered Nurses, Public Health Nurses and Registered Nurses working in older persons'services)*
It is recommended that the initial assessment of the feet of people with diabetes and annual screening of those with a low-risk foot is usually carried out in general practice by the GP or practice nurse. In some individual cases, this role may fall to the community registered nurse, public health nurse or registered nurses working in residential facilities.

Appendix 3: Roles of health and social care professionals involved in diabetic foot care

Primary care nurses may work in collaboration with the CNS diabetes to ensure safe and timely diabetes care for the person and to optimise diabetes control.

In addition, for those with active foot ulceration, referral from the MDFT to the primary care nurse may occur. Referral for review, monitoring and redressing of wounds as agreed in the active foot disease management plan by the MDFT. The primary care nurse can work in close collaboration with MDFT.

Psychologist

Psychology seeks to help people with a range of personal difficulties. Often, these problems cause distress or difficulty in how someone is feeling, thinking, behaving or learning. Psychologists are trained to apply their knowledge in practical ways to help people understand their difficulties and explore ways of making positive changes. Professionally qualified psychologists will hold accredited undergraduate and postgraduate qualifications in areas such as clinical, counselling and educational psychology.

Psychological risk factors in the development of diabetic foot ulceration, such as depression, mood disorders, eating disorders, and cognitive impairment, are important to consider as they can impact on treatment adherence and health outcomes of those with diabetic foot ulceration. Poor self-care and poor health behaviours such as withdrawal from activity, lack of motivation to exercise or engage in meaningful activity, emotional eating, excessive drinking, smoking have significant impact on behavioural issues, eating behaviour and treatment adherence (Nube, et al., 2016).

Clinical psychologists play a core role as part of a multidisciplinary diabetes team to assess, formulate, and treat the psychological needs of adults with diabetes and diabetic foot disease. More specifically, psychologists are involved in the following: Screening for mental health problems and addressing the psychological burden of living with diabetes; Intervening using evidence based psychotherapeutic approaches with the most common mental health problems (including diabetes distress, adjustment difficulties, anxiety and depression); Facilitating self-management of diabetes through addressing psychological factors in a systematic manner; Assessment of neuropsychological aspects associated with diabetes; Promoting research and evaluation of the service; Supporting team dynamics and offering team supervision and training.

Tissue Viability Nurse

The Tissue Viability Nurse Specialist/ Advanced Nurse Practitioner in Tissue Viability provides specialist knowledge and skills in all aspects of skin and soft tissue wounds. The Tissue Viability Nurse Specialist/ Advanced Nurse Practitioner in Tissue Viability is highly skilled in the prevention and management of wound healing including ulcers.1:ITThey are involved with the person diagnosed with wounds and work closely with the MDFT podiatrist in wound management, offloading techniques, and compression. They provide specialist management for the person in factors such as skin integrity, in depth knowledge of wound dressings and pressure relieving agents. They may also help facilitate timely, intervention, education and investigations in people with ulceration and clinical evidence of peripheral arterial disease.

Vascular Physiologist

Vascular Physiologists are highly skilled healthcare professionals working in the field of Clinical Measurement Science. The role of a Vascular Physiologist is to assess for and diagnose the presence of vascular disease; by performing and reporting on clinical investigations which they carry out using ultrasound and other non-invasive techniques. Vascular Physiologists play an essential part in the diagnosis of a wide range of vascular disorders, including a vascular component in those with active diabetic foot disease or those in remission. Tests which you may undergo to assess the circulation/ blood flow to your lower limb and feet include an ankle brachia! index initially to provide a basic

Appendix 3: Roles of health and social care professionals involved in diabetic foot care

assessment; this may be followed in certain circumstances by an arterial and/or venous duplex which allows the Vascular Physiologist to directly image the blood vessels in the leg using ultrasound. Vascular Physiologists work very closely with the vascular surgical team and MDFT and are involved in both the assessment and review of those with a vascular component to their diabetic foot disease.

Appendix 4 : HSE public hospitals listed by model

The HSE National Acute Medicine Programme defined the four hospital models now used to describe the basic functionality of acute hospital activity in Ireland (Health Service Executive, 2010). The purpose of these models is to provide a clear delineation of hospital services based upon the safe provision of patient care with the constraints of available facilities, human resources and local factors. The four hospital models are: Model 4 - tertiary hospital; Model 3 - general hospital; Model 2 – local hospital with selected (GP-referred) medical patients; Model 1 - Community/district hospital.

There are 37 public hospitals currently providing diabetes care. In the table below they are listed by model level within the 6 public adult hospital groups.

IRELAND EAST HG	DUBLIN MIDLANDS HG	RCSI HG	UL HG	SOUTH/ SOUTH WEST HG	SAOLTA HG
MODEL 4					
MATER MISERICORDIAE UNIVERSITY HOSPITAL	**ST. JAMES'S** HOSPITAL	**BEAUMONT** HOSPITAL	**UHL** UNIVERSITY HOSPITAL LIMERICK	**UHW** UNIVERSITY HOSPITAL WATERFORD	**UHG** UNIVERSITY HOSPITAL GALWAY
ST. VINCENTS UNIVERSITY HOSPITAL	**TALLAGHT** UNIVERSITY HOSPITAL			**CUH** CORK UNIVERSITY HOSPITAL	
MODEL 3					
MIDLAND REGIONAL HOSPITAL MULLINGAR	**NAAS GENERAL** HOSPITAL	**OUR LADY OF LOURDES** HOSPITAL DROGHEDA	**UHL** UNIVERSITY HOSPITAL LIMERICK	**SOUTH TIPPERARY GENERAL** HOSPITAL CLONMEL	**PORTIUNCULA** HOSPITAL
WGH WEXFORD GENERAL HOSPITAL	**MIDLAND REGIONAL** HOSPITAL TULLAMORE	**CAVAN GENERAL** HOSPITAL		**UHK** UNIVERSITY HOSPITAL KERRY	**MUH (MAYO)** MAYO UNIVERSITY HOSPITAL
ST. LUKE'S HOSPITAL KILKENNY	**MIDLAND REGIONAL** HOSPITAL PORTLAOISE	**CONNOLLY** HOSPITAL BLANCHARDSTOWN		**SIVUH** CORK	**SUH** SLIGO UNIVERSITY HOSPITAL
OUR LADY'S NAVAN				**MUH (CORK)** MERCY UNIVERSITY HOSPITAL	**LUH** LETTERKENNY UNIVERSITY HOSPITAL
MODEL 2					
ST. COLUMCILLE'S HOSPITAL LOUGHLINSTOWN		**MONAGHAN** HOSPITAL	**ENNIS GENERAL** HOSPITAL	**BANTRY GENERAL** HOSPITAL	**RUH** ROSCOMMON UNIVERSITY HOSPITAL
ST. MICHAEL'S HOSPITAL DUN LAOGHAIRE		**LOUTH COUNTY** HOSPITAL	**NENAGH GENERAL** HOSPITAL	**MALLOW GENERAL** HOSPITAL	
			ST. JOHN'S HOSPITAL LIMERICK		

Further information on the hospital models is available on the National Acute Medicine Programme webpage (Accessible here: **https://www.hse.ie/eng/about/who/cspd/ncps/acute-medicine/**) and in their report published in 2010 (Accessible here: **https://bit.ly/33ITCW9**

Appendix 5 : Podiatry Grading Structure

Podiatrists manage disease and disorder of the foot, ankle and lower limb. They are educated in the assessment, diagnosis, management and provision of interventions for the foot and lower limb for all age groups.

Once a podiatrist has obtained their university degree in Podiatric Medicine they may work in either the public, voluntary or private sector. CORU is the health professions regulatory authority that regulates the podiatry profession. Similar to other health and social care professionals, podiatrists work as independent, autonomous practitioners.

The HSE grade the podiatry work force according to training, expertise, experience, and skills. There are three clinical grades: staff grade, senior and clinical specialist:

- Staff grade podiatrist: New graduate podiatrists are eligible to apply for and work in a staff grade podiatry position. The staff grade will be supported by more senior podiatrists within the same geographical area.

- Senior podiatrist: Podiatrists who have at least three years' experience in their role or area of expertise are eligible to apply for and work in a senior podiatry position.

- Clinical specialist podiatrist: Podiatrists who have at least five years' experience in their role or area of expertise are eligible to apply for and work in a clinical specialist position. The clinical specialist would be expected to have a greater understanding, depth and breadth of clinical expertise in the specialist area. They also would have an enhanced role in service design, development, and implementation.

- Podiatrists can specialise in many areas including:

  - Diabetes (specialising in diabetic foot disease)
  - Musculoskeletal/Biomechanics
  - Vascular
  - Rheumatology
  - Orthopaedics
  - Foot & Ankle Surgery
  - Minor Surgery
  - Wound Management
  - Podopaediatrics
  - Sports Injuries

Appendix 6: National Diabetic Foot Screening and Risk Stratification Form

This is not a referral form, complete and include in the patient's medical records

DIABETES

Patient Details

Name

I.D.No

Date of birth

Address

Contact number

GP Name/Practice

GP Contact number

GP Address

Diabetes ☐ DM Type 1 ☐ DM Type 2 ☐ Other

Diabetes duration ☐ Newly Diagnosed ☐1-Syrs ☐ 5-lOyrs ☐ 10-2Oyrs ☐>2Oyrs

Treatment: ☐ Injectable ☐ OHA's ☐ Diet

Latest HbA1c result: When:

eGFR

Smoker ☐Active ☐Ex ☐Never **Cessation offered** ☐ Yes ☐No

Footcare - currently attending: ☐MDFT Hospital ☐ Podiatrist- community ☐ Private podiatrist ☐ Patient self-cares

Inspect feet, inbetween toes, soles and heel and anterior/posterior lower limbs

Neurological screen

	Right Foot	Left Foot
10 gram monofilament *(6 sites - 3 each foot to berecorded)*	 ☐ Detected ☐ Not detected	 ☐ Detected ☐ Not detected
Vibration sensation *(Tuning fork 128Hz)* Site dorsal halux	☐ Present ☐ Absent	☐ Present ☐ Absent
Foot Symptoms *v'TICKall relevant*	☐ Pain ☐ Pins & needles ☐ Numbness ☐ Burning ☐ None	☐ Pain ☐ Pins & needles ☐ Numbness ☐ Burning ☐ None

Risk Factors

Previous foot ulceration	Right ☐ Yes ☐ No	Left ☐ Yes ☐ No
Foot Shape - Risk	Right ☐ Yes ☐ No ☐ Toe deformities ☐ Bunions ☐ Flat foot ☐ High arched	!ft ☐ Yes ☐ No ☐ Toe deformities ☐ Bunions ☐ Flat foot ☐ High arched
Diabetes related amputation BKA BelowkneeAmputation AKA AboveKneeAmputation TMA TransmetatarsalAmputation Digital DigitalAmputation	Right ☐ Yes ☐ No ☐ BKA ☐ AKA ☐ TMA ☐ Digital	Left ☐ Yes ☐ No ☐ BKA ☐ AKA ☐ TMA ☐ Digital
Skin condition	☐ Dry	☐ Calloused
Nails	☐ Ingrowing	☐ Thickened
Footwear	☐ Bespoke ☐ Bespoke insoles	☐ Prescribed

✓ *TICK as appropriate*

Vascular Screen

Completed screen for each Foot/ Limb ☐ Yes ☐No

Compare each limb for colour, temperature and hair growth

	Right	Left
Skin temperature: *Knees to toes*	☐ Warm to cool ☐ Cold ☐ Warm ☐ Bilateral difference	☐ Warm to cool ☐ Cold ☐ Warm ☐ Bilateral difference
Skin colour	☐ Pale ☐ Cyanotic ☐ Red ☐ Other (specify)	☐ Pale ☐ Cyanotic ☐ Red ☐ Other (specify)
Hair growth *Consider clothes friction*	Digits ☐ Yes ☐ No Lower limb ☐ Yes ☐ No	Digits ☐ Yes ☐ No Lower limb ☐ Yes ☐ No
Dorsalis pedis pulse	☐Present ☐ Absent	☐Present ☐ Absent
Posterior tibial pulse	☐Present ☐ Absent	☐Present ☐ Absent
Intermittent claudication	☐Present ☐ Absent	☐Present ☐ Absent
Rest pain	☐Present ☐ Absent	☐Present ☐ Absent
Oedema	☐Present ☐ Absent	☐Present ☐ Absent

Active foot disease

Active footulceration *If YES name site*	☐ Yes ☐ No	☐Yes ☐No
Suspected Charcot *If YES name site*	☐ Yes ☐ No	☐Yes ☐No
Critical Limb Ischaemic	☐ Yes ☐ No	☐Yes ☐No

Refer to hospital diabetic foot MDFT
NOTE: If Sepsis suspected refer to Emergency Department

Foot Risk Category

☐Active ☐ In-remission ☐ High risk ☐ Moderate ☐ Low-risk

Action

Patient informed of Foot Risk Category D Yes D No

Patient advised on Foot Risk Management D Yes D No

Diabetic foot educational resources provided to patient ☐ Yes ☐No

Referto ☐ GP
- ☐ Podiatry-Community Diabetic Foot protection team
- ☐ Podiatry-Hospital Multidisciplinary foot team
- ☐ Emergency department
- ☐ Diabetes Structured Education Programme
- ☐ Smoking Cessation

NOTE: Compare previous foot screening results

Additional information or Comments

Screened by (Print):

Professional:

Contact No.:

Signature: **Date:**

FeidhrneannachtnaSeirbhiseSIllinte
llealthSeniceExecuth-e

Clinical Design
& Innovation
Person-centrered,coordinaredcare

DIABETES

1cgp

ROYAL
COLLEGE OF
PHYSICIANS
OFIRELAND