

Diabetic foot in the world in the third millenium: state of the art



Trieste, 31 January 2019

D-Foot International

Kristien Van Acker
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International

www.D-Foot.org

Robert Cliquet
Dragana Avramov

Evolution Science and Ethics in the Third Millennium

Challenges and Choices for Humankind

 Springer

- The book aims to revitalise the [interdisciplinary](#) debate about evolution science and substantiate the idea that science can provide a rational and robust framework for understanding [morality](#).
- The authors discuss ethical challenges associated with the major biosocial sources of [human variation](#): individual variation, inter-personal variation, inter-group variation, and inter-generational variation.





Every 20 seconds,
a lower limb is lost
as a result of
diabetes
somewhere in the
world ...



It's dramatic ...



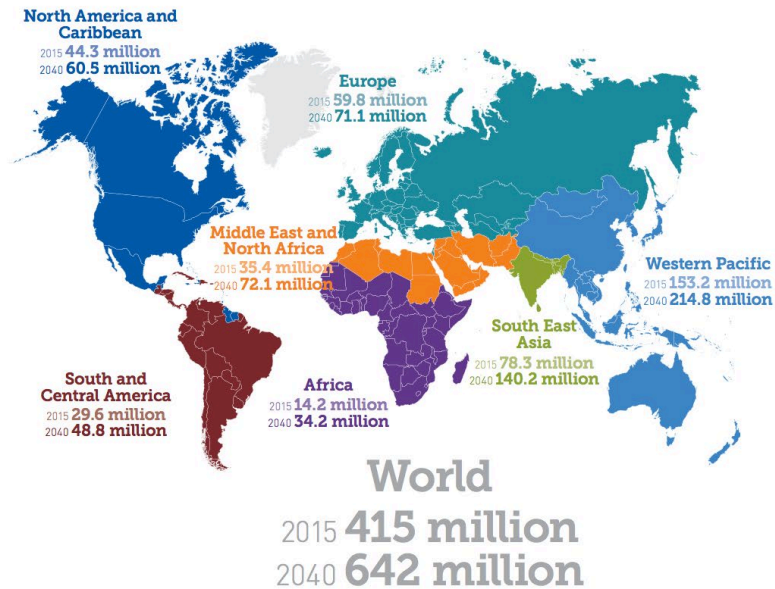


80%

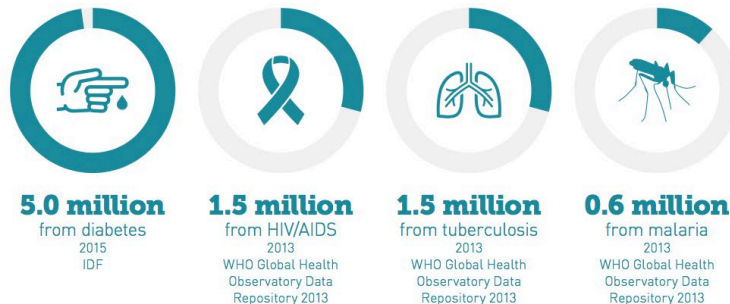
in the Low and
Middle
income regions

Diabetes today on a global level

Estimated number of people with diabetes worldwide and per region in 2015 and 2040 (20-79 years)

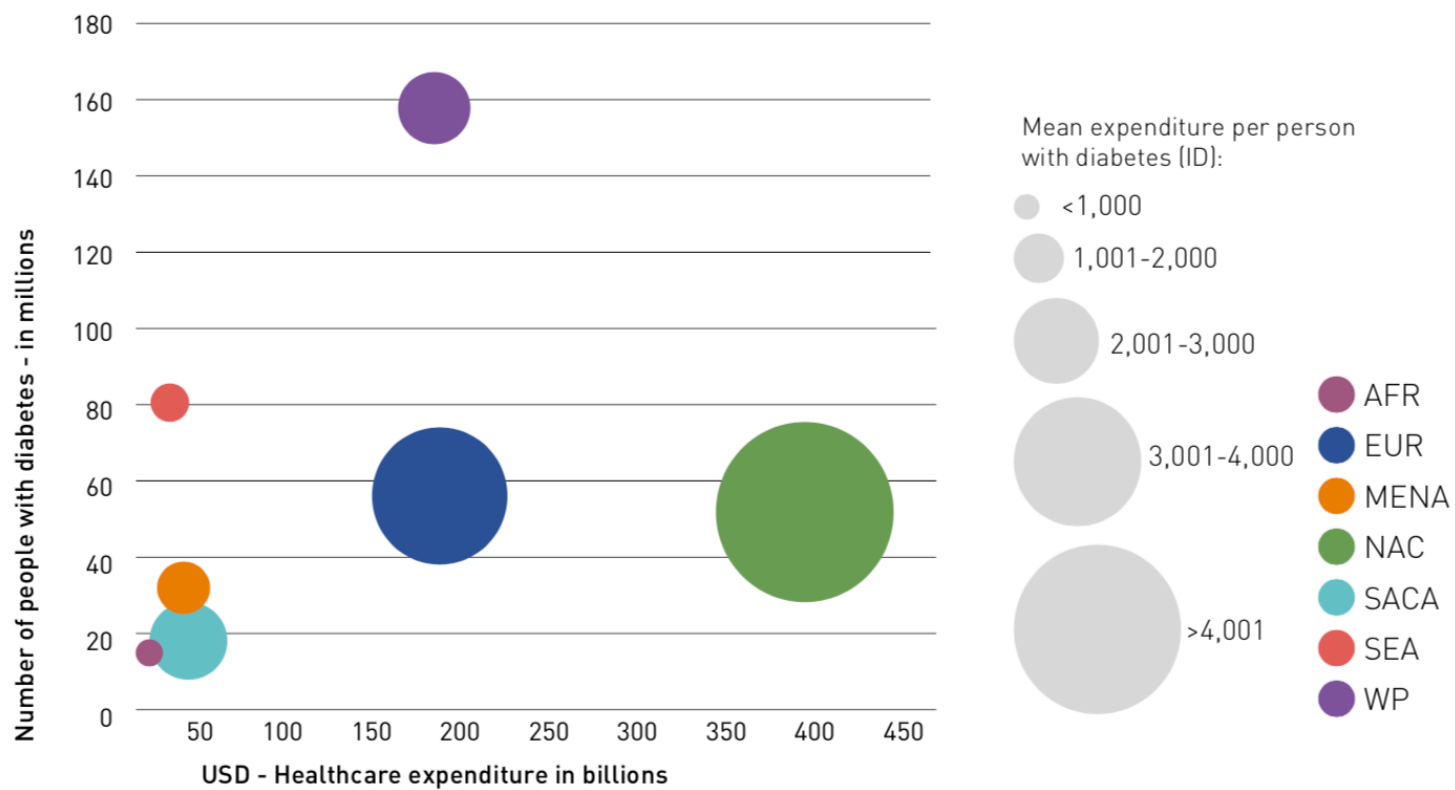


Adults who died from diabetes, HIV/AIDS, tuberculosis, and malaria



Expenditure gap in diabetes

The total amount spent and the amount per person spent varies widely between IDF regions.



Part 1



A Global Perspective of the Diabetic Foot and where we have come from

Dr. Kristien Van Acker
President D-Foot International
www.d.foot.org

Diabetes Care over the years

- Joslin:
 - Once insuline treatment was available , it was clear that the ptoblem was not saved...
 - We had to deal with complications
 - **First DF Clinic** ever:
 - “wandering nurses,” the forerunners of today’s diabetes nurse educators, visited patients throughout New England, sometimes living with a family for several weeks



Diabetic foot care has traditionally been neglected

In contrast with:

5 years survival *following presentation with a new DFU* is only 50-60%, worse than that of many common cancers.

Association DFU and mortality is stronger than that of any macrovascular disease.



NO reason to be CINDERELLA...

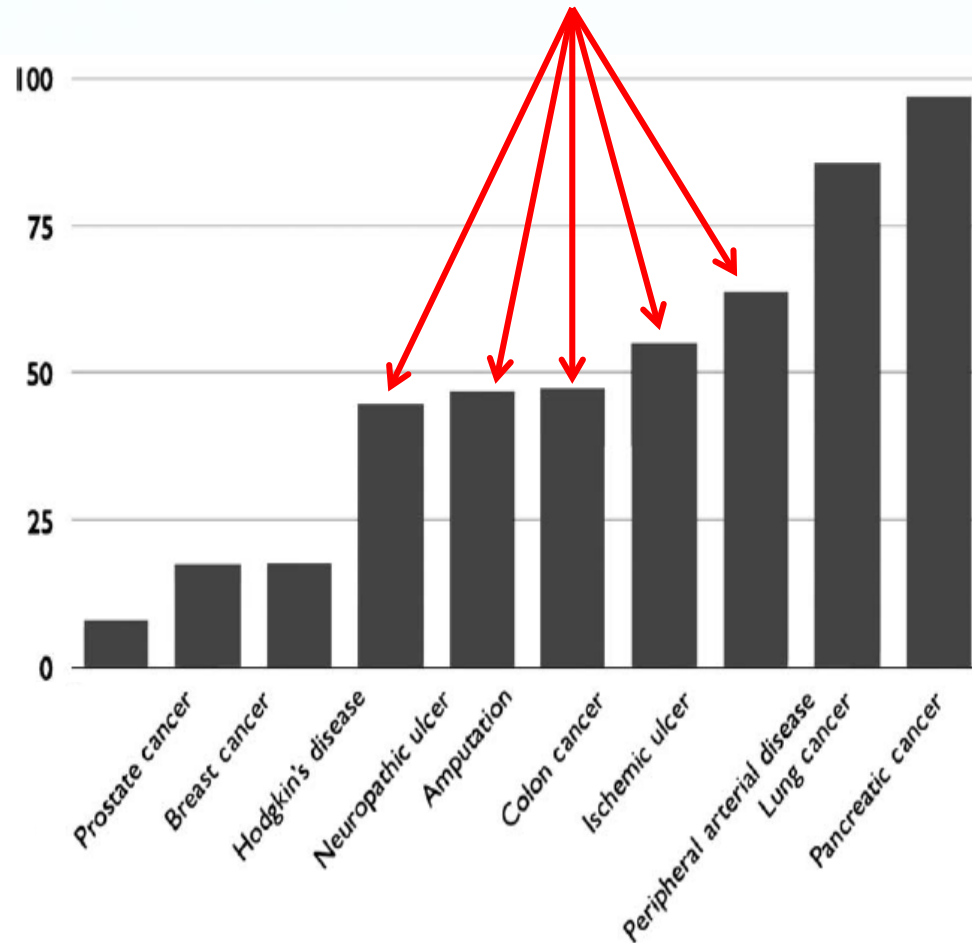


Figure 1. Five-year mortality (%). Perhaps now is the time to change our discussion with health-care administrators, policy makers and especially ourselves. The disease state that many of us treat routinely is, quite literally, killing our patients at a rate comparable to cancer. Addressing this issue aggressively may alter this and make a difference for millions of people worldwide.

Forgotten Complication once

- Publication New England

The NEW ENGLAND JOURNAL of MEDICINE

REVIEW ARTICLE

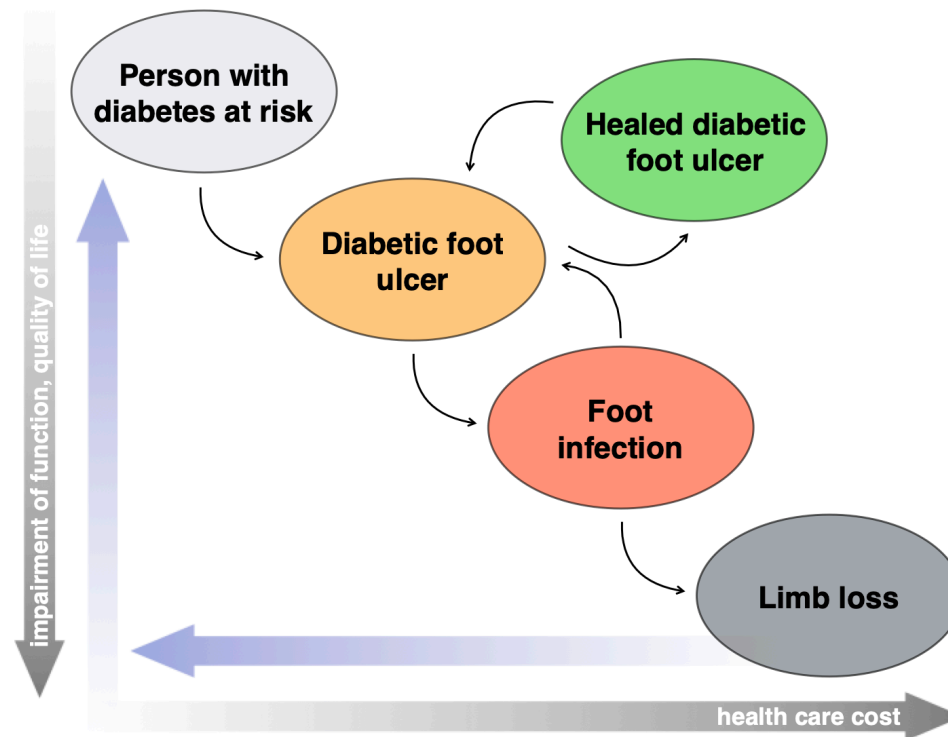
Julie R. Ingelfinger, M.D., Editor

Diabetic Foot Ulcers and Their Recurrence

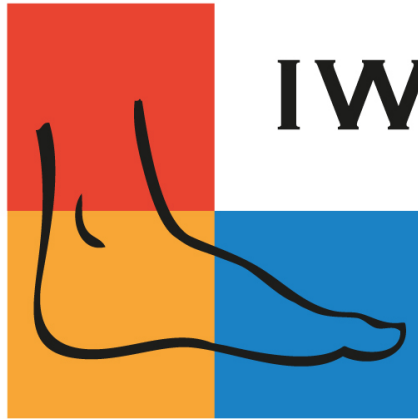
David G. Armstrong, D.P.M., M.D., Ph.D., Andrew J.M. Boulton, M.D.,
and Sicco A. Bus, Ph.D.

Health economics & quality of life

Long-term outcome efforts



Adapted from Neal R Barshes et al. (2003)



IWGDF

GUIDANCE AND IMPLEMENTATION DAY

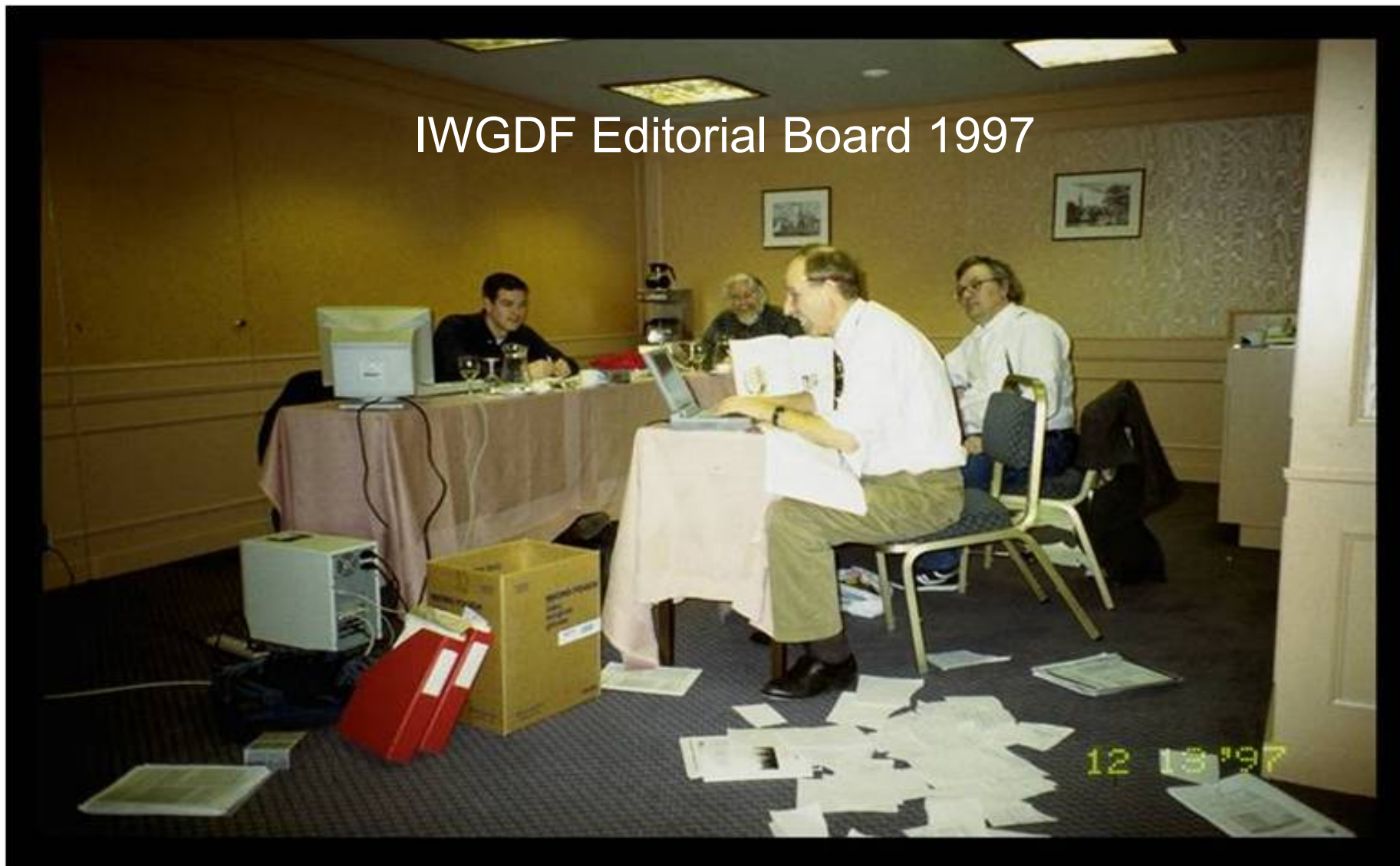
Development of an evidence-based global consensus

The 2015 IWGDF Guidance documents

K. Bakker; J. Apelqvist; B. A. Lipsky; J. J. van Netten; N. C. Schaper

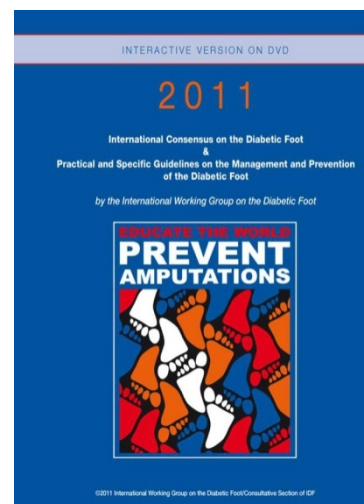
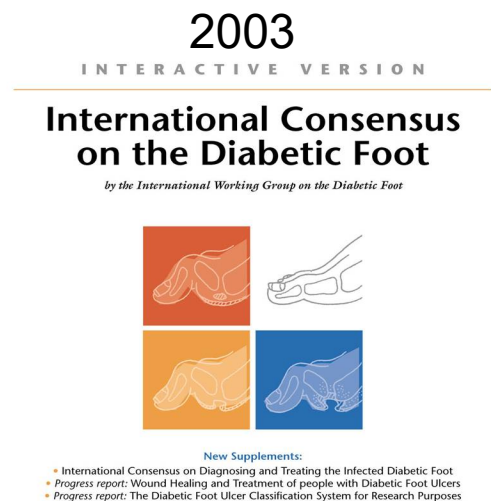
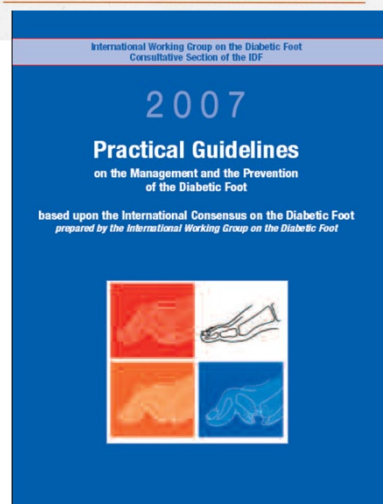
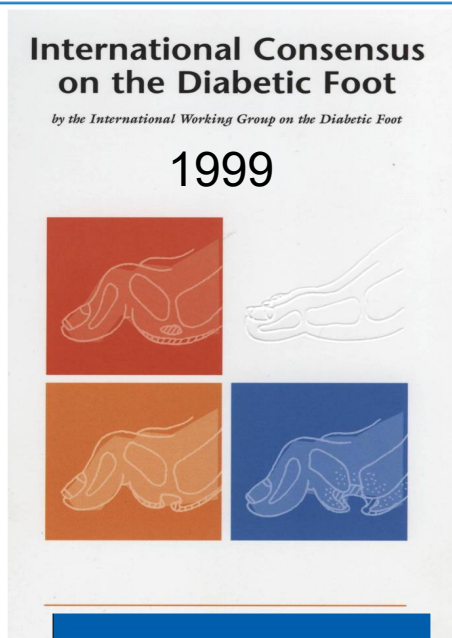


IWGDF Editorial Board 1997



IWGDF Guidelines 1999-2011

GUIDANCE AND IMPLEMENTATION DAY



Prevention and Management of Foot Problems in Diabetes Guidance Documents and Recommendations

Summary for
Daily Practice

Guidance Documents

Definitions
and Criteria



GUIDANCE ON THE DIABETIC FOOT

The **2015** challenge of the
International Working Group
on the Diabetic Foot 

An interactive program on the **International Consensus on the Diabetic Foot 2015**
Including **Summary for Daily Practice**
a **Series of Guidance Documents** and **Definitions and Criteria**



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Prevention and Management of Foot Problems in Diabetes Guidance Documents and Recommendations

Development of
Guidance Documents

Summary for
Daily Practice

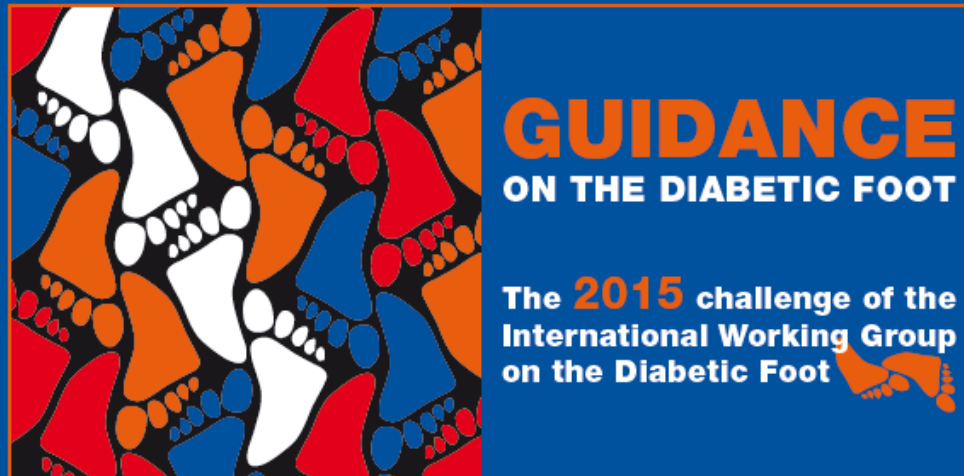
Guidance
Prevention

Guidance
Footwear and
Offloading

Guidance
Peripheral Artery
Disease

Guidance
Infection

Guidance
Wound Healing



This information is linked with the International Consensus on the Diabetic Foot 2015 on the website www.iwgdf.org. This is an interactive programme. You can choose how to access and read this information: front to back, topic by topic, on screen and on paper.



© 2015 International Working Group on the Diabetic Foot



IWGDF Guidance on the prevention of foot ulcers in at-risk patients with diabetes

Prepared by the IWGDF Working Group on Prevention of Foot Ulcers

Recommendations

Introduction

Recommendations and Rationale

Key controversies

References

Systematic review

At-risk patients require more frequent foot screening than patients who are not at risk. The aim of more frequent screening is early identification of factors that can increase the chances of developing a foot ulcer, followed by providing appropriate preventative foot care. For example, early diagnosis and treatment of pre-ulcerative signs on the foot may prevent foot ulcers, as well as more severe complications such as infection and hospitalization. Even though evidence for the effectiveness of a screening interval in at-risk patients does not exist, we recommend the following screening frequency:

Table 1: The IWGDF Risk Classification System 2015 and preventative screening frequency

Category	Characteristics	Frequency
0	No peripheral neuropathy	Once a year
1	Peripheral neuropathy	Once every 6 months
2	Peripheral neuropathy with peripheral artery disease and/or a foot deformity	Once every 3-6 months
3	Peripheral neuropathy and a history of foot ulcer or lower-extremity amputation	Once every 1-3 months

Is the treatment of a pre-ulcerative sign on the foot effective in preventing a foot ulcer in an at-risk patient with diabetes?

Recommendation 3:

Treat any pre-ulcerative sign on the foot of a patient with diabetes. This includes: removing callus; protecting blisters and draining when necessary; treating ingrown or thickened toe nails; treating haemorrhage when necessary; and prescribing antifungal treatment for fungal infections. (Strong; Low)

Rationale 3:

Pre-ulcerative signs on the foot, such as callus, blisters or haemorrhage, appear to be a strong predictor of future ulceration (10,12). These signs require immediate treatment by a foot care professional.





IWGDF Guidance on the diagnosis, prognosis and management of peripheral artery disease in patients with foot ulcers in diabetes

Prepared by the IWGDF Working Group on Peripheral Artery Disease

Recommendations

Introduction

Diagnosis

Prognosis

Treatment

References

Systematic review diagnosis

Systematic review prognosis

Systematic review therapy

Recommendations

Diagnosis

1. Examine a patient with diabetes annually for the presence of peripheral artery disease (PAD); this should include, at a minimum, taking a history and palpating foot pulses. (GRADE recommendation: strong; Quality of evidence: low)
2. Evaluate a patient with diabetes and a foot ulcer for the presence of PAD. Determine, as part of this examination, ankle or pedal Doppler arterial waveforms; measure both ankle systolic pressure and systolic ankle brachial index (ABI). (Strong; Low)
3. We recommend the use of bedside non-invasive tests to exclude PAD. No single modality has been shown to be optimal. Measuring ABI (with <0.9 considered abnormal) is useful for the detection of PAD. Tests that largely exclude PAD are the presence of ABI $0.9-1.3$, toe brachial index (TBI) ≥ 0.75 and the presence of triphasic pedal Doppler arterial waveforms. (Strong; Low)

Prognosis

4. In patients with a foot ulcer in diabetes and PAD, no specific symptoms or signs of PAD reliably predict healing of the ulcer. However, one of the following simple bedside tests should be used to inform the patient and healthcare professional about the healing potential of the ulcer. Any of the following findings increases the pre-test probability of healing by at least 25%: a skin perfusion pressure ≥ 40 mmHg; a toe pressure ≥ 30 mmHg; or, a TcPO₂ ≥ 25 mmHg. (Strong; Moderate)
5. Consider urgent vascular imaging and revascularisation in patients with a foot ulcer in diabetes where the toe pressure is <30 mmHg or the TcPO₂ <25 mmHg. (Strong; Low)
6. Consider vascular imaging and revascularisation in all patients with a foot ulcer in diabetes and PAD, irrespective of the results of bedside tests, when the ulcer does not improve within 6 weeks despite optimal management. (Strong; Low)





IWGDF Guidance on the diagnosis and management of foot infections in persons with diabetes

Prepared by the IWGDF Working Group on Foot Infections

Recommendations

Introduction

Pathophysiology

Diagnosis and Classification

Soft tissue infection

Osteomyelitis

Assessing severity

Microbiological considerations

Treatment

Key Controversies

References

Systematic review

Figure 1: Technique of percutaneous bone biopsy of the foot



Divide specimen for:
- Microbiology
- Histopathology

Note: May be done at bedside, in a radiology suite or in the operating theatre. If needed, can use fluoroscopic or computed tomographic guidance. If bone core obtained, send to microbiology for aseptic division with one piece for culture and the other sent to histopathology.

(Photographs courtesy of Dr E. Beltrand, Orthopedic Surgery Department, Dron Hospital, Tourcoing France)

Ideally, the bone specimen should be processed for both culture and histopathology. Infected bone usually has inflammatory cells (granulocytes early and mononuclear cells later), while the histomorphology of uninfected bone is normal in diabetic patients, including those with neuropathy or peripheral arterial disease (112,113). Work by one group has suggested that histopathology examination may help to define three types of DFO: (1) acute, defined by necrosis and infiltration of polymorphonuclear granulocytes in cortical and medullary sites, usually associated with congestion or thrombosis of small vessels; (2) chronic, characterized by destroyed bone and infiltration of lymphocytes, histiocytes or plasma cells; and, (3) acute exacerbation of chronic osteomyelitis, with a background of chronic osteomyelitis with infiltration of polymorphonuclear granulocytes (114). However, we need further evaluation of these findings from other groups. The concordance among several pathologists in diagnosing DFO in bone samples was found to be low in one study, but this may have been related to a lack of





IWGDF Guidance on use of interventions to enhance the healing of chronic ulcers of the foot in diabetes

Prepared by the IWGDF Working Group on Wound Healing

Recommendations

Introduction

Recommendations and Rationale

Considerations

Key unresolved issues

References

Systematic review

Key unresolved Issues

1. Overall low evidence base for the assessment of interventions

With the exception of off-loading (not considered in this review), the field remains blighted by the poor level of evidence to justify the use of any particular therapy in the management of ulcers. There is little evidence that the number of high-quality studies is increasing.

2. The contribution made by difficulties of trial design in the continuing low output of high quality research in the field

One particular aspect of trial design may be having a major impact on the poor evidence base for specific interventions and this relates to the choice of outcome measure for intervention studies. The difficulty derives from the fact that the best measure of efficacy of an intervention in this field is the demonstration of an effect on ulcer healing, and yet ulcer healing may take many weeks. If, however, an intervention is only effective at a particular stage of wound healing or under a particular set of clinical circumstances, then it is difficult to demonstrate its benefit in a conventionally designed trial.

3. Very few data on effectiveness and cost-effectiveness

Even though there are a small number of studies suggesting efficacy of particular interventions, there are very few studies confirming effectiveness (and, thereby, of cost-effectiveness) of any particular intervention in routine care.

Conflict of Interest

FG, JA, AH, RH, ML, PP, WJ: None declared relating to the interventions reviewed.

CA: Consultant: Acelity, Integra and Smith and Nephew.

IWGDF Guidance on use of interventions to enhance the healing of chronic ulcers of the foot in diabetes © 2015

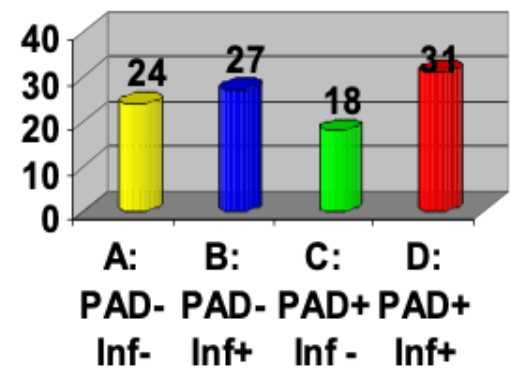


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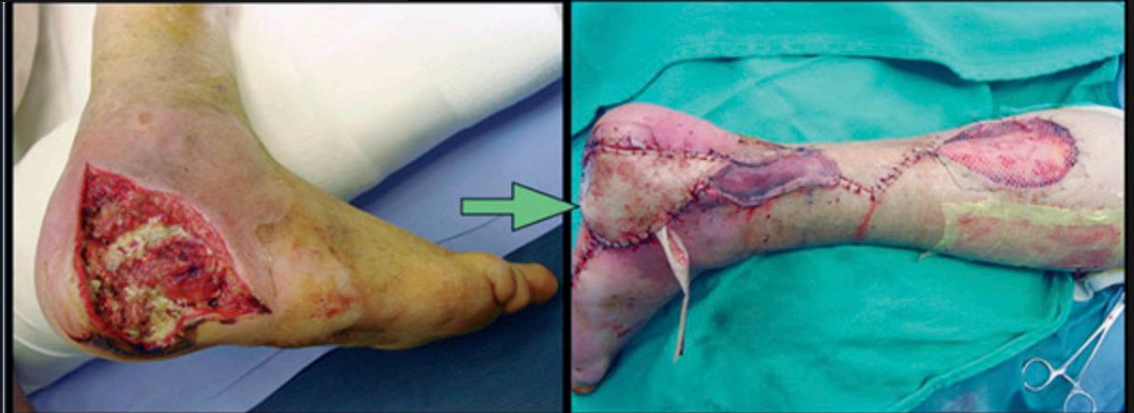


Co- morbidity.....

Ulcer stages



Limb salvage approach





Review Article

Burden of diabetic foot disorders, guidelines for management and disparities in implementation in Europe: a systematic literature review

Kristien van Acker , Philippe Léger, Agnes Hartemann, Abhineet Chawla, Mohd Kashif Siddiqui

First published: 14 November 2014 [Full publication history](#)



[View issue TOC](#)
Volume 30, Issue 8
November 2014
Pages 635–645

Table 1: Costs per diabetic patient for various diabetic foot complications across EU5 countries

Study name	Country	Year	Cost of amputation (Euros)	Cost of gangrene (Euros)	Cost of ulcer (Euros)	Cost of ulcer with infection (Euros)
Prompers 2008b	10 European countries	2005	€25 222	-	€7722 (healed ulcer); €20 064 (unhealed ulcer within 12 months)	-
Ray 2005	Germany	2003	€22 096	€3186	€877	€1783
Ray 2005	France	2003	€31 998	€2266	€1142	€1999
Ray 2005	Italy	2003	€10 177	-	-	-
Ray 2005	Spain	2003	€14 787	€5611	-	-
Happich 2008*	Germany	2002	€21 476	-	€4911	-
		Prior 2002	€12 588			
von Ferber 2007	Germany	2001	€10 801	€4748		-

€: Euros; *Represents costs of complications per diabetic patient and year; †Data represents direct costs; - Represents no data reported

SOURCE: [10;11;17;18]

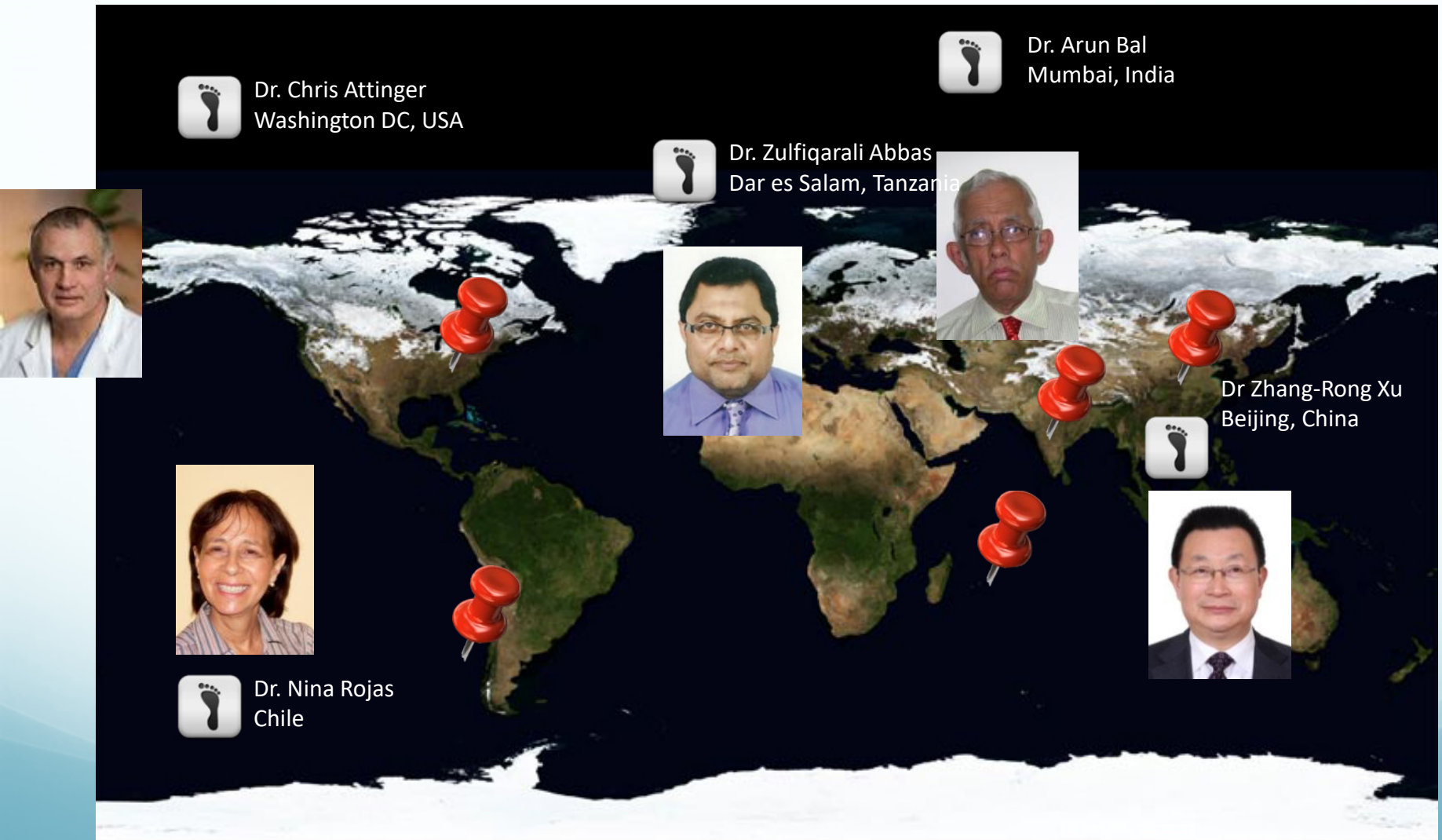
The Cost of Treating Diabetic Foot Ulcers in 5 Different Countries

Cavanagh P, Attinger C, Abbas Z, Bal A, Rojas N, Xu ZR. Cost of treating diabetic foot ulcers in five different countries. Diabetes Metab Res Rev. 2012 Feb; 28 Suppl 1:107-11.



Peter Cavanagh, Christopher Attinger, Zulfiqarali Abbas,
Arun Bal, Nina Rojas, and Zhangrong Xu

The locations and the co-authors



GDP Per Capita in International \$

<http://siteresources.worldbank.org/>

World Rank		Country	GDP per capita
9		US	Int\$47,244
49		Chile	Int\$16,659
94		PRC	Int\$8,268
138		India	Int\$3,419
167		Tanzania	Int\$1,481

Think of this quantity as an index of the annual ability to pay for treatment

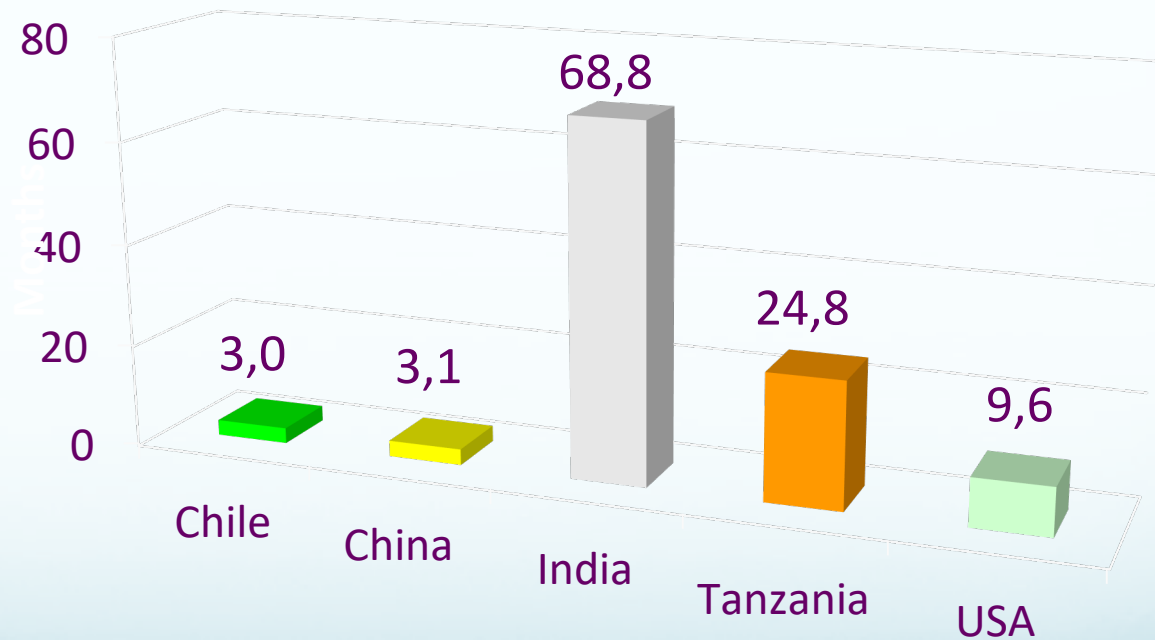


Case: Urban Treatment Costs in Int\$



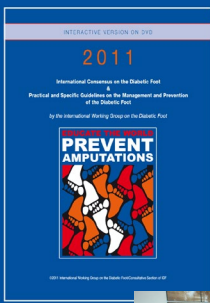


CASE: Patient's Financial Burden in Urban Clinic Expressed as Months of Income*



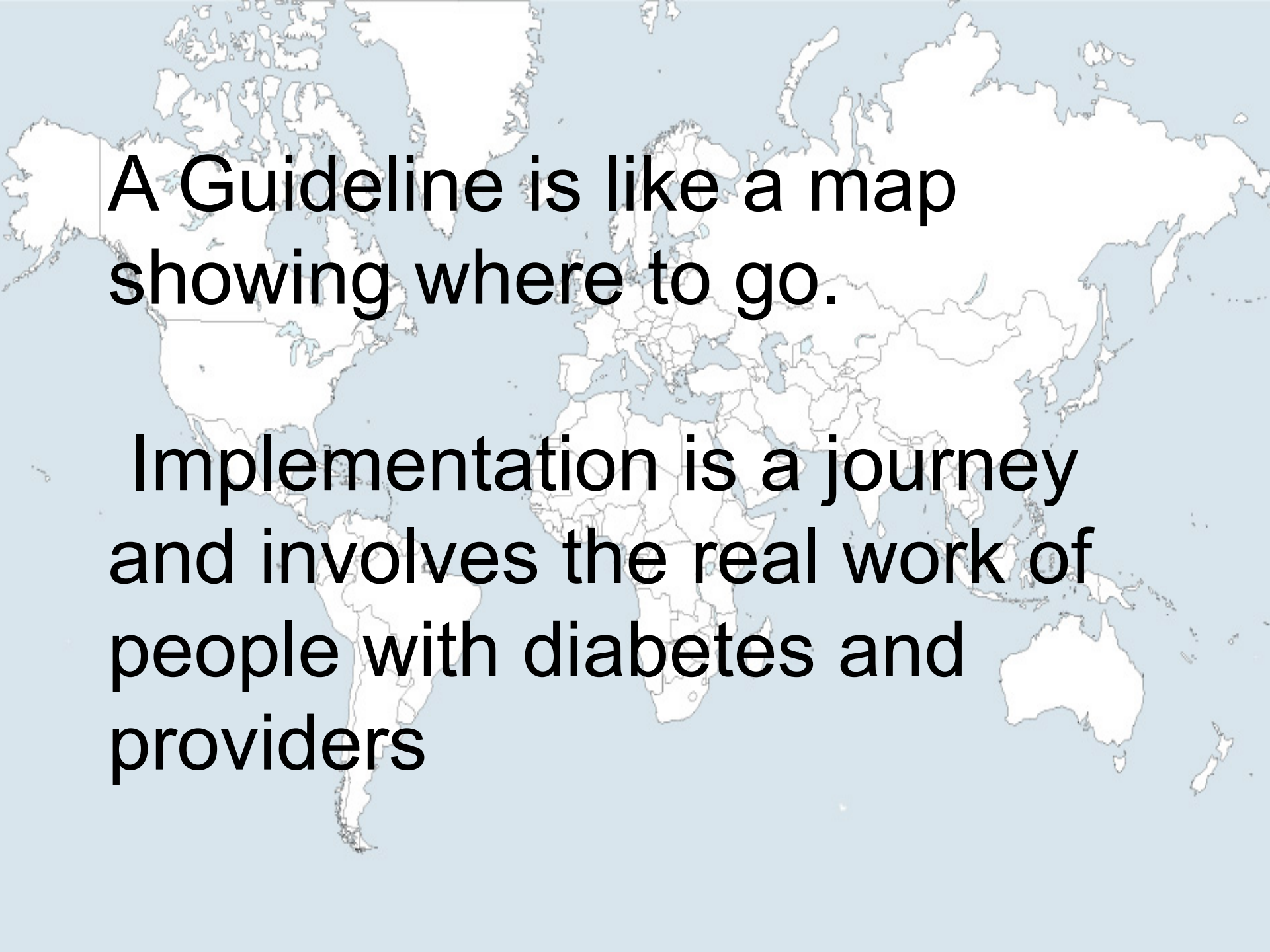
Calculated as $12 \times (\text{Patient co-pay in Int\$} / \text{per capita PPP-adjusted GDP})$





“pathway of
guideline
implementation”



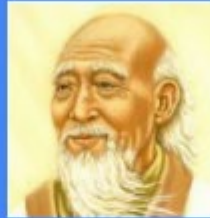


A Guideline is like a map
showing where to go.

Implementation is a journey
and involves the real work of
people with diabetes and
providers

What is the difference?

Give a man a fish and you feed him
for a day. Teach a man how to fish
and you feed him for a lifetime.

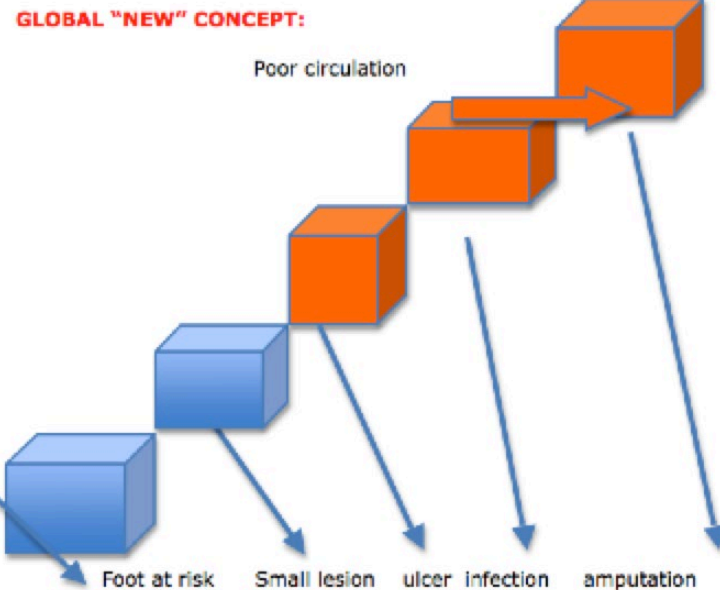
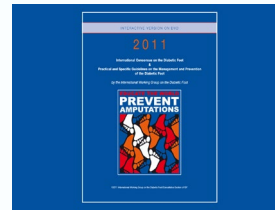


Lao Tzu

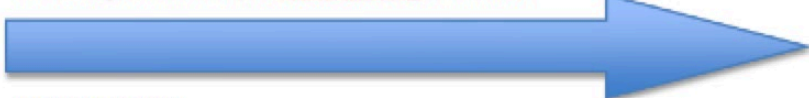




Train-the-Foot-Trainer projects in
SACA , NAC, EUR region, WP
FS-Africa



Mismanagement: delayed referral, wrong decisions;



wrong structure

- 3 parts:**
- 1. *Basic course***
 - 2. *Advanced course***
 - 3. *implementation***



EUR TtFT 2014,
BLED, Slovenia

SBS IN SACA 2012- 2015

DRA NALINI CAMPILLO
DIABETOLOGIST

IWGDF REPRESENTATIVE FOR SACA SPANISH
(LATIN AMERICA)



3135 healthcare professionals have been trained in 15 countries of 19 from LatinAmerica



2017: 17 countries and >4000 HCP's



Bangkok 2016

“Krung Thep”- nov 2016



Marrakesh, December 2018



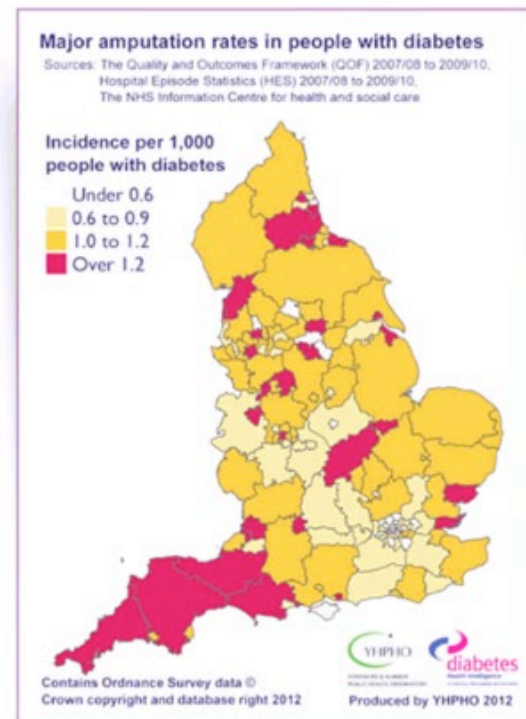
Significant regional variations in lower limb amputations in England

Incidence per 1,000 people with diabetes:

-  Under 0.6
-  0.6 to 0.9
-  1.0 to 1.2
-  Over 1.2

Where would your results put you?

Adapted from Holman N, et al. Diabetologia 2012; 55: 1919–1925.



Why more guidance?-

Rob Hinchcliff in Almelo

GUIDANCE AND IMPLEMENTATION DAY

8 X variation incidence
amputation DM

Organisation/ access care

Variations in clinical practice

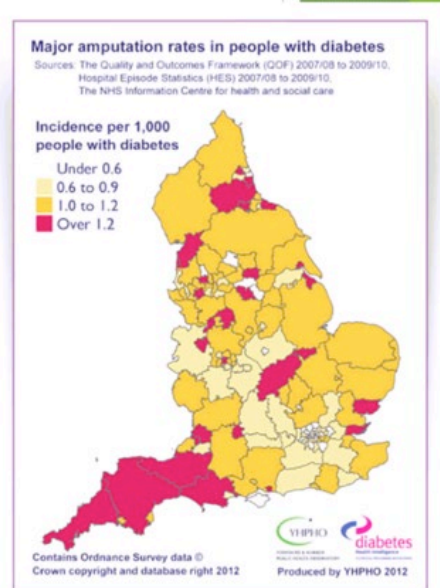
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**Where would your
results put you?**

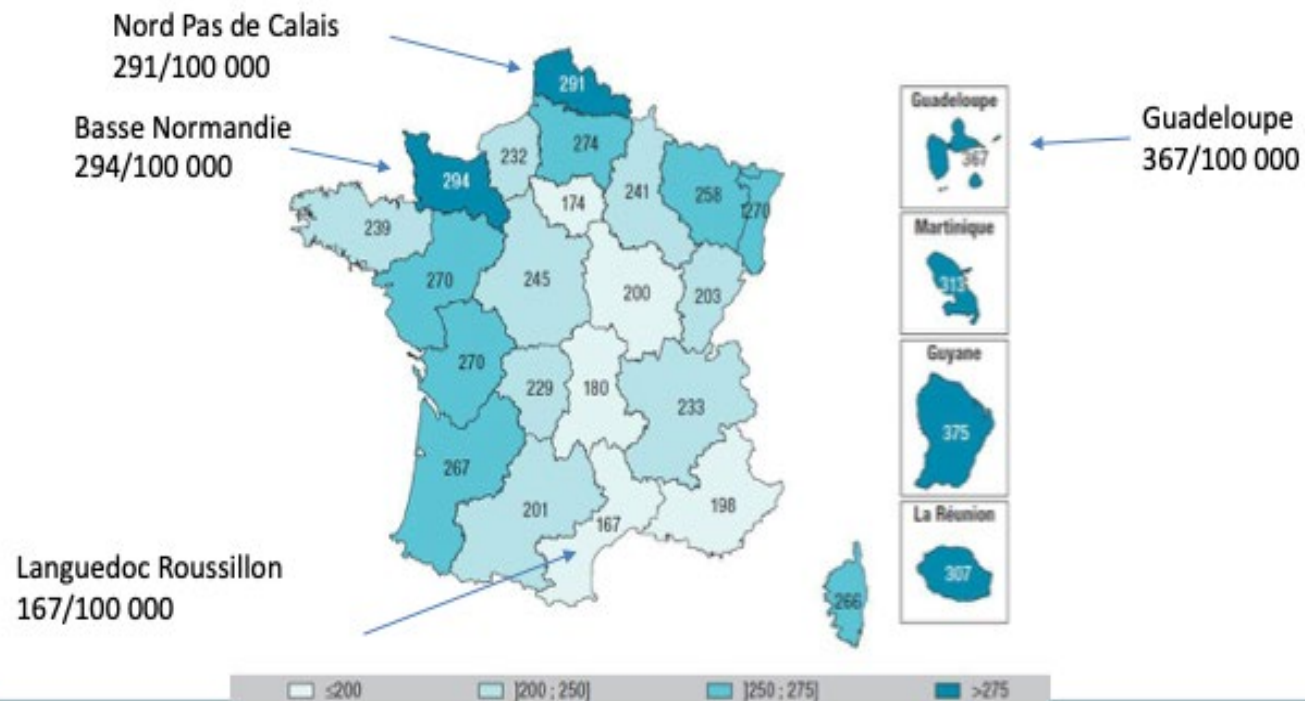
Adapted from Holman N, et al. Diabetologia 2012; 55: 1919–1925.



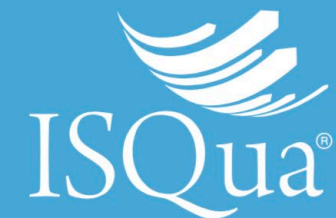
Geographic differences in clinical outcome



Grande disparité du taux régional d'amputations en France chez les patients diabétiques



International Journal for Quality in Health Care



Article Navigation

Standardization in patient safety: the WHO High 5s project FREE

Agnès Leotsakos ⓘ ⓘ, Hao Zheng, Rick Croteau, Jerod M. Loeb, Heather Sherman, Carolyn Hoffman, Louise Morganstein, Dennis O'Leary, Charles Bruneau, Peter Lee, ... [Show more](#)

International Journal for Quality in Health Care, Volume 26, Issue 2, 1 April 2014, Pages 109–116,
<https://doi.org/10.1093/intqhc/mzu010>

Published: 01 April 2014 **Article history** ▼

Patient Safety

- Patient safety is a fundamental principle of excellent patient care and a critical component of health care quality management.

From patient safety to standardisation

- One of the biggest challenges in improving patient safety is how best to implement evidence-based interventions and best practices in a **uniform way** within a hospital, across hospitals within a country or even, ideally, in multiple countries.

Standardisation

- *Standardisation* is the process of
 - developing,
 - agreeing upon
 - and implementing uniform technical specifications, criteria, methods, processes, designs or practices

that can increase compatibility, interoperability, safety, repeatability and quality.

Standardisation

- Process standardisation is the specification and **communication** of a process at a level of detail sufficient to permit consistent and verifiable implementation by different users at different times and in different settings.



MAKING THE CONNECTION
STANDARDIZED CARE

VS

PERSONALIZED CARE

Standardization and personalization—often considered mutually exclusive—can actually work together.

THE CASE FOR STANDARDIZATION

Standardizing best practices is an important part of delivering effective, safe, and affordable care, and has numerous benefits:

- Consistent outcomes
- Labor savings
- Reduced waste
- Improved efficiency
- Improved patient safety
- Reduced costs



THE CASE FOR PERSONALIZATION

Physicians need to personalize care and motivate patients to become active participants in their health journeys:

- Improve patient experience
- Increase patient engagement
- Increase patient ownership of their health

Shared decision making process



Let's do the self test



Most difficult barrier in diabetic foot care = patient compliance ?



The patient's context



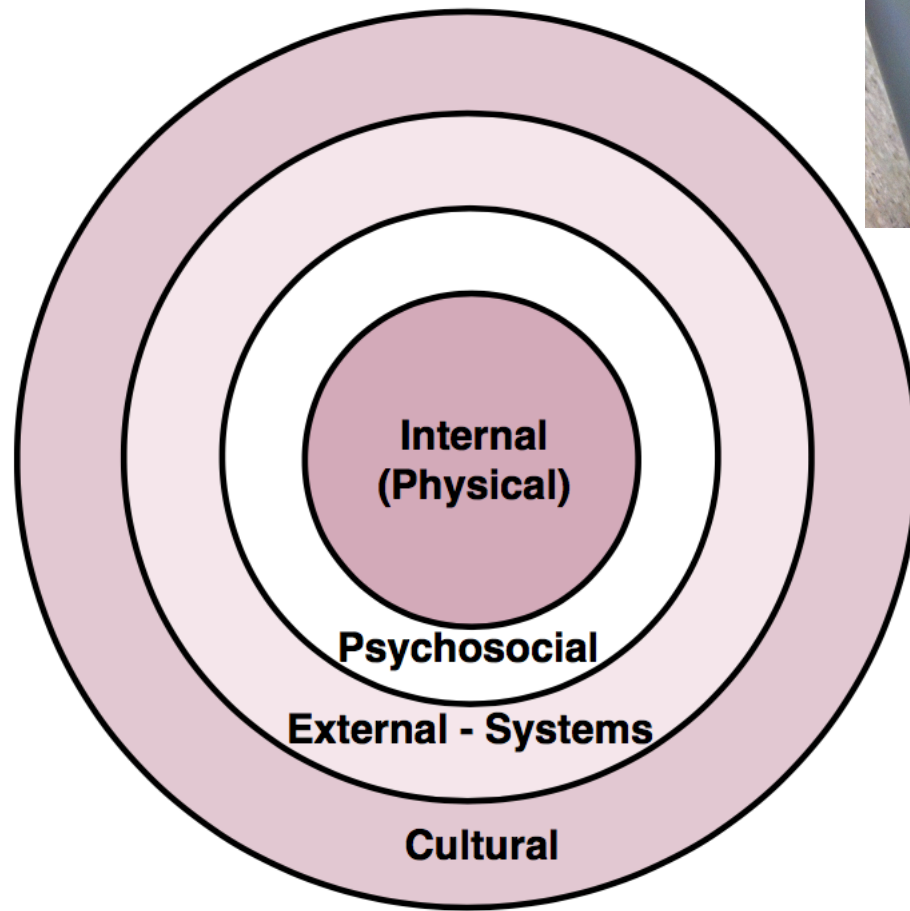
Individual project at that time
at that place....





The patient

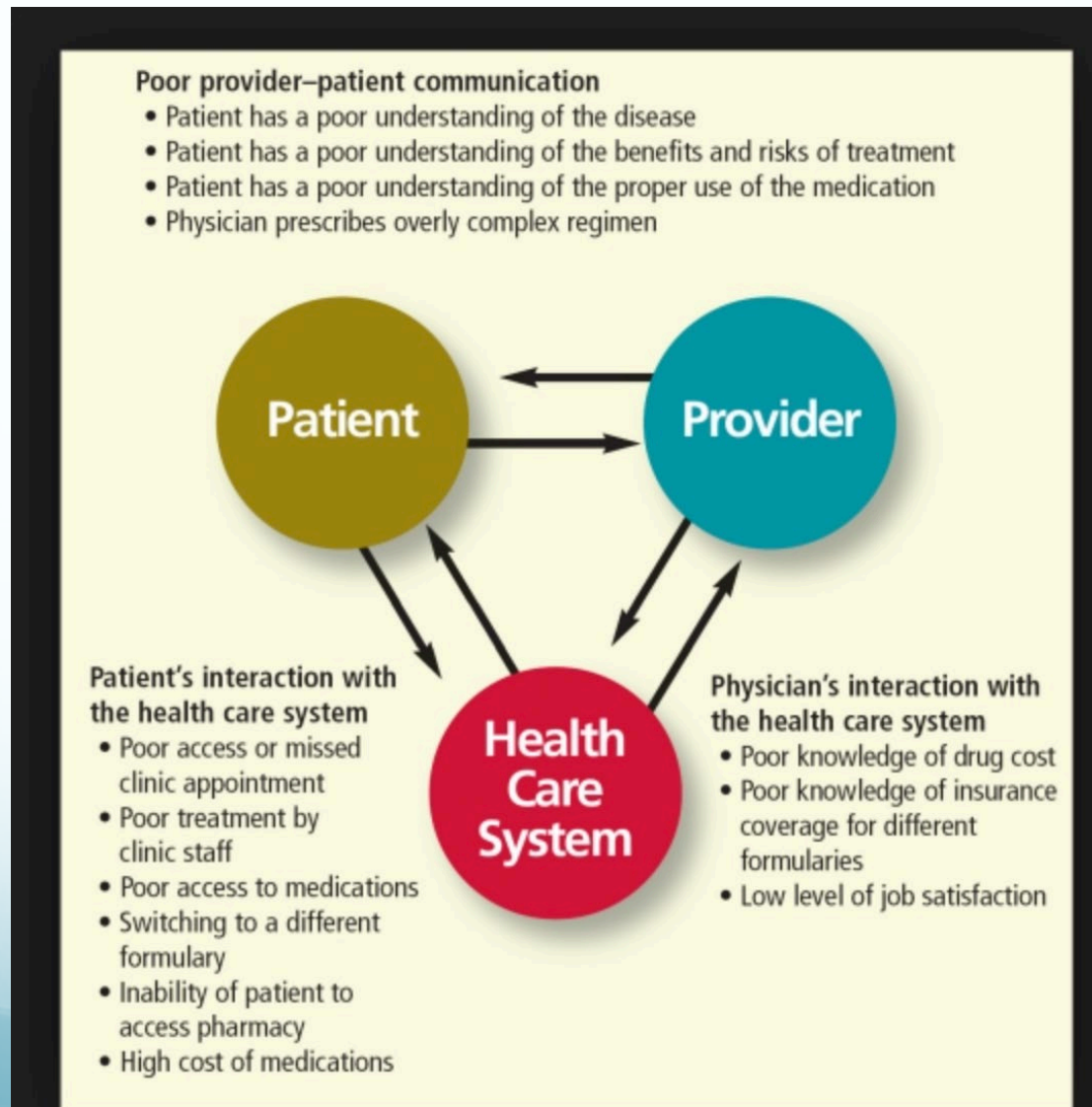
CATHY



Health Care system



The triangle of interaction



Research evidence

TCC 'gold standard'
caution required

RCW: limited propulsion

Half-shoes: eliminate
propulsive gait

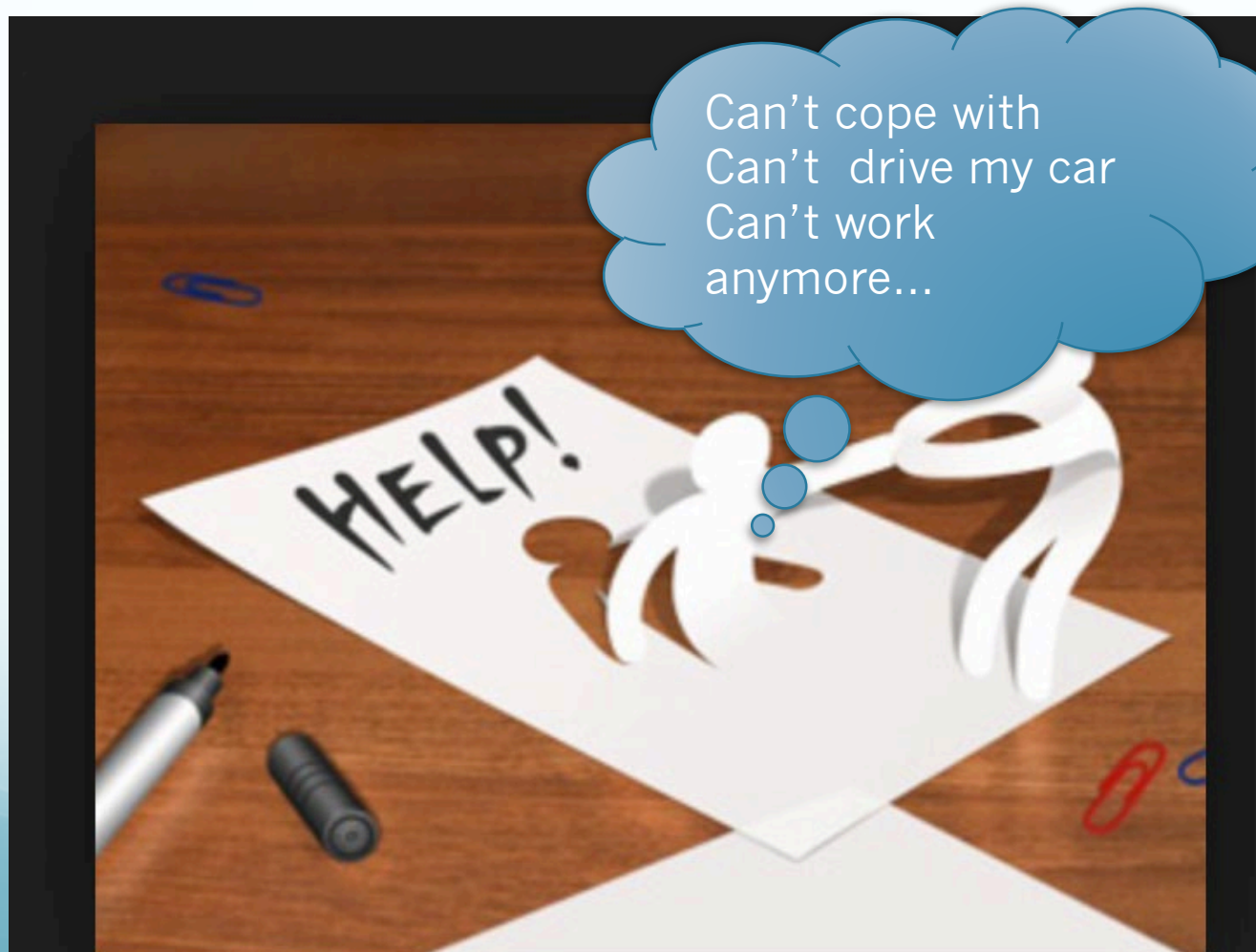
custom made insoles

flat insoles



Armstrong et al Diabetes Care 2001, Lavery et al, Diabetes Care 1996
Bus et al Clinical Biomechanics 2004

Failures of offloading: not listening to patients concerns- priorities





The importance of **neuropathy**

- Neuropathy can be painless:
 - Paul Brand: “Pain-the biggest gift of God”
- Symptoms are seldom understood as “pain”: either by the patients or by not trained health professionals

“Central” neuropathy

- The problem of central neuropathy and changes in cognitive function



Diabetic Central Neuropathy: CNS Damage Related to Hyperglycemia

John I. Malone¹

 Author Affiliations

Corresponding author: John I. Malone, jmalone@health.usf.edu.

Diabetes 2016 Feb; 65(2): 355-357. <http://dx.doi.org/10.2337/dbi15-0034>

Review Article

Cognitive impairment in diabetic patients: Can diabetic control prevent cognitive decline?

Takahiko Kawamura , Toshitaka Umemura, Nigishi Hotta

First published: 29 August 2012 [Full publication history](#)

DOI: 10.1111/j.2040-1124.2012.00234.x [View/save citation](#)

Cited by: 20 articles  [Citation tools](#)





RESEARCH ARTICLE

Open Access

The care process of diabetic foot ulcer patients: a qualitative study in Iran

Mansoorh Aliasgharpour¹ and Nahid Dehghan Nayeri^{2*}

Abstract

Background: The Purpose of this study is to clarify the care process for Iranian diabetic patients with diabetic foot ulcer condition.

Methods: The main question of this research was "How is the care process for diabetic foot ulcer patients and how do patients experience it?" This study was within the Grounded Theory method. Data collection was carried out until data saturation was achieved. Saturation was achieved after interviewing 11 patients, 4 physicians, one head nurse and one nurse.

Results: Three main themes emerged from this study, including: "disease management, disease experience and continuity of care". Each of these themes is consisted of different sub-themes.

Conclusions: This is the first study to describe the care process in Iranian diabetic patients with diabetic foot ulcer disease. Knowing patients' experience and the manner of dealing with them once faced with foot ulcer condition could facilitate a comprehensive decision making by therapists and better recovery of diabetic patients.

Keywords: Care, Education, Diabetics, Qualitative study, Wound care

MAKING THE CONNECTION WITH DATA

In an industry where meaningful, real-time analytics are increasingly available, physicians can collect outcomes data from local, regional, national, and global sources, and use it to personalize care plans for their patients. Standardizing care and measuring outcomes enable physicians to create customized treatment plans for patients that take a variety of factors into account, such as outcomes for similar patients.

National Diabetes Foot Care Audit (NDFA) 2015 – what we know so far

NDFA is part of the National Diabetes Audit programme family

William Jeffcoate

National Clinical Lead of the National Diabetes Foot Care Audit

Audit

- Must be simple and memorable enough to be used in a busy clinic setting
- Must be inclusive – all lesions must be able to be classified or scored, and with the available equipment



SINBAD

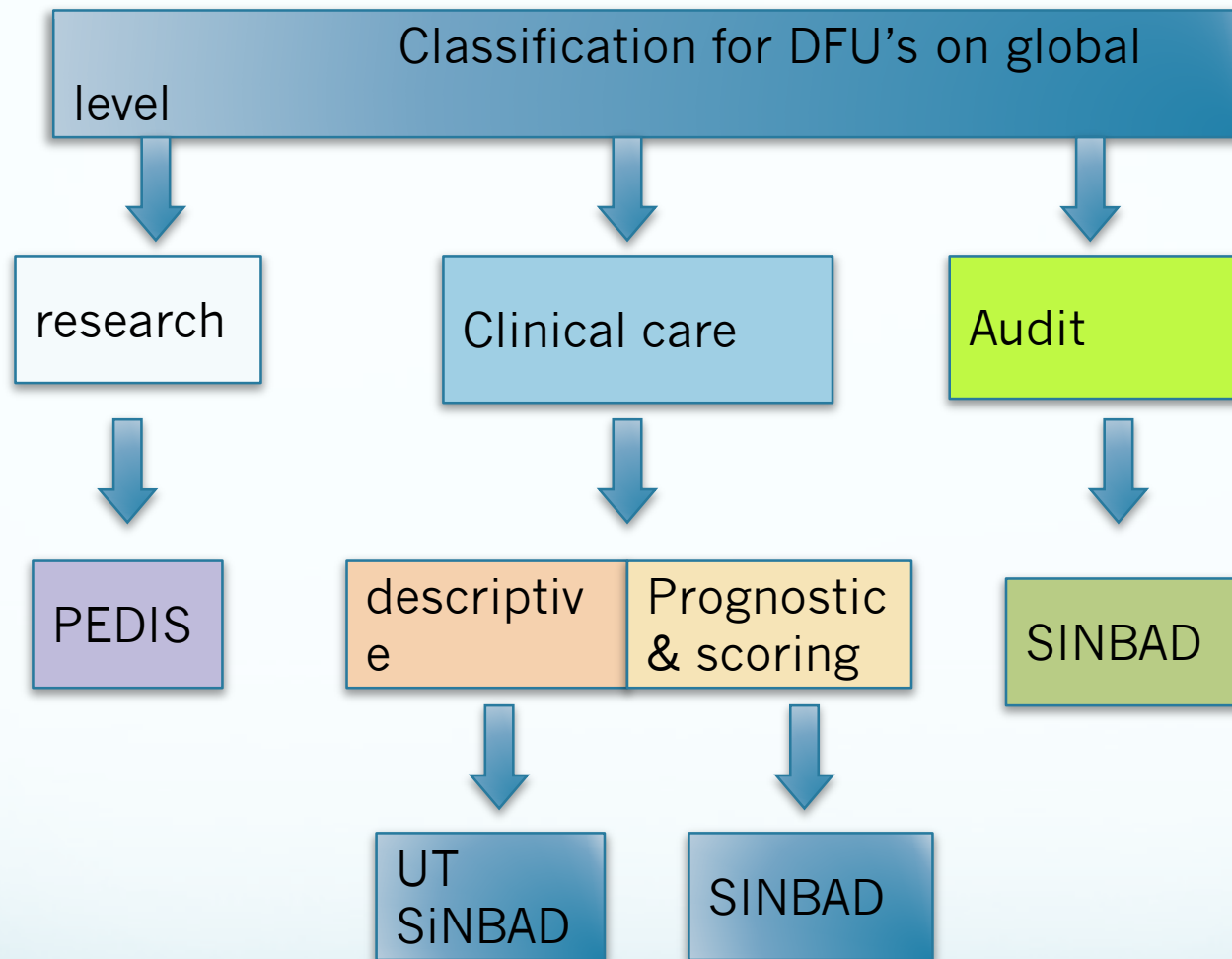
Ulcer features and severity score at presentation

- Site - ulcer penetration of the hind-foot 0/1
- Ischaemia - impaired circulation 0/1
- Neuropathy - loss of protective sensation 0/1
- Bacterial infection - clinical signs of infection 0/1
- Area – ulcer area greater than 1cm² 0/1
- Depth - ulcer reaches tendon or bone 0/1

Total score: 0-6

Score of 3 or more significantly associated with prolonged time to healing

(Ince P et al Diabetes Care 2008)





Quality of care

- Two principal dimensions of quality of healthcare
 - Access
 - Do users get the care they need?
 - Effectiveness
 - Is the care effective when they get it?
 - Two Key components:
 - Effectiveness of clinical care
 - Effectiveness of inter-personal care

Access to care

- Establish clinics incl. equipment
- Training of various HCP (CHW, Nurses, Midwives, Doctors)
- Establishment of Guidelines
- Registers
- Referral systems
- Mobile Clinics
- Strengthen primary health care
- Mobilisation of community health workers
- Access and Supply chains



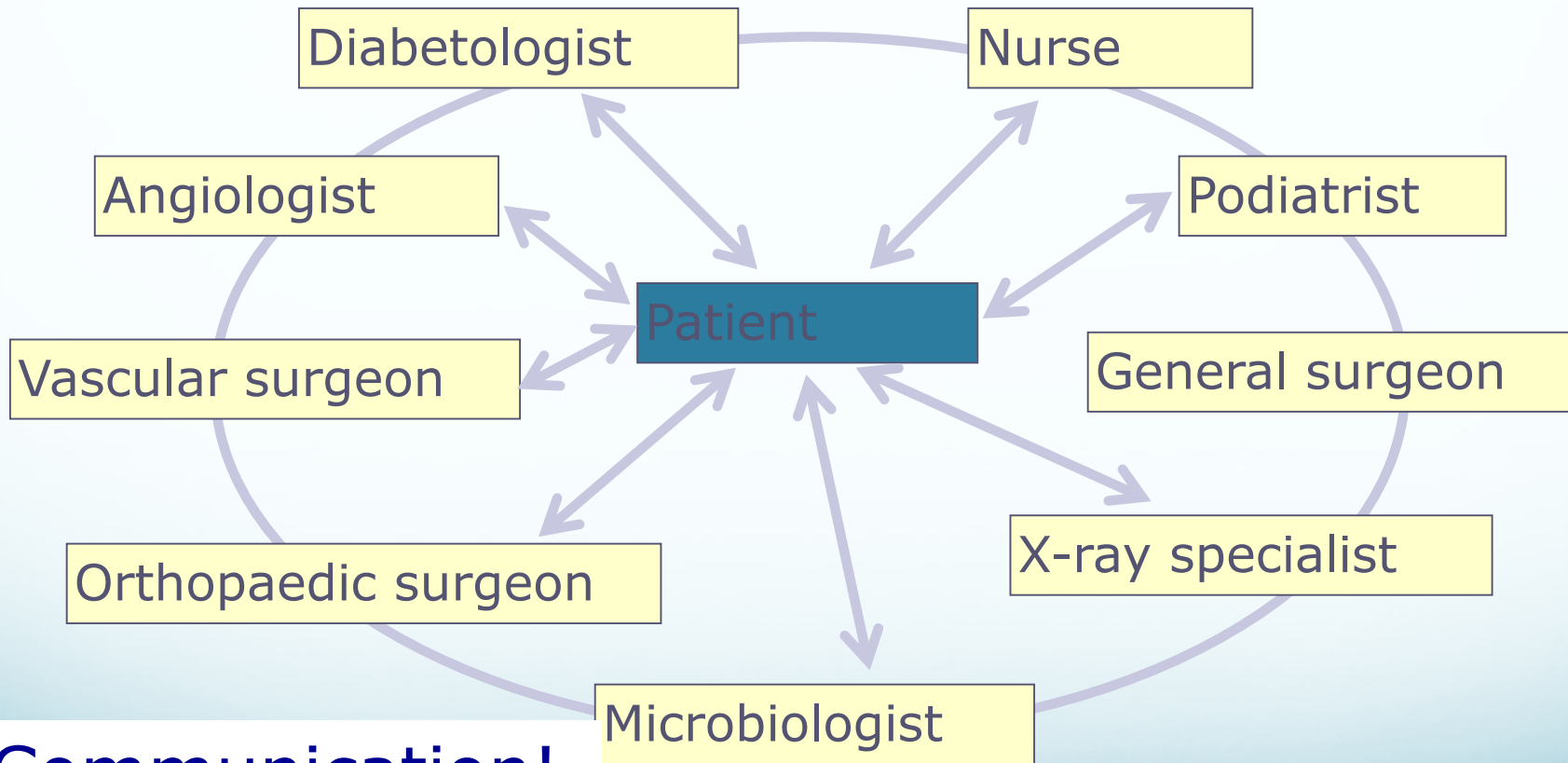
1989







How to establish a diabetic foot clinic?



Communication!



International
Diabetes
Federation

Max Spraul, Noordwijkerhout, 1991





Intermediate- maximal model



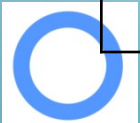
International
Diabetes
Federation





Aim

Minimal	Intermediate	Maximal
Prevention and basic curative care	Prevention and curative care for all types of out-patients More advanced assessment and diagnosis	Prevention and specialized curative care for complex cases To teach other centres To develop innovative care strategies



Vilma Urbancic & KVA





Patients

Minimal	Intermediate	Maximal
Own population	From the regional catchment area of the hospital with possibly some referrals from outside the region	National, regional or even international referral centre



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Federation

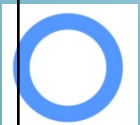
Vilma Urbancic & KVA





Staff

Minimal	Intermediate	Maximal
Doctor Podiatrist and / or nurse	Diabetologist or GP Podiatrist and / or nurse Surgeon Orthotist	Diabetologist Surgeon (orthopaedic, vascular, general, plastic) Podiatrists Physiotherapist Microbiologist Dermatologist Psychiatrist Nurses Educators Casting technician Orthotist Administrative, reception and secretarial staff



International
Diabetes
Federation

Vilma Urbancic & KVA



REVIEW is needed

“Skills and competences”



Need for DE-centralisation



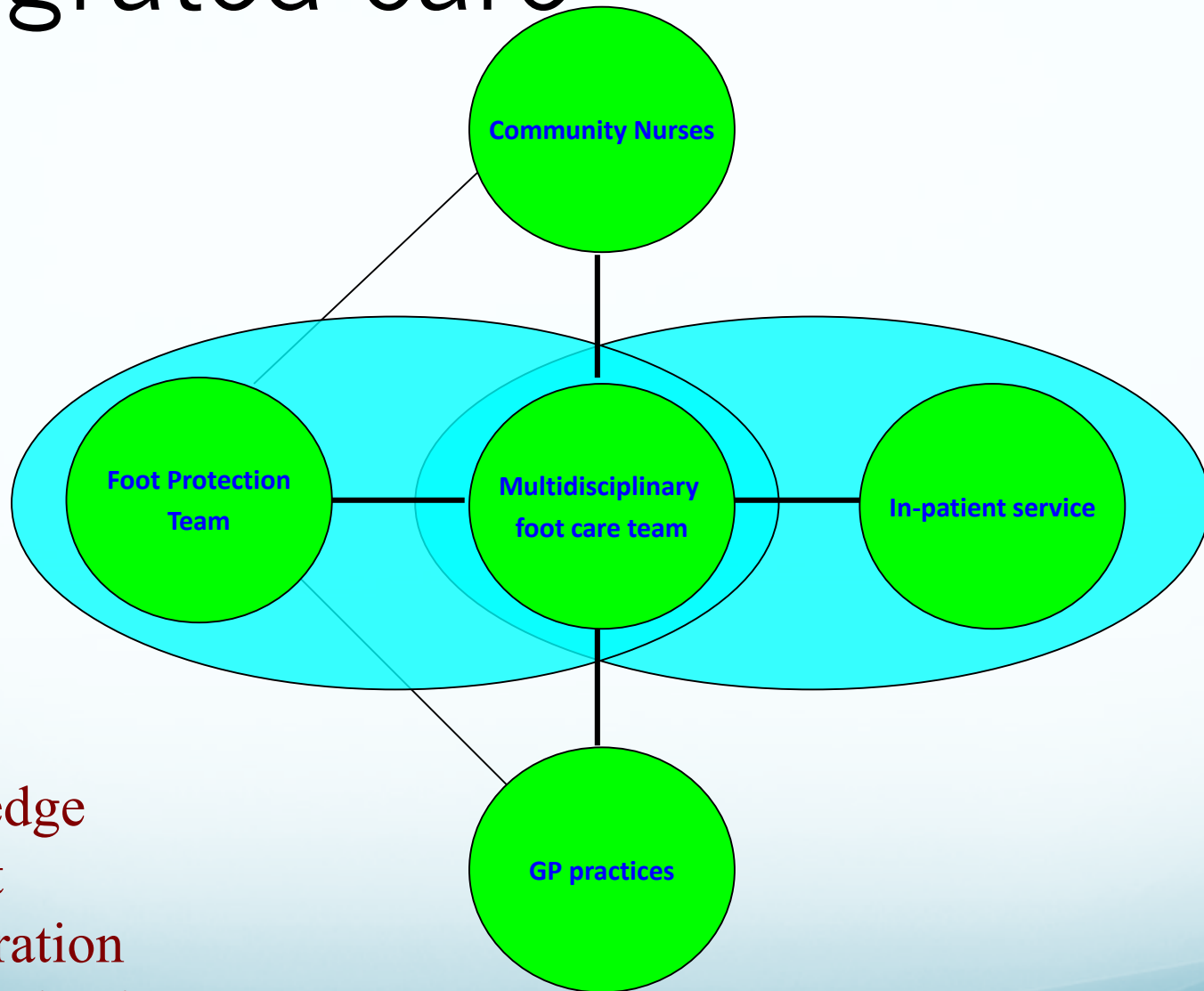
Soins de podologie



Training done by local experts



Integrated care



Skills
Knowledge
Respect
Co-operation
Communication
Awareness



Understanding the pre-per- and post- ulcer phase

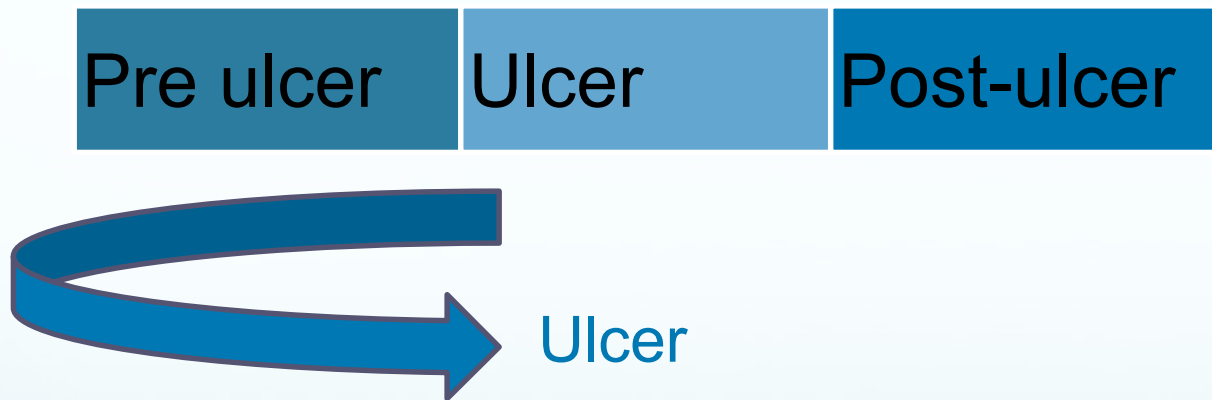
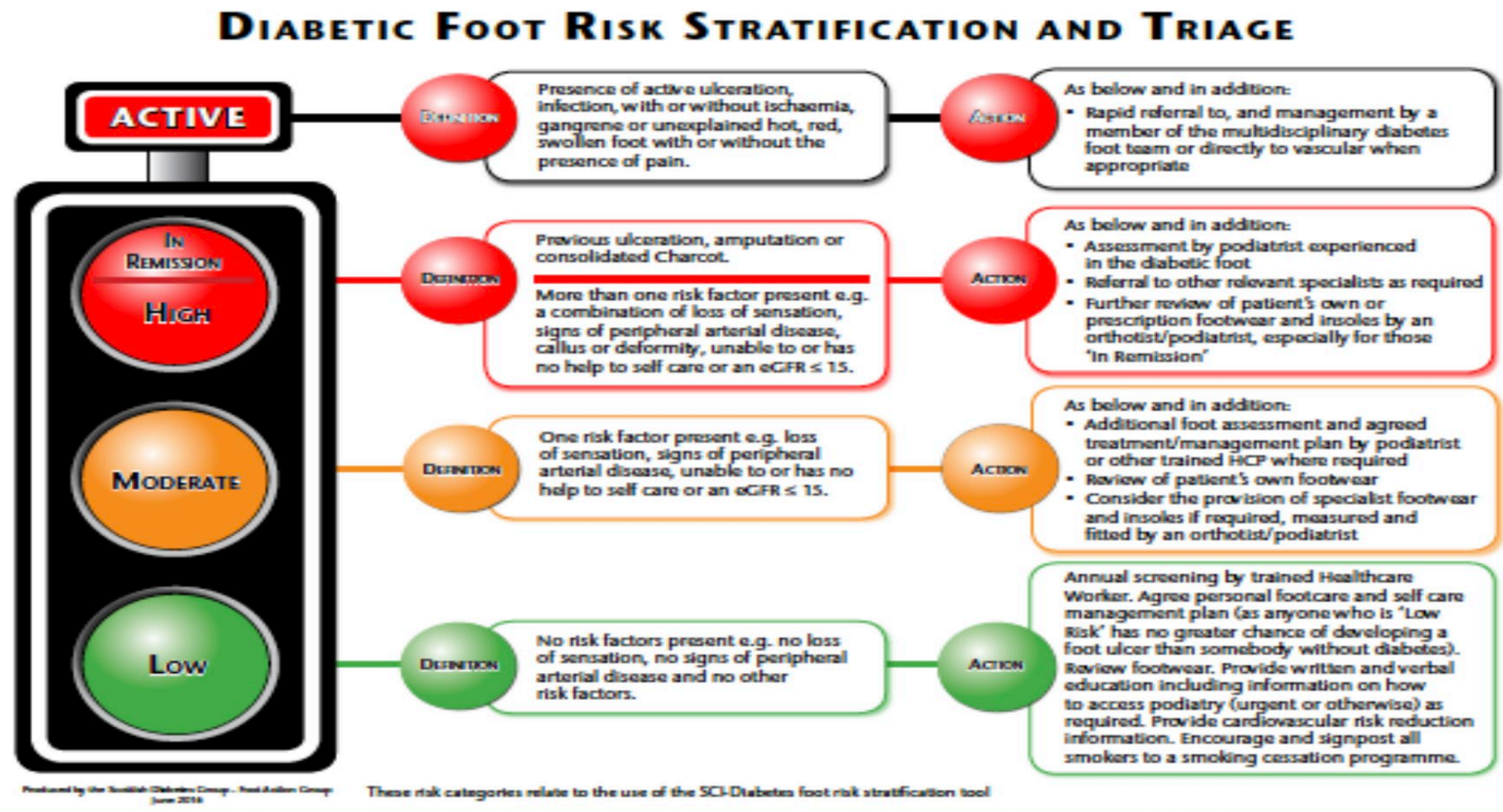
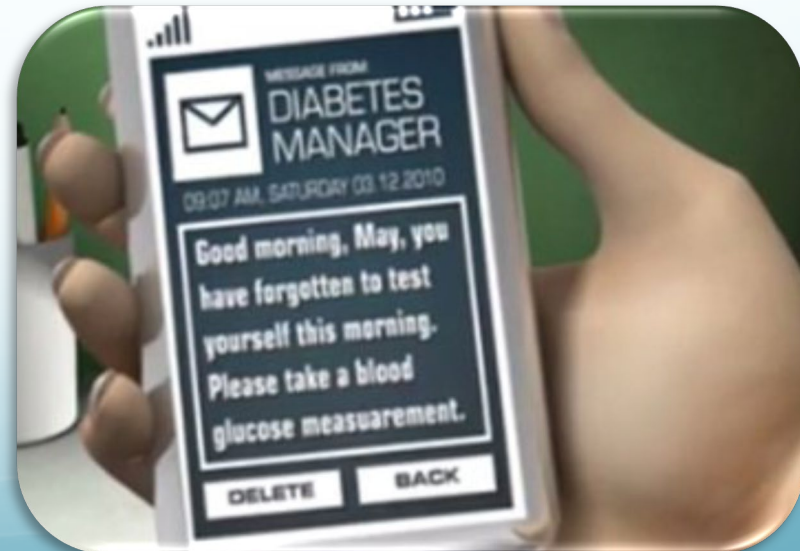


Figure 1: Diabetic foot risk stratification and triage by Traffic Light System



mDiabetes : Use of mobile phones to improve prevention and management of Diabetes in Senegal





Understanding the pre-per- and post- ulcer phase

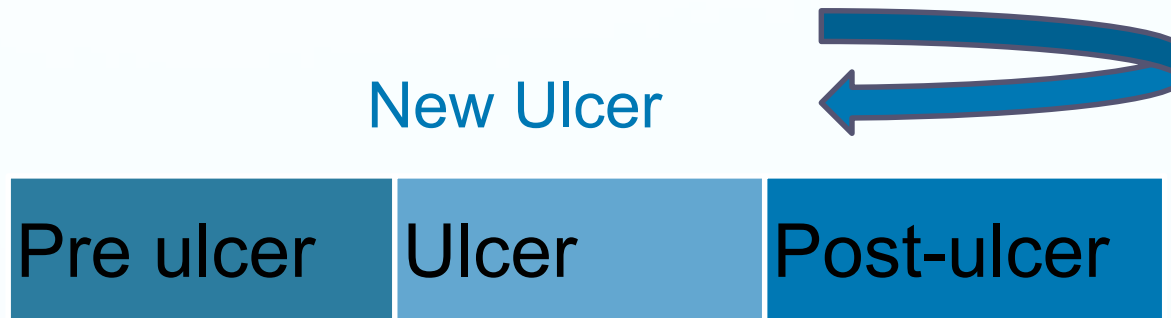


Amputation





Understanding the pre-per- and post- ulcer phase



International
Diabetes
Federation



Access to prosthetics? (ICRC)

35,000,000
PEOPLE HAVE NO ACCESS TO PROSTHETICS





D-Foot International

Stepping out in front ...



7

Regions

189

National

Representatives

National representatives at Summit



November 2018, Madrid



www.d-foot.org

footnote

THE NEWSLETTER • March 2018

From the D-Foot Regions
Initiatives in Sinaloa and Sri Lanka

Streamlining the patient's journey
Fast-track pathway for diabetic foot ulceration

Passion meets strategy
D-Foot Implementation Forum

Picture quiz
Can you see beyond the obvious?

Paper trail
Recent diabetic foot publications

And more ...



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Closing the gap of
available and affordable
diabetic foot care





MIND THE GAP

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IWGDF Guidance on footwear and offloading interventions to prevent and heal foot ulcers in patients with diabetes

Prepared by the IWGDF Working Group on Footwear and Offloading

Recommendations

Introduction

Casting and prefabricated healing devices

Therapeutic footwear

Surgical offloading interventions

Other offloading interventions

Key controversies

References

Glossary

Systematic review

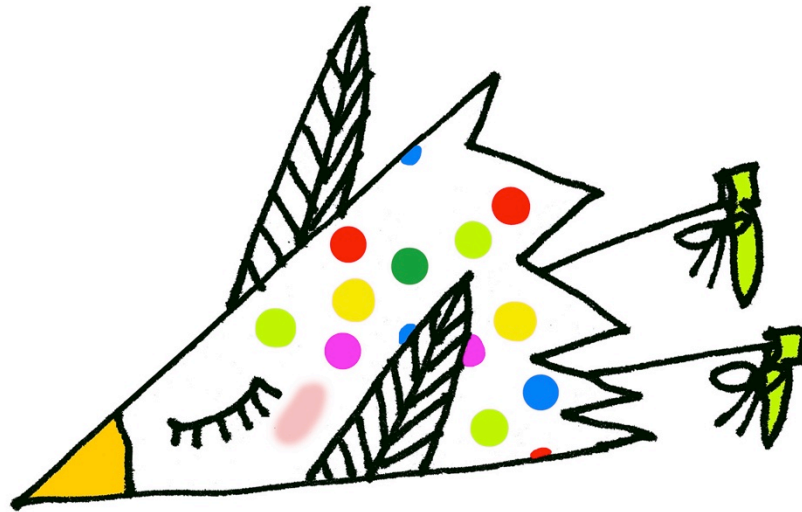
Recommendations

Casting and prefabricated healing devices

1. To heal a neuropathic plantar forefoot ulcer without ischemia or uncontrolled infection in a patient with diabetes, offload with a non-removable knee-high device with an appropriate foot-device interface. (GRADE recommendation: strong, Quality of evidence: high)
2. When a non-removable knee-high device is contraindicated or not tolerated by the patient, consider offloading with a removable knee-high walker with an appropriate foot-device interface to heal a neuropathic plantar forefoot ulcer in a patient with diabetes, but only when the patient can be expected to be adherent to wearing the device. (Weak; Moderate)
3. When a knee-high device is contraindicated or cannot be tolerated by the patient, consider offloading with a forefoot offloading shoe, cast shoe, or custom-made temporary shoe to heal a neuropathic plantar forefoot ulcer in a patient with diabetes, but only and when the patient can be expected to be adherent to wearing the shoes. (Weak; Low)

Therapeutic footwear

4. To protect their feet, instruct an at-risk patient with diabetes not to walk barefoot, in socks, or in thin-soled standard slippers, whether at home or when outside (Strong; Low).
5. Instruct an at-risk patient with diabetes to wear properly fitting footwear to prevent a first foot ulcer, either plantar or non-plantar, or a recurrent non-plantar ulcer. When a foot deformity or a pre-ulcerative sign is present, consider prescribing therapeutic shoes, custom-made insoles, or toe orthosis. (Strong; Low)
6. To prevent a recurrent plantar foot ulcer in an at-risk patient with diabetes, prescribe therapeutic footwear that has a demonstrated plantar pressure relieving effect during walking (i.e. 30% relief compared to plantar pressure in standard of care therapeutic footwear), and encourage the patient to wear this footwear. (Strong; Moderate)



FLIRT
BIRD



KATHRIN GRÜNKE
NARRENKERAMIK

Bei Interesse klicken Sie bitte auf eines der Bilder oder
Kathrin Grünke - Atelier und Galerie im [Blick](#) Margaretenstraße 22 (Ecke Strandpromenade)
18609 Ostseebad Binz, Insel Rügen.
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Kathrin Grünke



World Health
Organization

EQUIPPING, ENABLING AND EMPOWERING

Priority Assistive Products List



Improving access to assistive technology
for everyone, everywhere



USAID
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT

The GATE Initiative



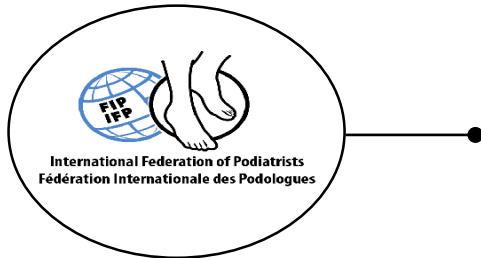
International Disability Alliance



FLIRT
BIRD

Shoe wear





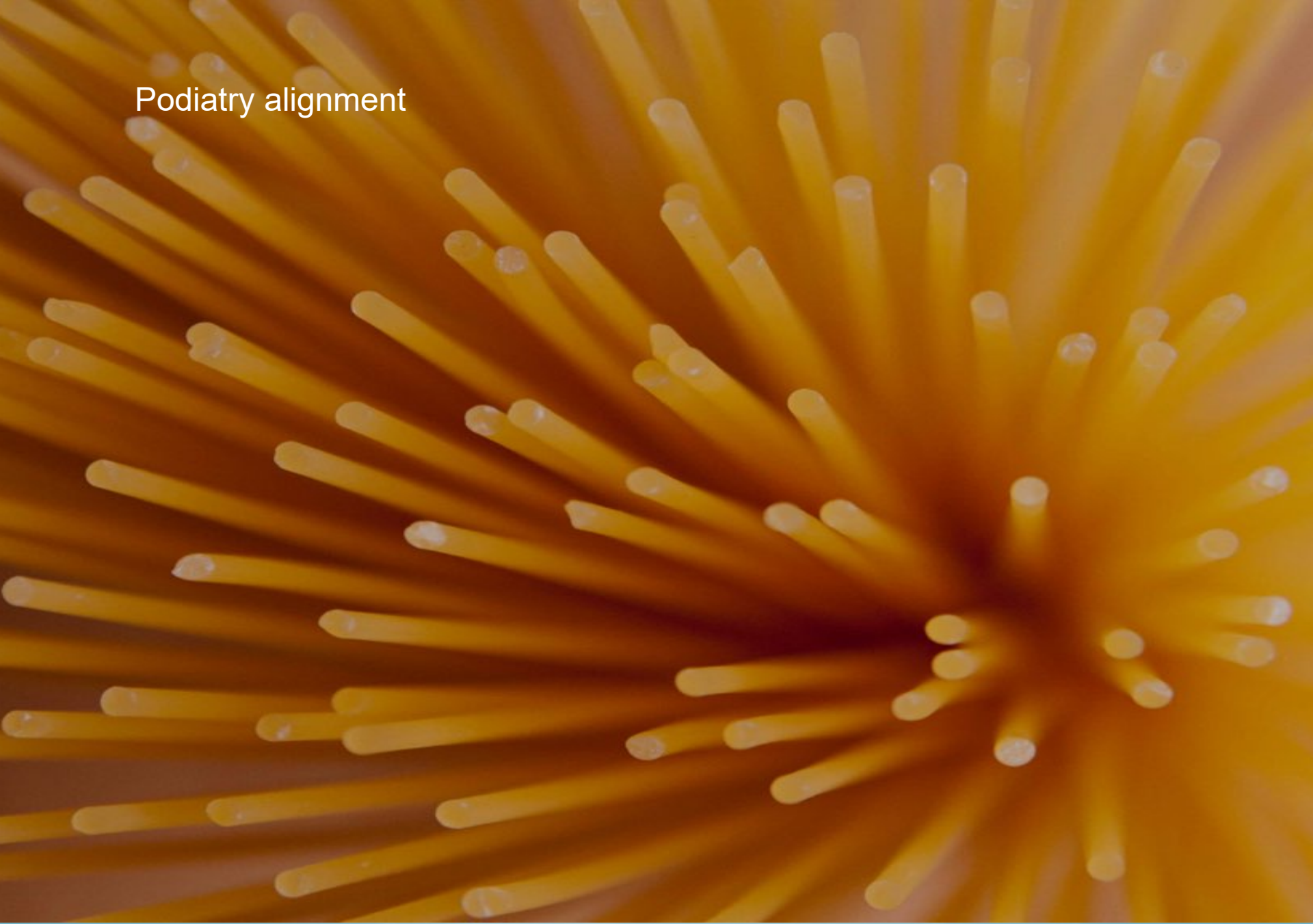
International Federation of Podiatrists (FIP-IFP)



Podiatry alignment



Podiatry alignment





Joint Diabetic Foot Committee

March 2017



The POINT Project

Podiatry for International Diabetic

Podiatry care
for diabetes

P1
Assistant

P2

P3

P4
Surgical

Pauline Wilson, Neil Baker, Kristien Van Acker, Norina Gavan, Esther Garcia Morales, Matthew Garafoulis, Stuart Baird, Caroline Teugels, Luc Hendrix, Meike Fransen

Citation: Wilson P, Baker N, Van Acker K et al (2018) The POINT project. *The Diabetic Foot Journal* 21(2): XX-XX

Article points

1. Podiatrists are important in the overall management of diabetic foot through prevention, management and remission
2. The presence and practice of podiatry is greatly varied worldwide with low and middle income countries often without appropriately trained health care professionals
3. A The point document guides multi-disciplinary teams as to which podiatric skills are needed to deliver evidence based foot care irrespective of the presence of podiatrists.

Key words

- Collaboration
- Competency
- Podiatry

Authors

Pauline Wilson is Xxx International Federation of Podiatrists and D-Foot international; Neil Baker is Xxx D-Foot international; Kristien van Acker is Xxx D-Foot international; Norina Gavan is Xxx International Federation of Podiatrists and D-Foot international; Esther Garcia Morales is Xxx D-Foot international; Matthew Garafoulis is Xxx International Federation of Podiatrists; Stuart Baird is Xxx International Federation of Podiatrists; Caroline Teugels is Xxx International Federation of Podiatrists; Luc Hendrix is Xxx D-Foot international; Meike Fransen is Xxx International Federation of Podiatrists

The POINT project is a collaboration between D-Foot international and the International Federation of Podiatrists. The point documents create a standardised staged competency framework for the inclusion of podiatric skills worldwide in the management of diabetic foot disease. The presence of podiatrists with unique skill sets as part of the multidisciplinary diabetic foot team is well established in the literature. Many countries, especially those in lower- and middle-income regions do not have podiatrists available as part of their team. The point document, which is a multidisciplinary consensus, identifies the skills needed to provide podiatric skills across four levels irrespective of the presence of podiatrists. The point document provides guidance for three groups: firstly, for diabetic foot teams in identifying areas of strength and weakness; secondly, for teams without podiatrists to identify the podiatric skills needed; finally, for decision makers to be informed of the skills, which can be provided by podiatrists. The point document is now to be disseminated widely for local translation and implementation.

The POINT (podiatry for international diabetic foot teams) project is a collaboration between D-Foot International and The International Federation of Podiatrists (FIP-IFP). D-Foot international, formerly the Implementation arm of the International Working Group of the Diabetic Foot (IWGDF), is an international non-profit registered association, promoting the global profile of diabetic foot prevention and care through awareness, guidance, education, research and professional development (www.d-foot.org). It is a multidisciplinary network of clinicians involved in the management of diabetic foot disease with a network of over 150 countries around the world. FIP-IFP is an international membership organisation of podiatrists representing 28 countries. It has, for 70 years, promoted the practice of podiatry worldwide showcasing what podiatrists can offer in all areas of lower-limb and foot health.

The aims and objectives of this collaboration were to:

- Facilitate the introduction of a staged podiatry competency training framework in countries where diabetes foot care infrastructures currently exist
- In relation to the above, provide a standardised staged competency based framework for podiatry training on a regional/international levels
- Utilise the D-Foot-initiated foot care as an access point for development of podiatry in countries where podiatry does not formerly exist
- To explore definitions regarding differing levels of podiatry/diabetic foot care and to align the skill levels associated with each level.

The presence of diabetes continues to increase globally with an estimated 629 million people living with the condition worldwide by 2045 (International Diabetes Federation, 2017). Even



POINT

Podiatric Skills for International
Diabetic Foot Teams



ASSESSMENT / DIAGNOSIS

This section includes knowledge, skills and behaviours common to all practitioners in the arena of completing baseline assessment and screening in order to arrive at a diagnosis and define a management plan.

LEVEL ONE

KNOWLEDGE

- Is aware of and understands local policies in the diagnosis and assessment of diabetic foot disease
- Is aware of and understands methods and strategies to prevent diabetic foot ulceration
- To understand the local protocol of risk stratification
- Understands regional referral (fast) pathways.

SKILLS AND BEHAVIOURS

- Performs an assessment of the foot of a person with diabetes, including neurological and vascular evaluation
- Performs a visual assessment of foot, hosiery and footwear
- Implements an appropriate treatment rationale
- Identifies when referral is required/needed.

LEVEL TWO

KNOWLEDGE

- Understands the need for assessment, and accurate diagnosis to inform management plans
- Is aware of National guidelines pertaining to the treatment of diabetic limb disease.

SKILLS AND BEHAVIOURS

- Clearly communicates to the patients and/or carer what is involved in the assessment process
- Stratifies the foot according to risk levels of local protocols and communicates the results accordingly.

LEVEL THREE

KNOWLEDGE

- A knowledge of which advanced assessment tools are used for assessment of the foot in diabetes and the indication for their use
- Understands the frequency of regular assessment based upon the risk stratification of the patient in accordance with local pathways
- Understands which pre-ulcerative signs on the foot require intervention.

SKILLS AND BEHAVIOURS

- Performs an advanced assessment of the diabetic foot and limb
- Educates the patient and/or carer in the results of the assessment and provides treatment for pre-ulcerative signs
- Facilitates training and education of both staff and patients
- Participates in the development of evidence based practice in the area of assessment and diagnosis.

Collaboration avec école de Podologie de Gand



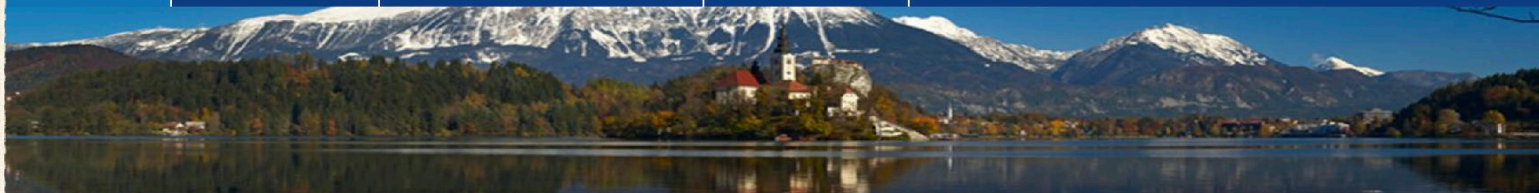


NRC checkt: 'Als een Boeing 747 opstijgt, komt evenveel fijnstof vrij als uit een miljoen vrachtwagens'

Dat zei Sijas Akkerman, van de Milieufederatie Noord-Holland.

✍ Christiaan Pelgrim 🕒 10 januari 2018





In Slovenia healthcare professionals have joined the program

Knowledge test – Training

Test for the delegates who performed the E learning module of the Train the Foot trainer course of d-foot .

Please give the most correct or best fitting answer (only one item is possible)

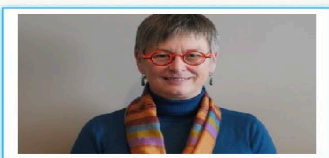
[Acces to Knowledge test – Training >>>](#)

The e-Footcare Program

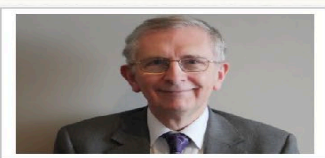
Welcome to this on-line course for the diabetic foot. This is a series of PowerPoint slide sets with video presentations on a number of topics related to the fundamentals of foot examination, risk stratification and basic management including management of simple wounds/ulcers. It has been designed for those who have completed a "Train the Foot Trainer" course and for those who are involved in the Urgo foundation scheme for junior doctors.

This project is realised by the International Working Group on the Diabetic foot (www.d-foot.org) in close cooperation with Université Numérique Francophone Mondiale (www.unfm.org). We received an unrestricted grant from Urgo Foundation.

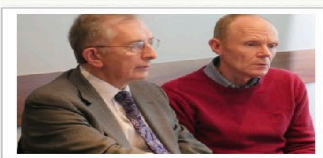
Each slide set will have key messages and objectives with the option of undertaking a self-assessment multiple choice question and answer section. Additionally there will be some open questions for those who are be mentored and wish to undertake some reflective practice or further learning.



Dr Kristien Van Acker
#1 - **Global introduction by IWGDF chair, Kristien Van Acker**



Pr. Mike Edmonds
#2 - **What goes wrong with the diabetic foot?**



Pr. Mike Edmond and Pr. Neil Baker
#3 - **A basic foot examination**



Pr. Vilma Urbančič
#4 - **Identifying risk factors for foot ulceration, stratification and prevention programmes**



Pr. Neil Baker
#5 - **Callus removal – scalpel techniques**



Pr. Neil Baker
#6 - **Footwear basic concepts**



Pr. Mike Edmonds
#7 - **Ulcer classification**



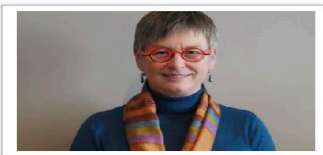
Dr. Class Lüedemann
#8 - **Neuropathic and Neuro-ischaemic ulcers : UT-Classification**



Dr. José Luis Garcia-Klepzig
#9 - **Case Studies – risk**



Dr. José Luis Garcia-Klepzig
#10 - **Case Studies – risk stratification – part 2**



Dr Kristien Van Acker
#11 - **Basic Wound-care treatment principles for**



Dr. Class Lüedemann
#12 - **Neuropathic and Neuro-ischaemic ulcers :**



Dr Kristien Van Acker

#1 - **Global introduction**
by IWGDF chair, Kristien
Van Acker



Pr. Mike Edmonds

#2 - **What goes wrong**
with the diabetic foot



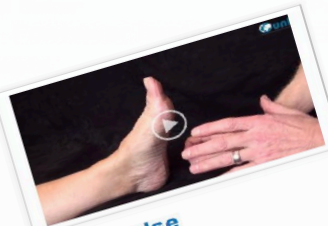
Pr. Mike Edmonds

Practical gestures

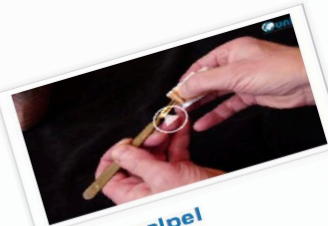
The following lectures are given by international experts in the diabetic foot. The topics in this section of the e-learning programmes are to equip you with the fundamental knowledge and information in managing the pre-ulcerative foot. They were designed to give basic knowledge for those who are involved in Train the Foot Trainer programmes or junior professionals in the field. Topics include: basics pathology, screening / examination techniques, risk stratification, etc. You can pause, replay and review as often as you want and at your own pace. We hope you find them instructive and helpful.



#1 - **Orange**



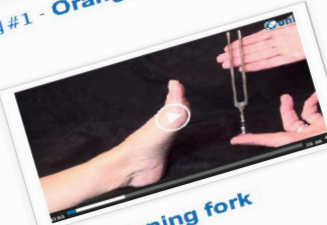
#2 - **Pulse**



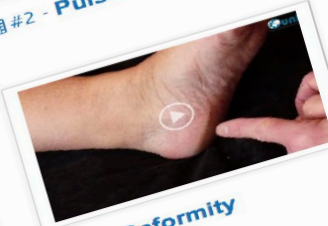
#3 - **Scalpel**



#4 - **Monofilament**



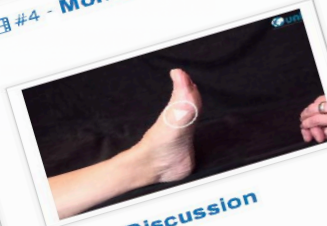
#5 - **Tuning fork**



#6 - **Deformity**

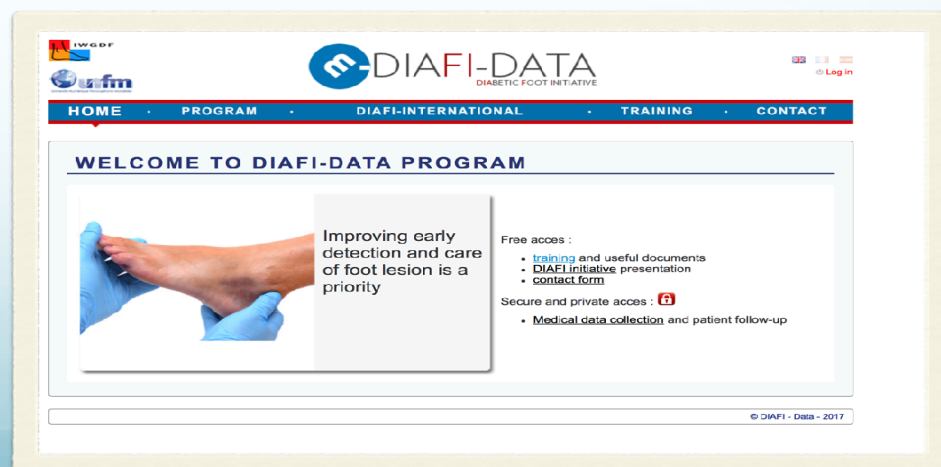


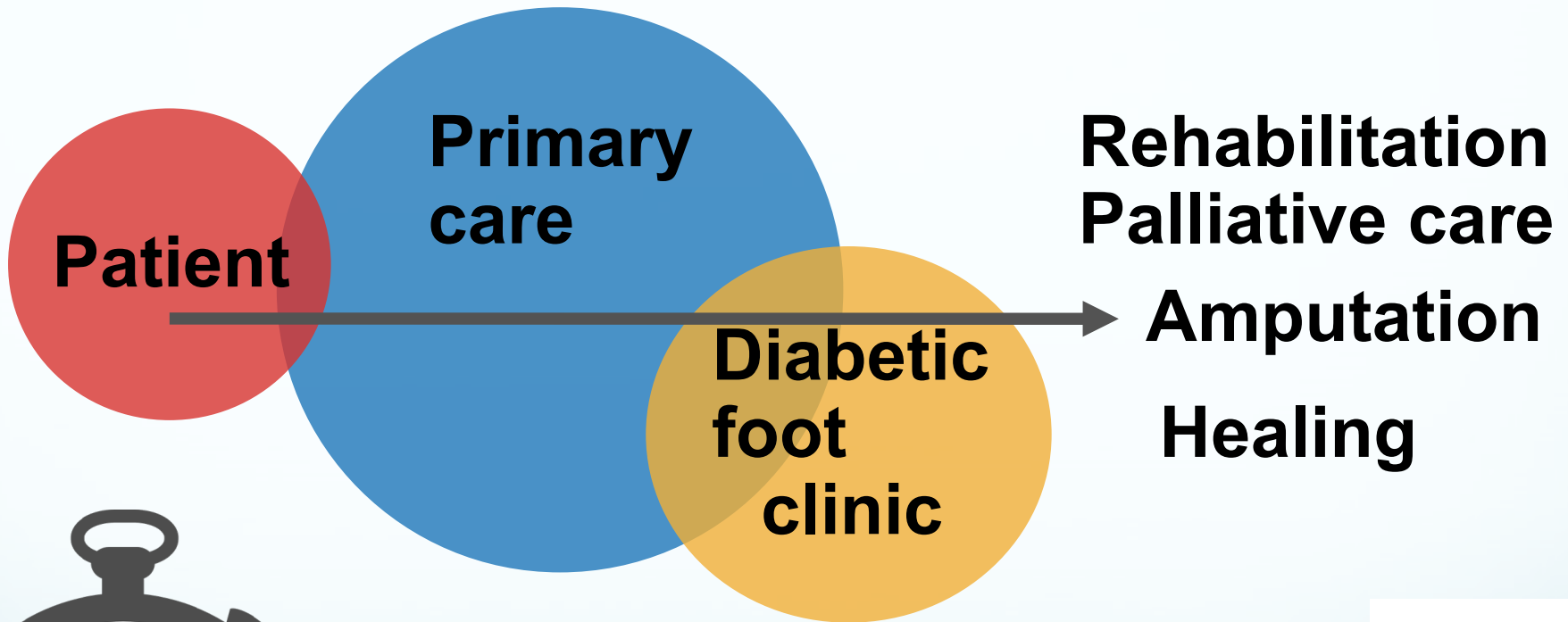
#7 - **Debridment**



#8 - **Discussion**







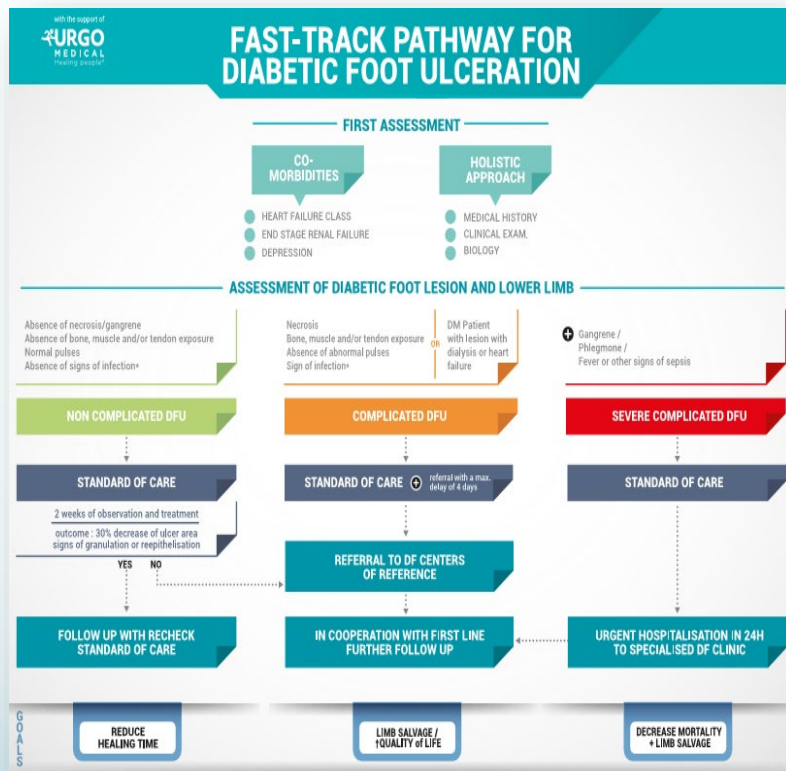
Delay in referral
is our worst enemy



International Diabetic Foot Care Group



● “A simple and complete tool”



GLOSSARY

a. Heart failure: Patient on current treatment for heart failure. For GPs: Structural Heart disease with prior or current treatment for Heart Failure (e.g. patients with known structural heart disease and shortness of breath and fatigue, reduced exercise tolerance)

b. End stage renal disease: Patient on renal replacement (Le peritoneal dialysis or Hemodialysis)

c. Depression: patient on medical therapy for depression or depression symptoms which include feeling sad or having a depressed mood, loss of interest or pleasure in activities once enjoyed, changes in appetite (weight loss or gain unrelated to dieting), trouble sleeping or sleeping too much, loss of energy or increased fatigue, increase in purposeless physical activity (e.g., hand-wringing or pacing) or slowed movements and speech (actions observable by others), feeling worthless or guilty, difficulty thinking, concentrating or making decisions, thoughts of death or suicide. The symptoms must last at least two weeks for a diagnosis of depression

d. Necrosis: Devitalized (dead) tissue

e. Gangrene: Death of tissue in all tissue layers (cutis, tendon, fascia, muscle) due to insufficient blood supply. Without infection this generally results in dry and black tissue, frequently called dry gangrene; when the tissue is infected, with accompanying putrefaction and surround cellulitis, it is often called wet gangrene

f. Abnormal pulses: absence of foot pulses on palpation

g. Signs of granulation: This is a light red, soft, moist and granular new connective tissue that appears on the surface of a lesion during the healing process.

h. Signs of epithelization: appearance of new epithelium tissue covering the wound with reduction of ulcer surface

i. Cooperation with first line: sharing data at the initial treatment of the patient and referral after acute phase with periodical re-check

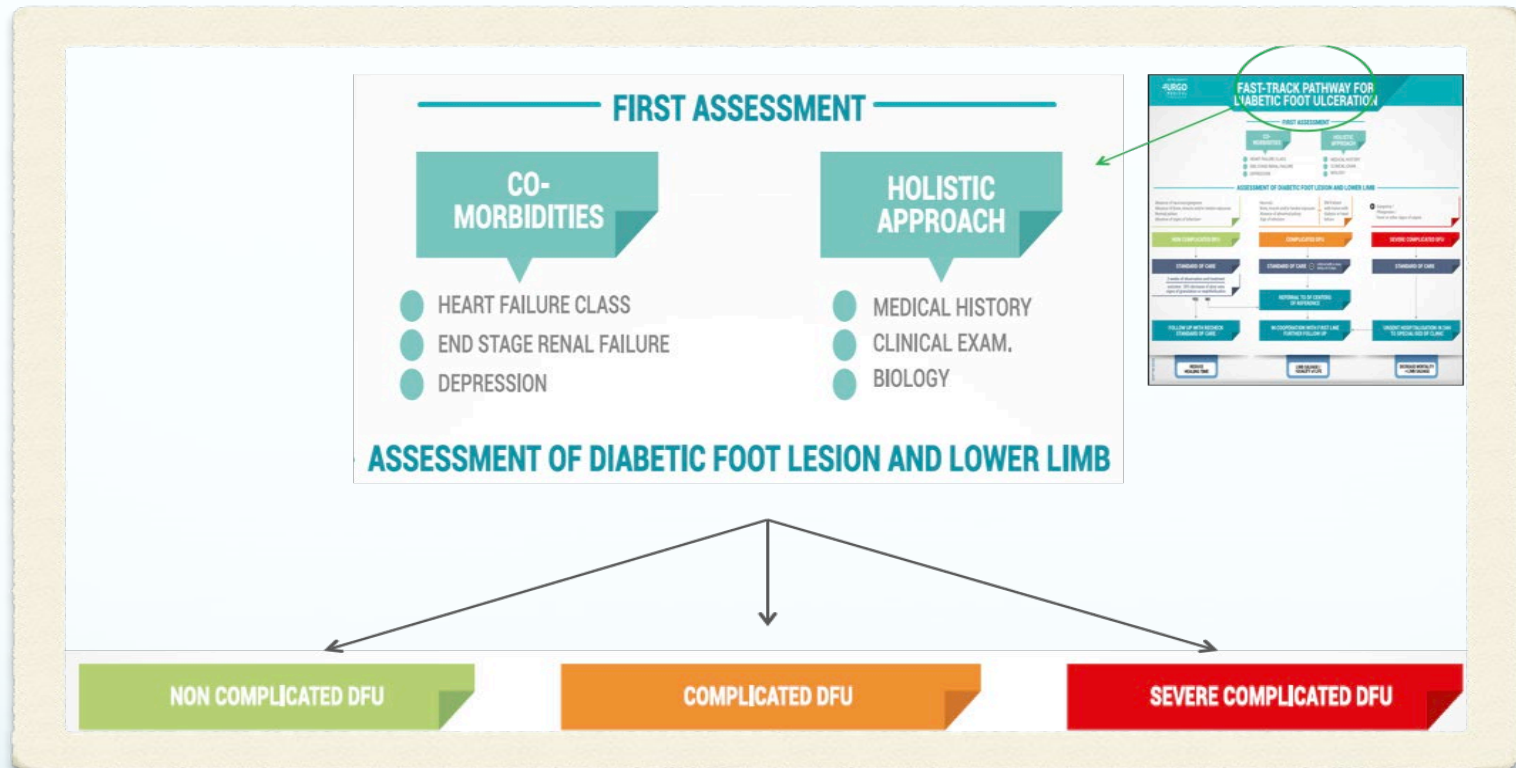
j. Phlegmon: spread inflammation of soft or connective tissue with purulent exudate due to bacterial infectious process

k. Fever or signs of sepsis: Patient with a raised body temperature, and an associated cold sweat and shivering or drop in blood pressure due to infection. See guidance doc

l. Criteria of a specialist Diabetic Foot Clinic: Diabetic Foot Center which provides out patient and preferable inpatient care with a multidisciplinary team composed of diabetologist, internist, podiatrist or specialist nurse and a surgeon, preferable with skills of revascularisation and good knowledge of surgery of deep foot infections with a 24H urgency service

with the support of **EURGO MEDICAL** Healing approach

- Hollistic first assessment





April 2018

Current Challenges and Opportunities in the Prevention and Management of Diabetic Foot Ulcers

William J. Jeffcoate¹↑, Loretta Vileikyte², Edward J. Boyko³, David G. Armstrong⁴ **and** Andrew J.M. Boulton²

- If communities embrace these initiatives, it should be possible to trigger substantial improvement in outcomes relating to DFUs.
- Care of the foot needs to metamorphose from a subspecialty to a “super”speciality of diabetes.

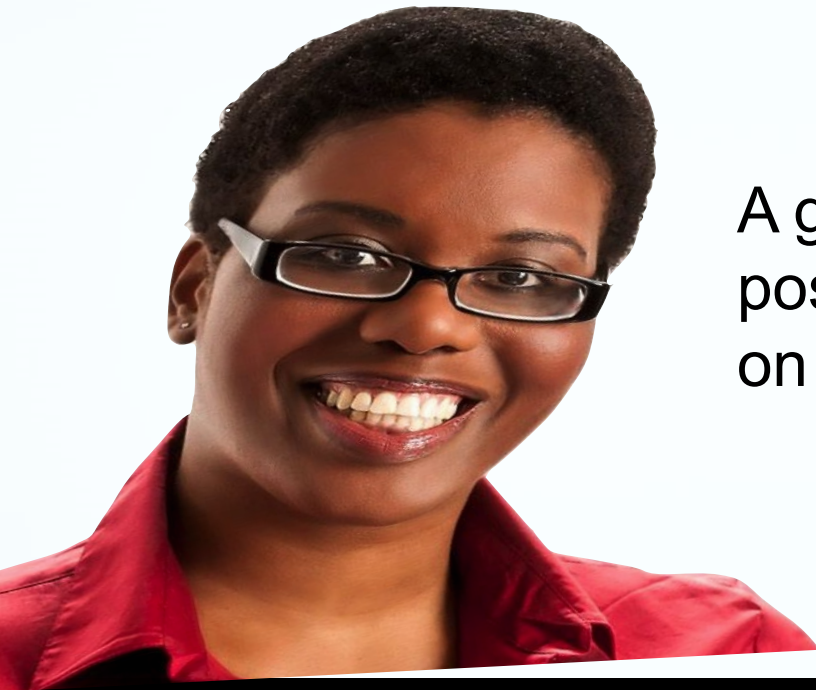
Flying with the eagles, vultures...





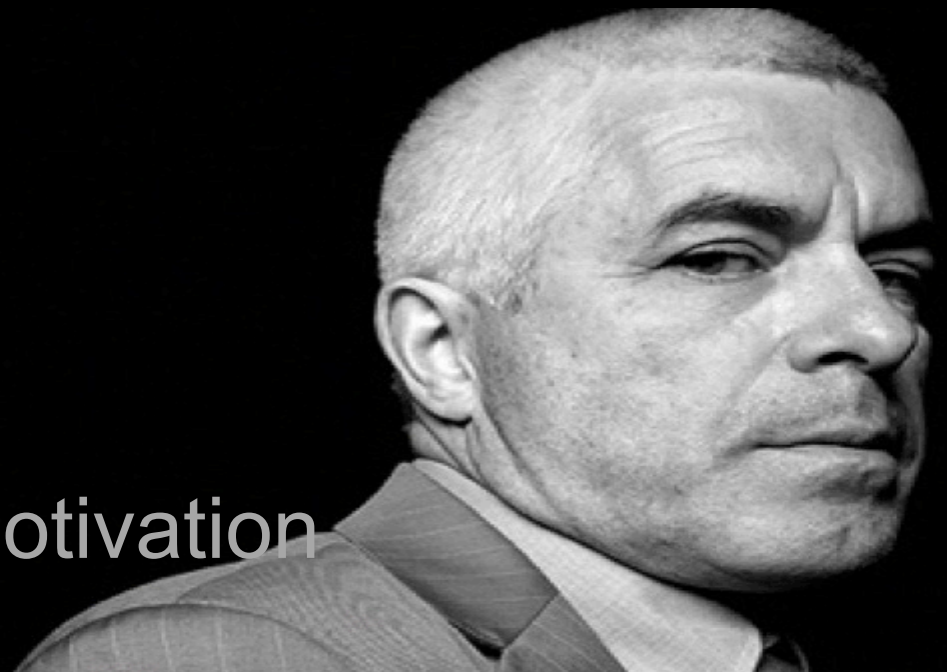


International
cooperation



A global vision,
positively focused
on what we want to achieve

Politics
Ego
PCO interests
Hidden agendas
Financially driven motivation



END...



South of Europe...

Leadership??

DFSG- EWMA- Europe Region D-FOOT









20''

