

Diabetes Foot Disease

What's the fuss?

Debbie Sharman

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- **Context**
- **Foot self-care**
- **Spotting early warning signs**
- **Foot checks and risk stratification**
- **Screening in people with darker skin tones**
- **When and how to refer**



**18.6 million
every year**

*Over 550 million people
worldwide have diabetes.
Over the course of a year, 18.6
million of them (circ. 3%) will
develop a foot ulcer.*

**“Major amputation is a life changing event
for a person...but the tragedy is all the
greater if it could have been prevented.”**

**Professor Mike Edmonds, Consultant Diabetologist, King's College
Hospital London**

What's the problem?

5-year mortality

On average, the mortality rate among individuals who have had a major lower limb amputation due to diabetes-related foot ulcers is distressingly high: over 50% of them will be dead in 5 years. The 5-year mortality rate for minor amputation and diabetes-related foot ulcer are respectively 46.2 % and 30.5% (international).²

- 1 Major amputation 56.6%
- 2 Minor amputation 46.2%
- 3 All cancers 31%
- 4 Diabetes-related foot ulcer 30.5%
- 5 Breast cancer 9%



34%

Between 25% and 34% of people living with diabetes will develop a foot ulcer in their lifetime².

National Diabetes Footcare Audit

Slide courtesy of Prof Fran Game, Clinical Lead, NDFA England and Wales

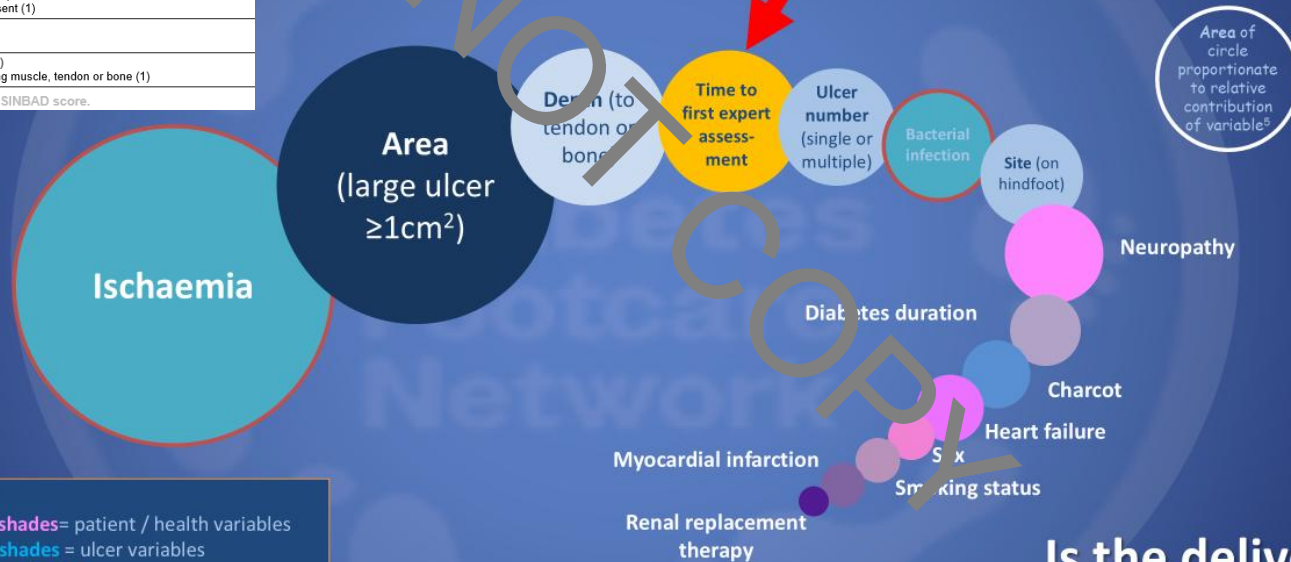


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Alive and ulcer free 12 weeks:
Variable strength

SINBAD Score	
Using the guidance, leave each box blank for a score of (0), or check each box for a score of (1).	
S <input type="checkbox"/>	Site of Ulcer: Forefoot (0) Midfoot/Hindfoot (1)
I <input type="checkbox"/>	Ischaemia: No evidence of ischaemia (at least one palpable pulse) (0) Evidence of ischaemia (no pulses) (1)
N <input type="checkbox"/>	Neuropathy: Protective sensation intact (0) Protective sensation reduced/absent (1)
B <input type="checkbox"/>	Bacterial Infection: No infection (0) Infection present (1)
A <input type="checkbox"/>	Area: < 1 cm ² (0) > 1 cm ² (1)
D <input type="checkbox"/>	Depth: Superficial (0) Ulcer involving muscle, tendon or bone (1)
Total SINBAD Score (out of 6): Click to add the SINBAD score.	

Key:
Pink shades = patient / health variables
Blue shades = ulcer variables
Yellow shades = care processes
Area of circle proportionate to relative contribution of variable⁵.



Is the delivery of
care as variable as
outcome?

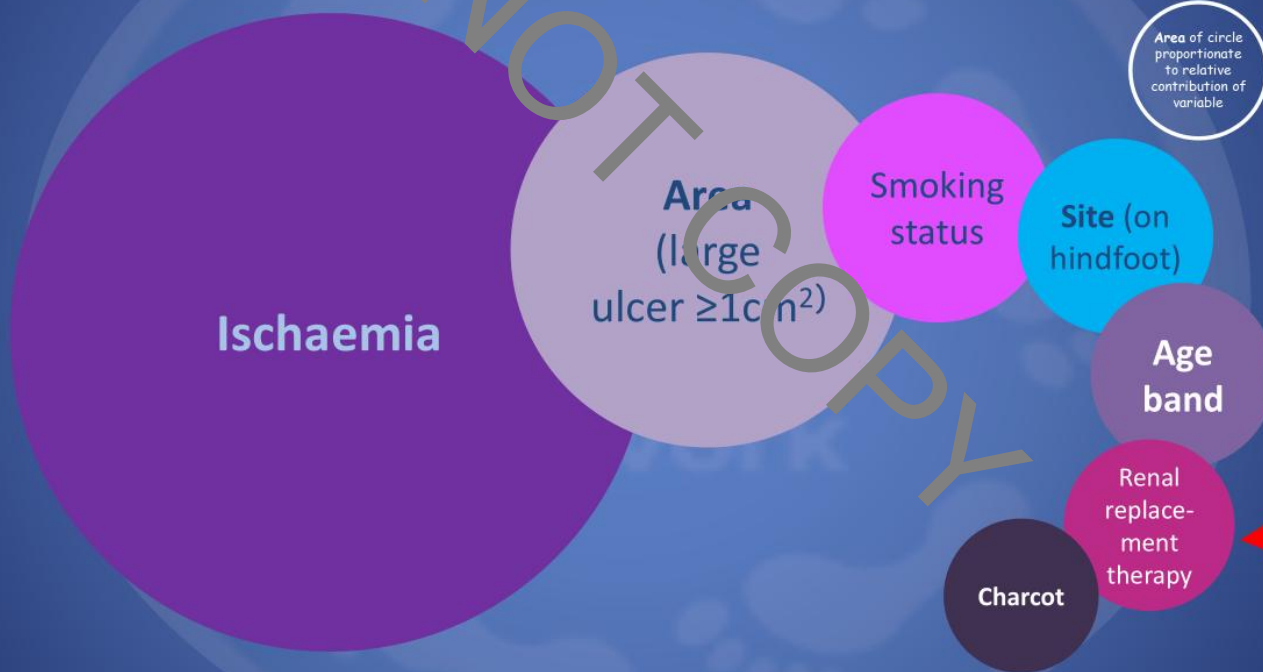
National Diabetes Footcare Audit

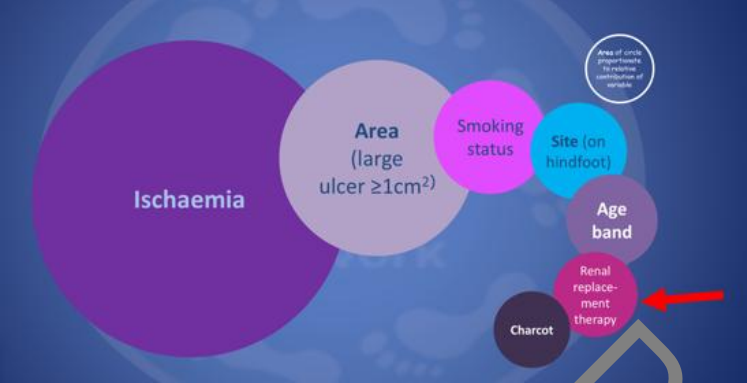
Slide courtesy of Prof Fran Game, Clinical Lead, NDFA England and Wales



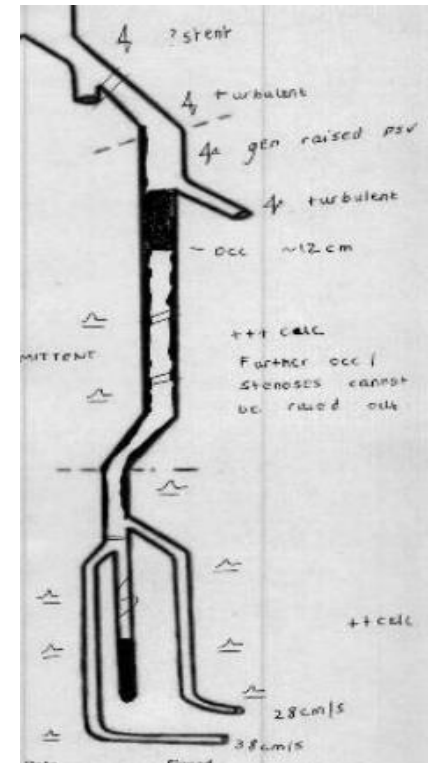
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Major Amputation: ulcer/person factors



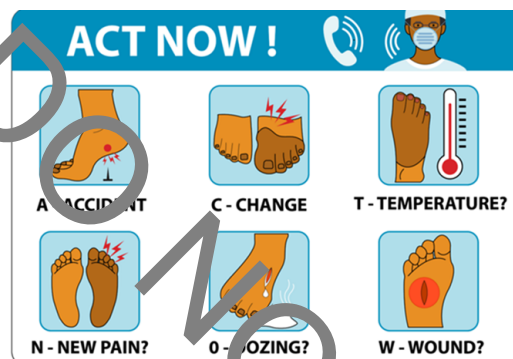


- The more severe the ulcer, the worse the outcome.
- Late presentation to specialist team = significantly higher risk of poor outcome.
- Ischaemia poorly recognised.
- Infection under-treated.



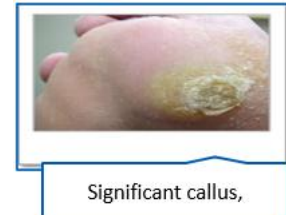
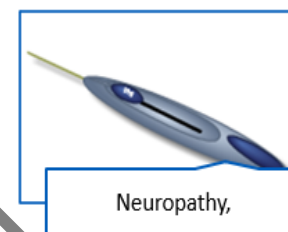
S	<input checked="" type="checkbox"/>	Site of Ulcer:
I	<input checked="" type="checkbox"/>	Ischaemia:
N	<input checked="" type="checkbox"/>	Neuropathy:
B	<input checked="" type="checkbox"/>	Bacterial Infection:
A	<input checked="" type="checkbox"/>	Area:
D	<input checked="" type="checkbox"/>	Depth:
Total SINBAD Score (out of 6): 6		

Daily Foot checks /screening



<https://idealdiabetes.com/act-now-education-resources/>

Low risk	No current risk factors for developing diabetic foot complications, except callous alone
Moderate risk	Patients displaying any of the following risk factors: <ul style="list-style-type: none"> • Deformity or • Neuropathy or • Non-critical limb ischaemia
High risk	<ul style="list-style-type: none"> • Previous ulceration or • Previous amputation or • On renal replacement therapy or • Neuropathy & non – critical limb ischaemia together or • Neuropathy in combination with callous and/ or deformity or • Non-critical ischaemia in combination with callous and or deformity
Active diabetic foot problem	<ul style="list-style-type: none"> • Ulceration or • Spreading infection or • Critical limb ischaemia or • Gangrene or Suspicion of an acute Charcot arthropathy, or unexplained hot, red, swollen foot with or without pain.)



Do people know their risk?

> J Wound Care. 2021 Aug 2;30(8):598-603. doi: 10.12968/jowc.2021.30.8.598.

People living with diabetes are unaware of their foot risk status or why they are referred to a multidisciplinary foot team



Daina V Walton^{1 2}, Michael E Edmonds^{1 3}, Maureen Bates¹, Prashanth R J Vas^{1 3},
Nina L Petrova^{1 3}, Chris A Manu¹

Affiliations + expand

PMID: 34382842 DOI: 10.12968/jowc.2021.30.8.598

- Only 4% (n=202) knew risk status (Pts referred to DF MDT).
- 2021 World Diabetes Day survey:
 - 1,231 replies (from 18,000) – 45% did not know what their risk category was.



**Low risk of non-healing wounds
and amputation**

Diabetes information and advice to help
protect your life and limbs



**Moderate risk of non-healing
wounds and amputation**

Diabetes information and advice to help
protect your life and limbs



**High risk of non-healing
wounds and amputation**

Diabetes information and advice to help
protect your life and limbs



**Advice for looking after your
Charcot foot to reduce the risk
of amputation**

Diabetes information and advice to help
protect your life and limbs



**Looking after your diabetic foot
ulcer to reduce the risk of
amputation**

Diabetes information and advice to help
protect your life and limbs



**Looking after your foot in
remission, to reduce the risk of
further ulcers and amputation**

Diabetes information and advice to help
protect your life and limbs



**Footwear advice to reduce the
risk of amputation**

Diabetes information and advice to help
protect your life and limbs



**Advice to help you care for your
feet on holiday**

Diabetes information and advice to help
protect your life and limbs

Links

- <https://rcpod.org.uk/patient-information/diabetes/diabetes-leaflets/low-risk-of-non-healing-wounds-and-amputation>
- <https://rcpod.org.uk/patient-information/diabetes/diabetes-leaflets/moderate-risk-of-non-healing-wounds-and-amputation>
- <https://rcpod.org.uk/patient-information/diabetes/diabetes-leaflets/high-risk-of-non-healing-wounds-and-amputation>
- <https://rcpod.org.uk/patient-information/diabetes/diabetes-leaflets/looking-after-your-foot-in-remission-to-reduce-the-risk-of-further-ulcers-and-amputation>
- <https://rcpod.org.uk/patient-information/diabetes/diabetes-leaflets/footwear-advice-to-reduce-the-risk-of-amputation>
- <https://rcpod.org.uk/patient-information/diabetes/diabetes-leaflets/advice-to-help-you-care-for-your-feet-on-holiday>



10 simple steps to prevent foot problems

If you want a few pointers on looking after your feet, then take our simple steps to healthy feet:

1. [Get help to quit smoking](#)
2. [Manage your blood sugars, cholesterol and blood pressure](#)
3. [Check your feet every day](#)
4. [Eat a healthy, balanced diet and stay active](#)
5. [Cut your nails carefully](#)
6. [Make sure your footwear fits](#)
7. [Use moisturising cream every day](#)
8. [Don't use blades or corn plasters](#)
9. [Get expert advice](#)
10. [Keep useful numbers handy](#)

<https://www.diabetes.org.uk/about-diabetes/looking-after-diabetes/complications/feet/taking-care-of-your-feet>

How to check your feet

For simple steps to healthy feet and how to check them, watch our video.



<https://youtu.be/jC9hXPURsQA>

Early warning signs



- Changes in the colour and shape of feet over all or part of the foot, especially a red, hot, swollen toe, ankle or foot.
- Foot feels much colder or hotter than usual.
- New blisters, cuts or wounds.
- A cut or wound with malodour and/or pus.
- New or unexplained pain in foot.

Infection or ischaemia?



Infection

- Classic signs absent in ischaemic foot
- Redness does not dissipate on elevation.
- Pain in insensate foot?
- Inflammatory markers may be normal.
- Other signs.



Infection

- **Unchecked infection can spread rapidly.**
- **Needs aggressive management.**
- **All wounds colonised by microorganisms.**
- **Consider secondary signs and symptoms.**
- **Classifying severity helps define treatment approach and prognosis**



Buerger's Test



Infection or Ischaemia?



Infection or Ischaemia?



Darker skin tones

Diabetes footcare in dark skin tones

Scan to
download the
handbook



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Acknowledgment

Diabetes Africa received support from Mölnlycke in the form of a hands-off sponsorship to support the costs of authorship, publication and launch of this handbook.



<https://diabetesafrica.org/footcare-handbook/>



**Symptoms of ischaemia and infection will be less obvious in dark skin tones –
Be the detective! 🔍**

Darker skin tones



REMEMBER

**Current guidelines
may overlook
the nuances of
assessing dark
skin tones."**

*International Working Group on the Diabetic Foot (IWGDF) and Infectious Diseases Society of America (IDSA)

For this 47-year-old male, the primary indication of a diabetes-related foot infection was swelling and warmth, rather than redness.

The infection was identified early in this person previously unaware of his diabetes.

The person sought medical advice as he was concerned about the discoloration on his toe.

A physical examination showed toe swelling with the left foot notably warm, signaling an infection.

**Case studies are based on real life. In an effort to maintain the confidentiality of individuals, names and specific aspects of the account have been changed. Photographs are shared with the person's consent.*

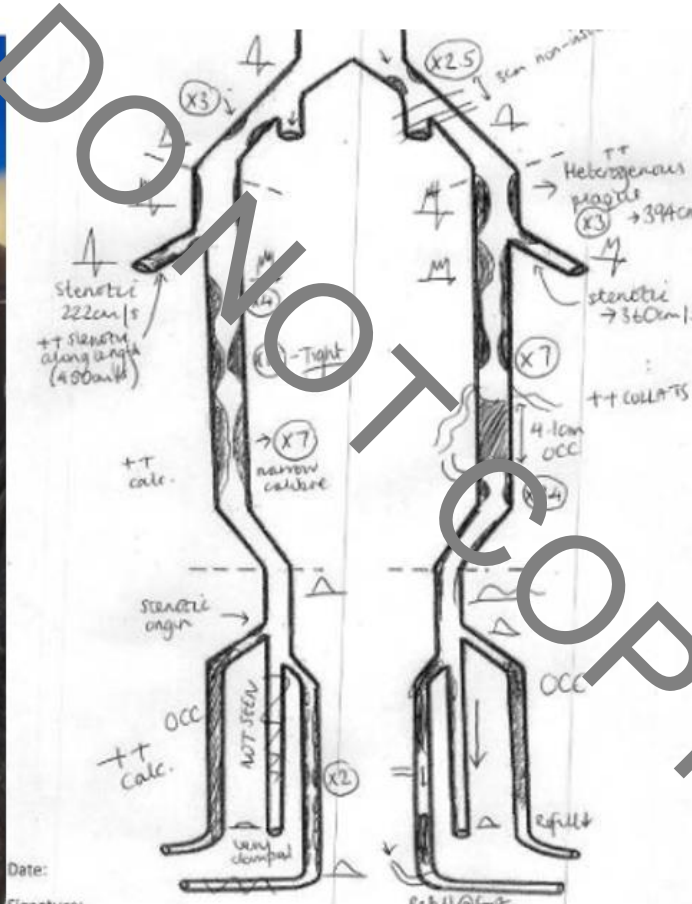


▲ (above) Mirroring once again proved useful during the examination. On the left foot, there is no visible redness (erythema), but it is swollen and warm to the touch. The right foot, in contrast, shows some muscle wasting (diabetes-related muscle atrophy) and does not display swelling, redness, or warmth (Photograph courtesy of Z.G. Abbas)

'Janet'

- Referred to DFC Feb 2024
- Recently arrived in UK to help look after young grandchildren.
- Started as itching between toes – given antibiotic cream by Dr in Nigeria. Thinks wound on top of foot started from scratching foot due to itching.
- Seen in ED January 2024.
- Feet swollen. Painful. Absent pulses. No 'redness' so no antibiotics given by GP in UK.
- Antibiotics. X-rays. US arterial doppler scan.





Janet -2 days after DFC

- Son phoned – concerned left foot and leg more swollen and painful.
- Scan showing significant bilateral occlusions.
- D/w on call vascular consultant – accepted for admission.
- Angioplasty CIA, EIA, CFA
- Discharged after 7 days on antibiotics – DFC FU




Dark skin tones

- Use good lighting to see the skin, ideally bright natural light. Avoid fluorescent light as can cast a blue tone on dark skin tones.
- Examine for any swelling, change in colour, warmth and changes in skin texture.
- Compare similar anatomical locations.

” THE EXPERT SAYS

Make full use of the senses: use your sight, touch, hearing, and even smell to check for warning signs.”

 Chris Manu
Consultant Diabetologist
Co-lead for Diabetes
Foot Service, King's
College Hospital NHS
Foundation Trust

Adapted from
Dhoonmoon, 2023



Dark skin tones

- Careful inspection and assessment for any skin colour changes.
- Listen to the patient story – has there been a change?
- People with dark skin tones frequently notice changes late, missing early warning signs.
- Unmet need for education to help early identification.
- “Consider the person as a whole, not just the hole in the person”.
- Delays in accessing care increase risk of amputation and mortality.
- Dark skin should not be seen as a ‘challenge’ in clinical practice
- To reduce health inequalities and misdiagnosis, health care professionals must have the knowledge and awareness to provide optimal care for all regardless of skin tone.

When and how to refer

- Local pathways will vary, but all DFUs need urgent assessment by specialist footcare team.
- May be community / secondary care based.
- "If in doubt, shout".
- "Time is tissue" is a critical concept in diabetic foot management - prompt diagnosis and treatment are essential to prevent further tissue damage and potential amputation.

1.4 Diabetic foot problems

Referral

- 1.4.1 If a person has a limb-threatening or life-threatening diabetic foot problem, refer them immediately to acute services and inform the multidisciplinary foot care service (according to local protocols and pathways; also see the [recommendation on services and protocols commissioners and service providers should ensure are in place](#)), so they can be assessed and an individualised treatment plan put in place. Examples of limb-threatening and life-threatening diabetic foot problems include the following:
- Ulceration with fever or any signs of sepsis.
 - Ulceration with limb ischaemia (see the [NICE guideline on peripheral arterial disease](#)).
 - Clinical concern that there is a deep-seated soft tissue or bone infection (with or without ulceration).
 - Gangrene (with or without ulceration). [2015]
- 1.4.2 For all other active diabetic foot problems, refer the person within 1 working day to the multidisciplinary foot care service or foot protection service (according to local protocols and pathways; also see the [recommendation on services and protocols commissioners and service providers should ensure are in place](#)) for triage within 1 further working day. [2015]

Delayed referral

8 October 2025:

History: Telephone encounter (9N31.) has been wearing shoes that have rubbed his feet, has got an infection in little toe left foot, says doesn't look like an ulcer. Says too painful to walk on. Asking for antibiotics. Says not able to take photo and send at the moment.

Plan: agreed will issue Flucloxacillin. 500 qds 7 days
to closely monitor foot and if any signs of worsening or becomes unwell to seek sos r/v.

24 October 2025:

History: Telephone encounter (9N31.)

Had a fall on wednesday in garden, toe is improving, foot below is weening, has stopped now.

Plan: agreed extend course of antibiotics, monitor over weekend and if worsening to seek further advice. Flucloxacillin 500 qds 7 days

31 October 2025:

Son in law has been dressing left foot, offensive smelling ulcer to left foot. Has been self neglecting.

Examination: left foot significant deep offensive smelling cavity/ulcer to lateral aspect of foot.

Plan: xray left foot.

extend course abs Flucloxacillin 500 qds 7 days

4 Nov 2025:

Referral to hospital DFC

5 Nov 2025: osteomyelitis 5th MTPJ. Absent foot pulses. HbA1c 113 mmol/mol

Last recorded diabetes foot check 1 August 2023 (high risk).



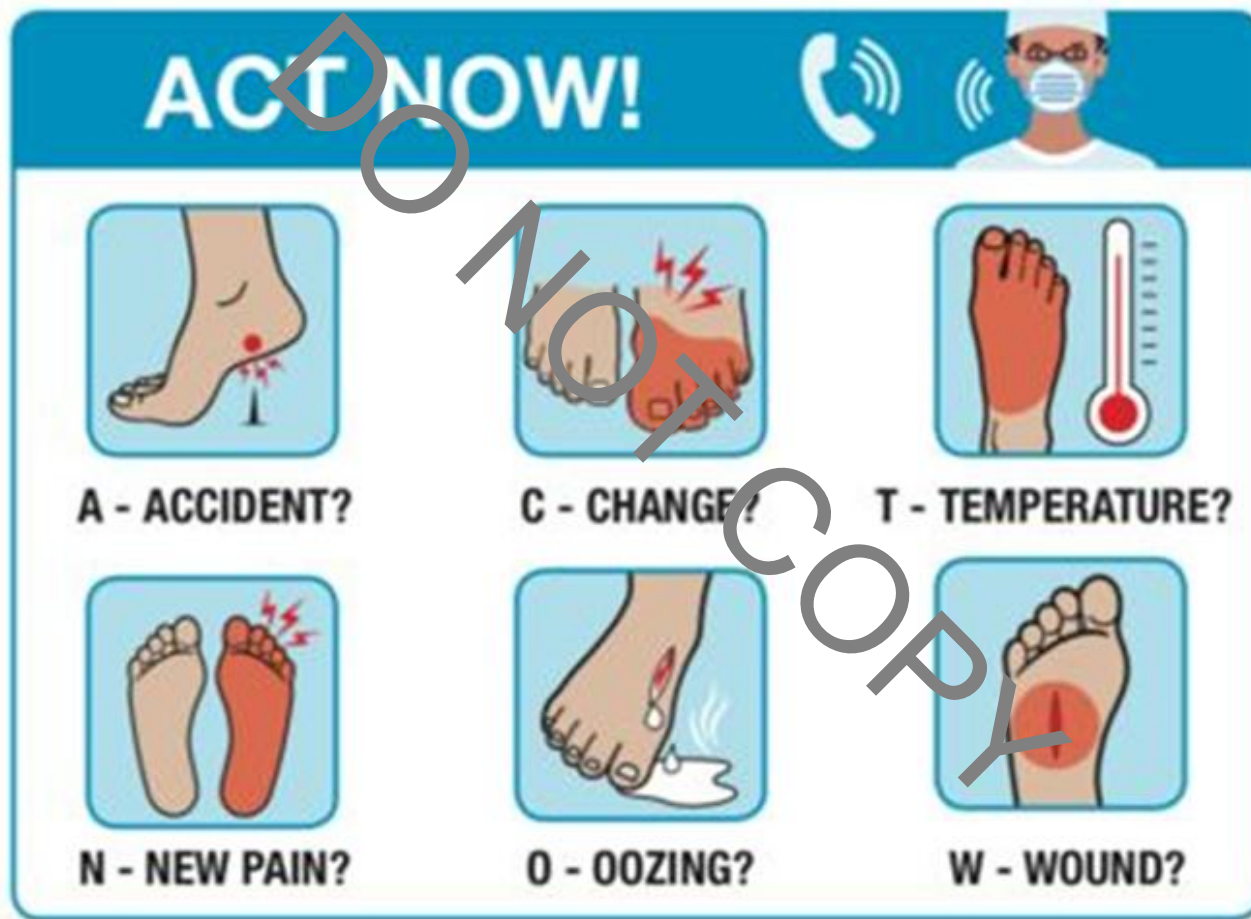
Risk only increases

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Active diabetic foot problem	<ul style="list-style-type: none"> • Ulceration or • Spreading infection or • Critical limb ischaemia or • Gangrene or <p>Suspicion of an acute Charcot arthropathy, or unexplained hot, red, swollen foot with or without pain.)</p>

Re-ulceration rates

- 40-45% within one year
- 60% in 3 years





Act now to save limbs and lives....



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**Thank
you for
your
attention**