



# THE RUNAWAY FOOT



....A SHORT TALE OF  
A "FOOT ATTACK" //

# Discussion topics.

**Diabetic foot** - Its shocking what  
“a little sugar” can do

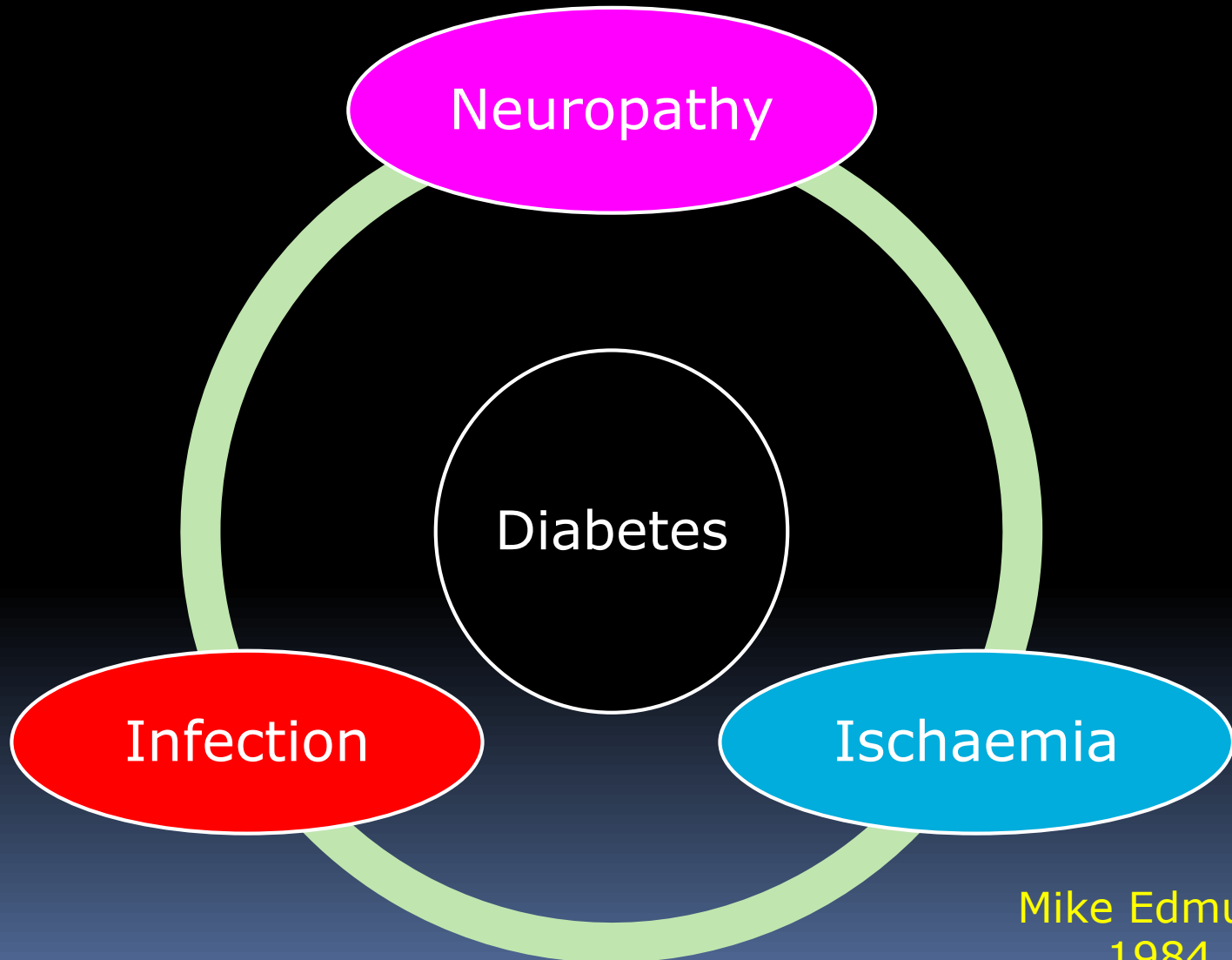
**The case study** - A patients story

**What have -  
we learned?**



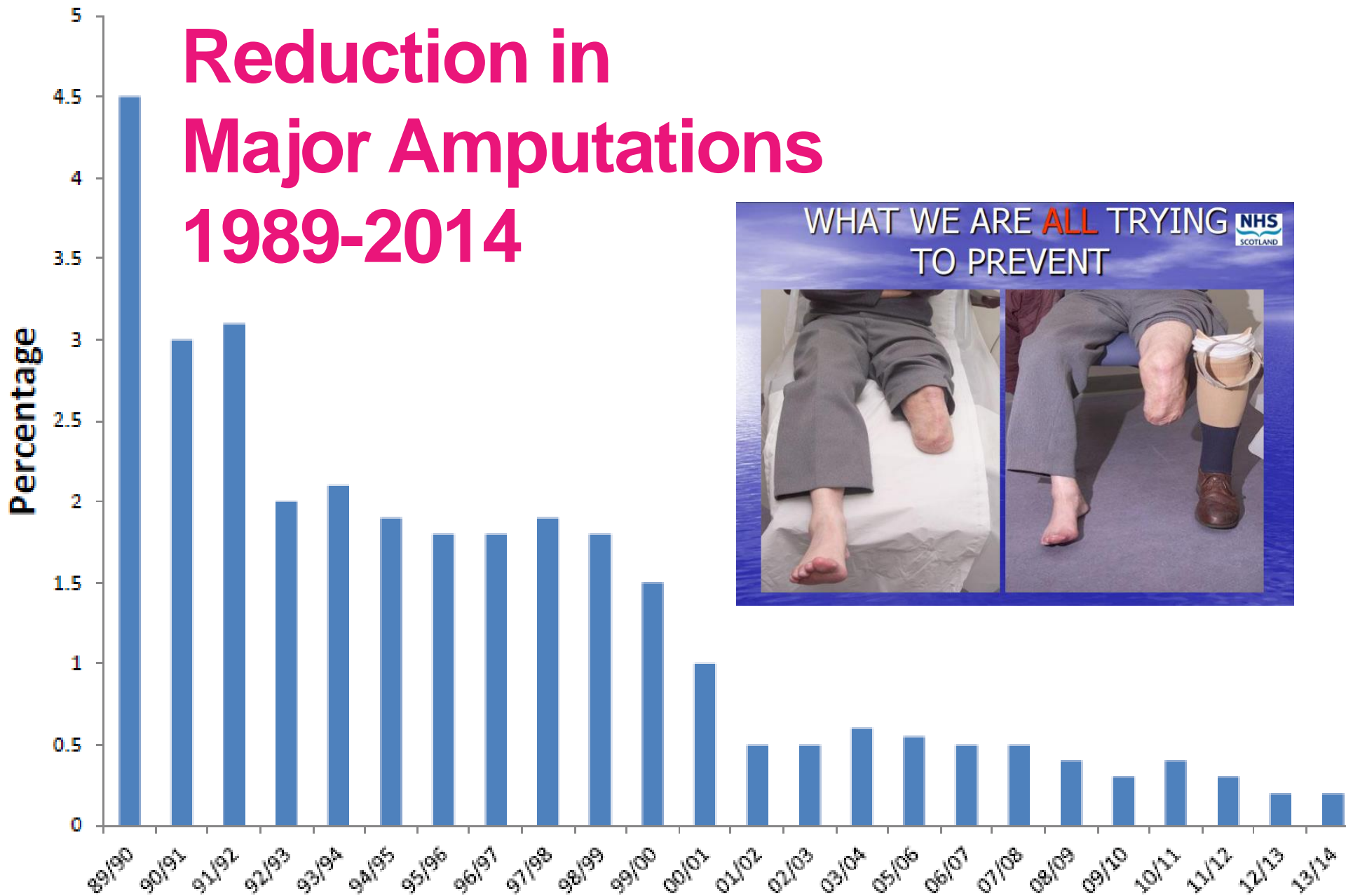
?

# "Complex and Vulnerable"



Mike Edmunds,  
1984

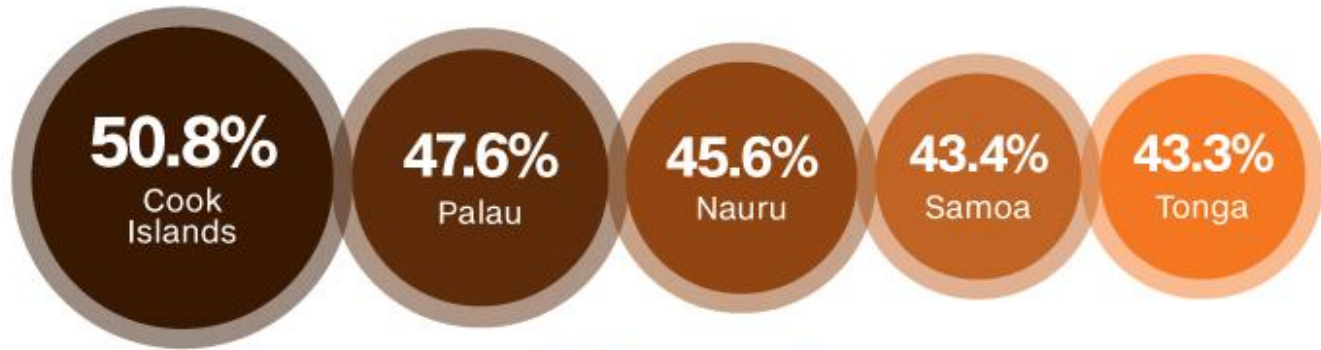
# Reduction in Major Amputations 1989-2014



Rubio *et al* 2014

# MODERN GLOBAL EPIDEMIC TYPE II DIABETES

## GLOBAL TOP 10 OBESE COUNTRIES/TERRITORIES 2014



## AGEs

Advanced  
Glycosylation  
End products

Rahbar, 1969  
Brownlee, 2005  
Yan et al 2007  
Byun et al, 2017

# FOOT ATTACK



A CASE STUDY.....

# Mr X., age 52, Type II (8yrs)

Seen in a community clinic. May 5<sup>th</sup>.

- Incipient breakdown.
- Dressing & padding applied.
- Appointment review arranged in two days



May 5th

# Infection suspected.

- Flucloxacillin 250mg QD arranged.
- Treatment repeated.
- Advised to return in a week.



May 7th

Example Images



# Mr X Presented back after 3 days.

- Clinician panicked....  
Sent Patient to hospital ED.
- Seen by orthopaedic SHO.
- Sterile dressings applied and  
patient put in a rocker bottom  
cast shoe.
- Advised to continue antibiotics and  
return in 2 days.



May 10th

# Mr X felt really unwell so saw GP the next day.

- Blood glucose 16.8mmol/L (113 mmol/mol)
- Pyrexial
- Cellulitis
- Admitted under orthopaedics for IV antibiotics



May 11th

First Image

# ....NEXT

- IV flucloxacillin and benzylpenicillin
- A swab was taken
- Cultures returned with haemolytic strep, Staph aureus and anaerobes. Now antibiotics revised.
- Two days after admission and again one week later the foot was debrided in theatre by the orthopaedic consultant.



May 13th

# ...and Finally

Result after significant tissue loss was a mid foot amputation.

Final healing 4.5 months after first presentation.



“Complex and vulnerable” Mike Edmunds 1984.

Neuropathy

Diabetes  
8 DAYS !

Missed  
Opportunities

Infection



Q. Where did it all  
go wrong?



# Simple Staging System

Estimating risk  
Of breakdown

- 
- 1 **Low risk**
  - 2 **Moderate risk**
  - 3 **High risk \***

Foot  
attack

- 
- 4 **Ulcerated**
  - 5 **Infected**
  - 6 **Necrotic**

# The Foot Protection Service

## Diabetes foot screening & risk stratification tool.

**ACTIVE**

Presence of active ulceration. Severe spreading infection & critical limb ischemia. Charcot foot

**HIGH**

Previous amputation or ulceration or two or more risk factors eg:  
<sup>1</sup>Neuropathy  
<sup>2</sup>Absent / diminished pulses  
<sup>3</sup>Significant foot deformity with callus, or nail pathology likely to cause wounding or PI  
<sup>4</sup>Pre-ulcerative lesions  
<sup>5</sup>End stage renal failure  
<sup>6</sup>Maori/Pacific ethnicity

**MODERATE**

One risk factor e.g.  
<sup>1</sup>Neuropathy  
<sup>2</sup>Absent / diminished pulses without callus or deformity

**LOW**

No risk factors  
**NO** issues with: vascular supply, neuropathy callus or nail pathology likely to cause wounding or PI



# MULTIPLE IDENTITIES OF THE HIGH RISK FOOT

- **Neuropathic Foot**

1. Neuropathic foot (LOPS)
2. Charcot foot

- **Ischaemic Foot**

3. Neuroischaemic foot
4. Critically ischaemic foot
5. Acutely ischaemic foot
6. Renal ischaemic foot

1



**Neuropathic foot (LOPS)**

5



**Acutely ischaemic foot**

6



**Renal ischaemic foot**

Mr X., age 52, Type II NIDD for 8 yrs

**Hx Risk ?**

**Debride ?**

**Offload ?**

...

**Collaborate ?**



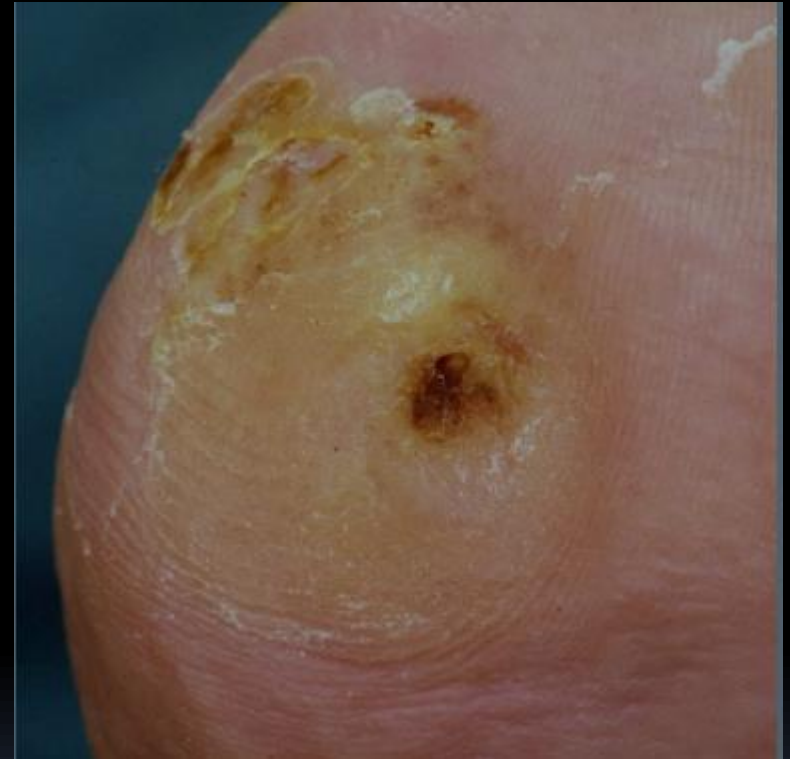
May 5th

Example Images

# Infection suspected.

- Flucloxacillin 250mg QD arranged .
- Treatment repeated.

# SWAB!



May 7th

Example Images

# Mr X Presented back after 3 days

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May 10th

**Swab for  
sensitivity**

Example Images

Mr X Presented  
back after 3 days

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**Empirical  
ABx**

**Notify the foot  
protection  
service**

May 10th

**Hospital guidelines advises  
co-amoxiclav for diabetic ulceration.**

# PUTTING FEET FIRST

## Commissioning/planning a care pathway for foot care services for people with diabetes

### BACKGROUND

- The consequences of poor management of the foot in diabetes are considerable: prolonged ulceration and infection, gangrene and amputation, depression and death. The annual costs to health care agencies in the UK are estimated to exceed £1 billion.
- Good management requires close coordination between different groups of health care professionals.
- The 2011 NICE Quality Standard 10 and the Diabetes Foot Risk Stratification and Triage (DFT) 116 also states that all people at increased risk will receive regular review by a member of a FPT. People with diabetes should be aware of their risk status and this entitlement. All people at increased risk should be referred promptly to a member of the FPT.
- Education of specialist staff and patients It is necessary that those who examine the feet to determine risk status have the necessary training and competence. Training will be a role which can be provided by the FPT. An essential part of the annual review of feet is patient education. The person with diabetes should be aware of the reason for the examination being undertaken, the results of the examination, the services to which they should have access if they require specific preventive measures and action to be taken if they develop a foot problem.
- A free online training programme is available at [www.diabetesfootcare.org](http://www.diabetesfootcare.org).
- Some may refer to as the Foot Care Team.

The management of all new disease. The FPT and MDT must work closely together.

Pathways of care must ensure prompt and effective transition of care across health care boundaries, including traditional boundaries that exist within the community, between community and hospital and between different specialist groups in hospitals. The publication in July 2011 of new NICE Quality Standard 10 and the Diabetes Foot Risk Stratification and Triage (DFT) 116 also states that all people at increased risk will receive regular review by a member of a FPT. People with diabetes should be aware of their risk status and this entitlement. All people at increased risk should be referred promptly to a member of the FPT.

## TRANSFORMING FOOT CARE SERVICES IN DIABETES

### 1 PREVENTION OF ACTIVE DISEASE OF THE FOOT IN THOSE AT INCREASED RISK

**Referral of those at increased risk to the Foot Protection Team (FPT)** Foot risk status correlates closely with outcome. The need to document risk of each individual with diabetes was incorporated in QOF targets in April 2011. The 2011 NICE Quality Standard 10 and the Diabetes Foot Risk Stratification and Triage (DFT) 116 also states that all people at increased risk will receive regular review by a member of a FPT. People with diabetes should be aware of their risk status and this entitlement. All people at increased risk should be referred promptly to a member of the FPT.

### 2 TREATMENT OF ACTIVE DISEASE OF THE FOOT

- Active disease of the foot includes:
  - Ulceration, with or without infection and peripheral arterial disease
  - Peripheral arterial disease without ulceration
  - Acute Charcot foot
  - Painful peripheral neuropathy
  - Disease of the foot unrelated to diabetes.
- Ulceration** All ulcers should be referred to the MDT within 24 hours of diagnosis. The MDT should assess the ulcer and determine the need for treatment, including debridement, dressings, antibiotics, surgery and referral to specialist services. The MDT should also determine the need for referral to specialist services. The MDT should also determine the need for referral to specialist services.

# An Integrated Footcare Pathway

A collaboration with DUK, Society of Chiropodists and Podiatrists et al. 2013

Skills Framework also defines the contribution and responsibilities of the teams necessary to provide these services: the Foot Protection Team (FPT) with a primary responsibility for prevention, and the Multidisciplinary Team (MDT) which should coordinate

### REFERENCES

- NICE (2011) [www.nice.org.uk/niceguidance/2043](http://www.nice.org.uk/niceguidance/2043)
- Footcare Pathway, [www.diabetes.org.uk/Aboutus/News/News/2013/03/20130301](http://www.diabetes.org.uk/Aboutus/News/News/2013/03/20130301)
- NICE (2011) [www.nice.org.uk/niceguidance/2043](http://www.nice.org.uk/niceguidance/2043)
- NICE (2011) [www.nice.org.uk/niceguidance/2043](http://www.nice.org.uk/niceguidance/2043)
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Reduction of cardiovascular risk: The average survival five years is just 50 per cent for people who present with a disease of the foot. Average life expectancy is reduced by even in those with predominantly neuropathic disease. A cause of increased mortality is cardiovascular. It is essential necessary steps are taken to reduce cardiovascular risk.



**DIABETES UK**  
CARE. CONNECT. CAMPAIGN.

## Diabetes Foot Screening and Risk Stratification Tool

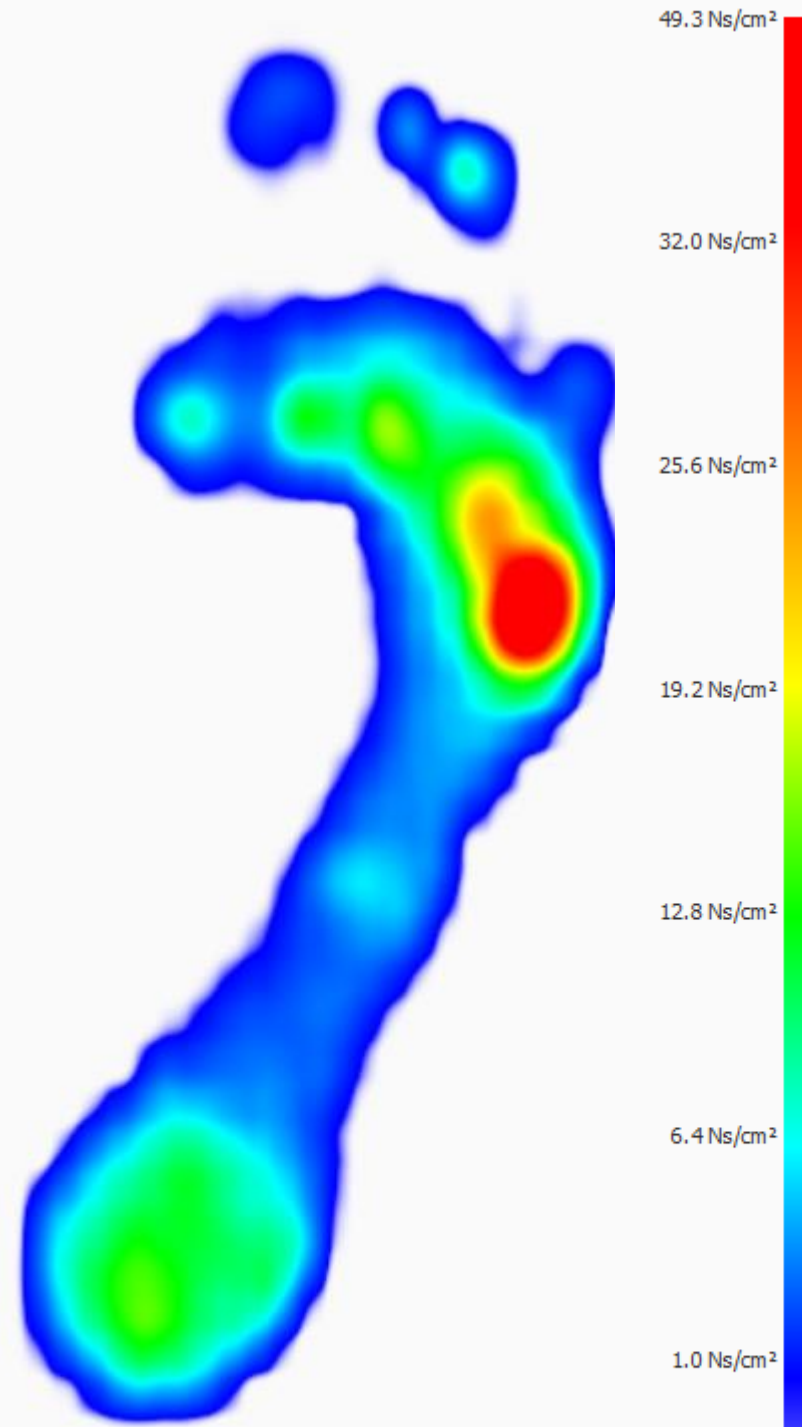
New Zealand Society  
**NZSSD**  
for the Study of Diabetes



**IMPORTANCE OF  
SPOTTING THE  
EARLY SIGNS OF  
TROUBLE.**



# USE OF PRESSURE PLATE ANALYSIS



# USE OF HIGH FREQUENCY ULTRASONOGRAPHY

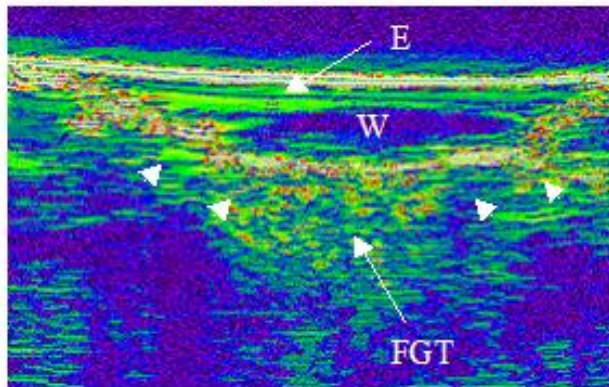
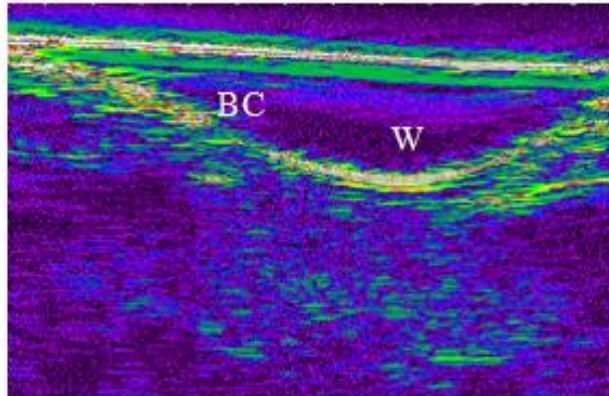
- wound measurement
- wound charting

# High frequency diagnostic ultrasound:

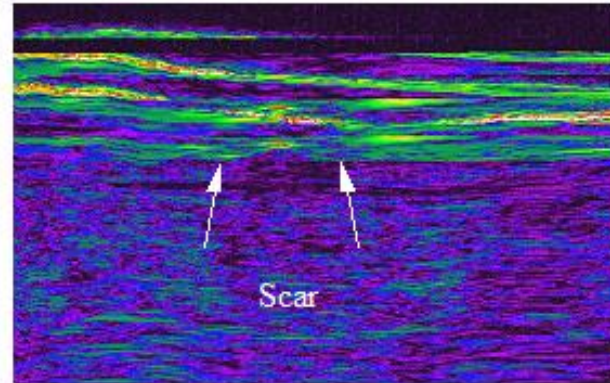
- Estimate wound volume
- Tissue composition
- Charting of the healing process

Rippon *et al*, 1998; Quintavalle *et al*, 2006;  
Lyder, 2007; Whittington *et al* 2011.

# Charting wound healing



Week one



Week five

- BC= Blood clot
- W= Wound
- E= Epithelialisation
- FGT= Fibrous granulation tissue
- ▼ = Wound contracture

# WHAT WE ARE **ALL** TRYING TO PREVENT



# T.E.A.M.



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