Diabetes footcare in dark skin tones

Scan to download the handbook

PUBLISHED BY
DIABETES AFRICA

SUPPORTED BY
ROYAL COLLEGE of PODIATRY

SPONSORED BY
Mölnlycke®

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

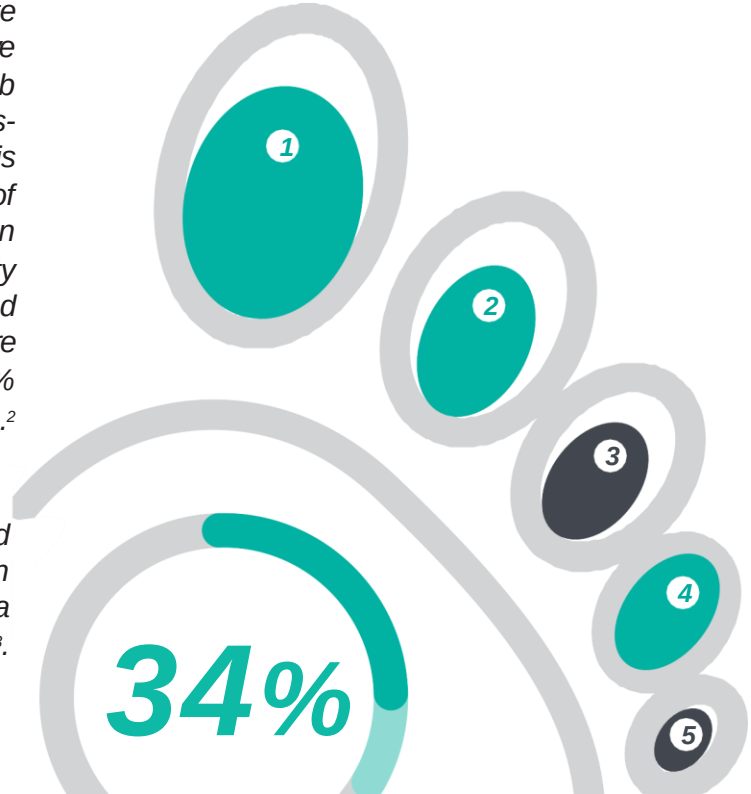
Diabetes foot care in numbers

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]

Between 25% and 34% of people living with diabetes will develop a foot ulcer in their lifetime[3].

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%*

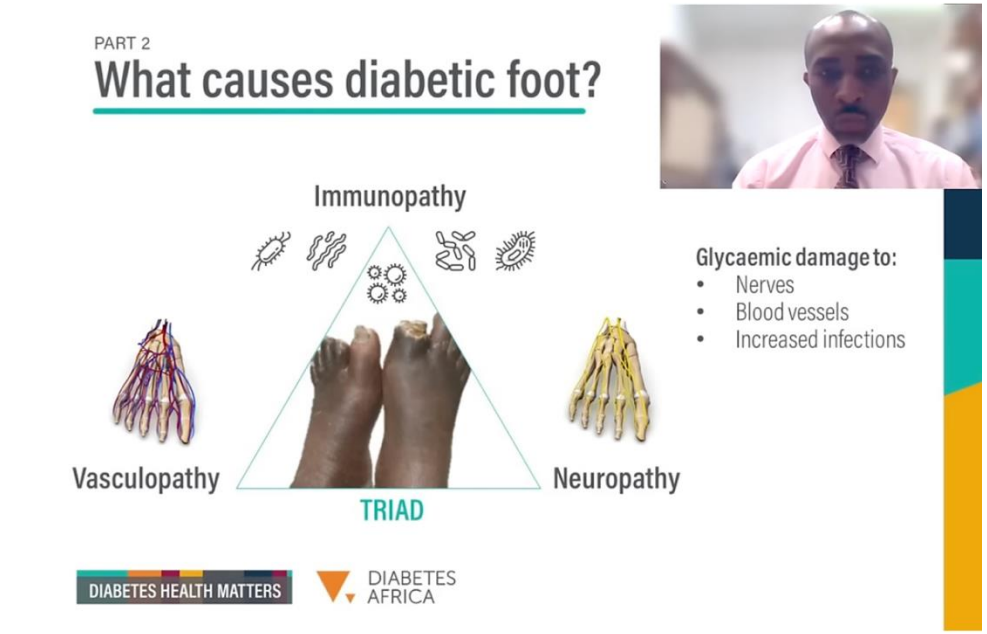


18.6 million every year

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[1].

Scan to download the handbook

Sustained interest in the topic



Part 1/3: Diabetes: why foot health matters. What is diabetic foot?

Diabetes Africa
3.64K subscribers
Analytics | Edit video
376 | Share | Promote | Clip | Save | ...

40K views 2 years ago

The five-year mortality and direct costs of care for people with diabetic foot complications are comparable to cancer. This statistic alone should make us stop and think about the way we look after our health, and the importance we place on foot care for people living with diabetes.

...more

How would you rate this event? March 2022

5- Excellent	78%
4- Good	19%

@rohannewman457 1 year ago

This is very good! I wish more health care professionals in the Caribbean especially would watch these videos It would make a world of difference to there patients. Too many diabetic patients are losing their limbs.

Scan to download the handbook

/@diabetesafrica

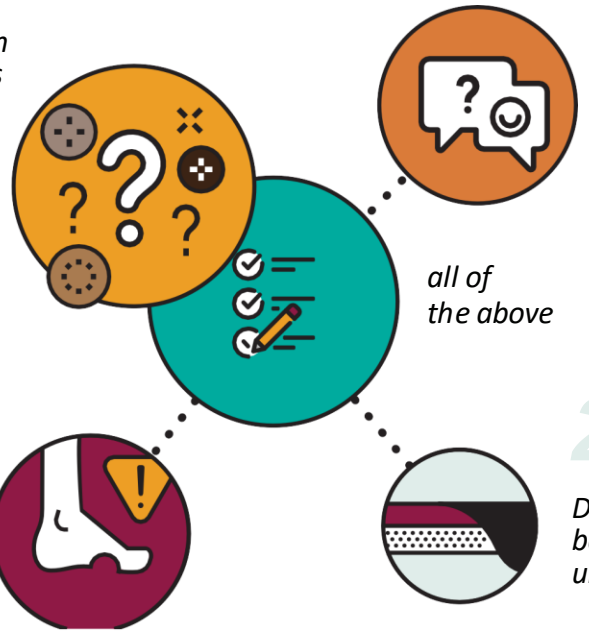
What healthcare professionals said

39%

Identifying skin colour changes

29%

Communicating with patients effectively



all of the above

27%

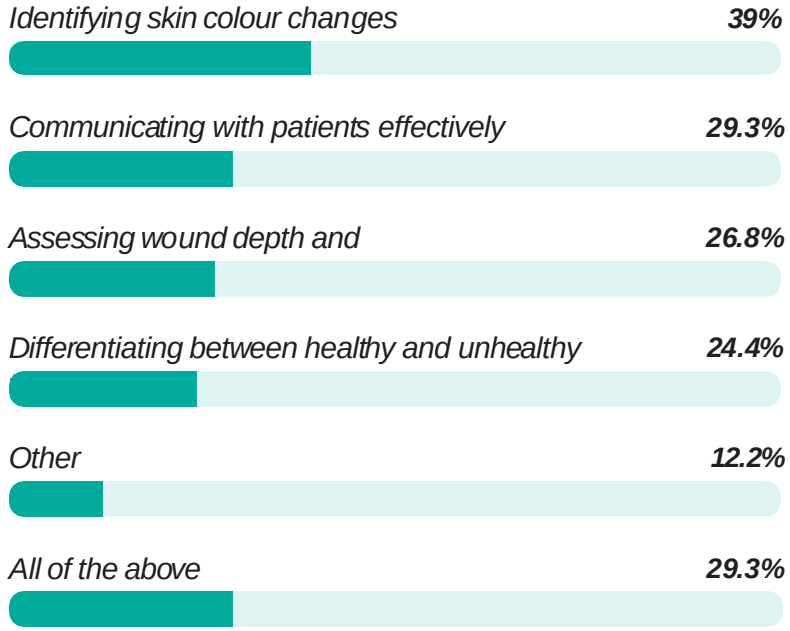
Assessing wound depth and severity

24%

Differentiating between healthy and unhealthy tissues

Scan to download the handbook

What are the primary challenges that you face when assessing changes associated with diabetic foot complications in patients? (Select all that apply)



Based on a survey of 42 healthcare professionals conducted between 1-31 January 2024

Diabetes footcare in dark skin tones

Scan to download the handbook

PUBLISHED BY
DIABETES AFRICA

SUPPORTED BY
ROYAL COLLEGE of PODIATRY

SPONSORED BY
Mölnlycke®

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

Authors and reviewers

Authors*

Zulfiqarali Abbas
MD, Endocrinologist
President,
D-Foot International

Bernadette Adeyileka-Tracz
MPharm, PhD, Exec MBA
Executive Director,
Diabetes Africa

Luxmi Dhoonmoon
Nurse Consultant, Tissue Viability, London North West University Healthcare NHS Trust

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

Joan St John
GPwER Diabetes, Diabetes UK Clinical Champion

Lived experience insights from

Geoff Schumann
Writer, Entertainer, Advocate
Living with diabetes

Reviewers*

Laura Lovell
MD, GPwSI Diabetes, Barbados Diabetes Foundation

Jayne Robbie
Specialist Podiatrist, Senior Lecturer in Diabetes and Vascular Disease, Birmingham City University

Debbie Sharman
Consultant Podiatrist, Diabetes, Dorset HealthCare University NHS Foundation Trust

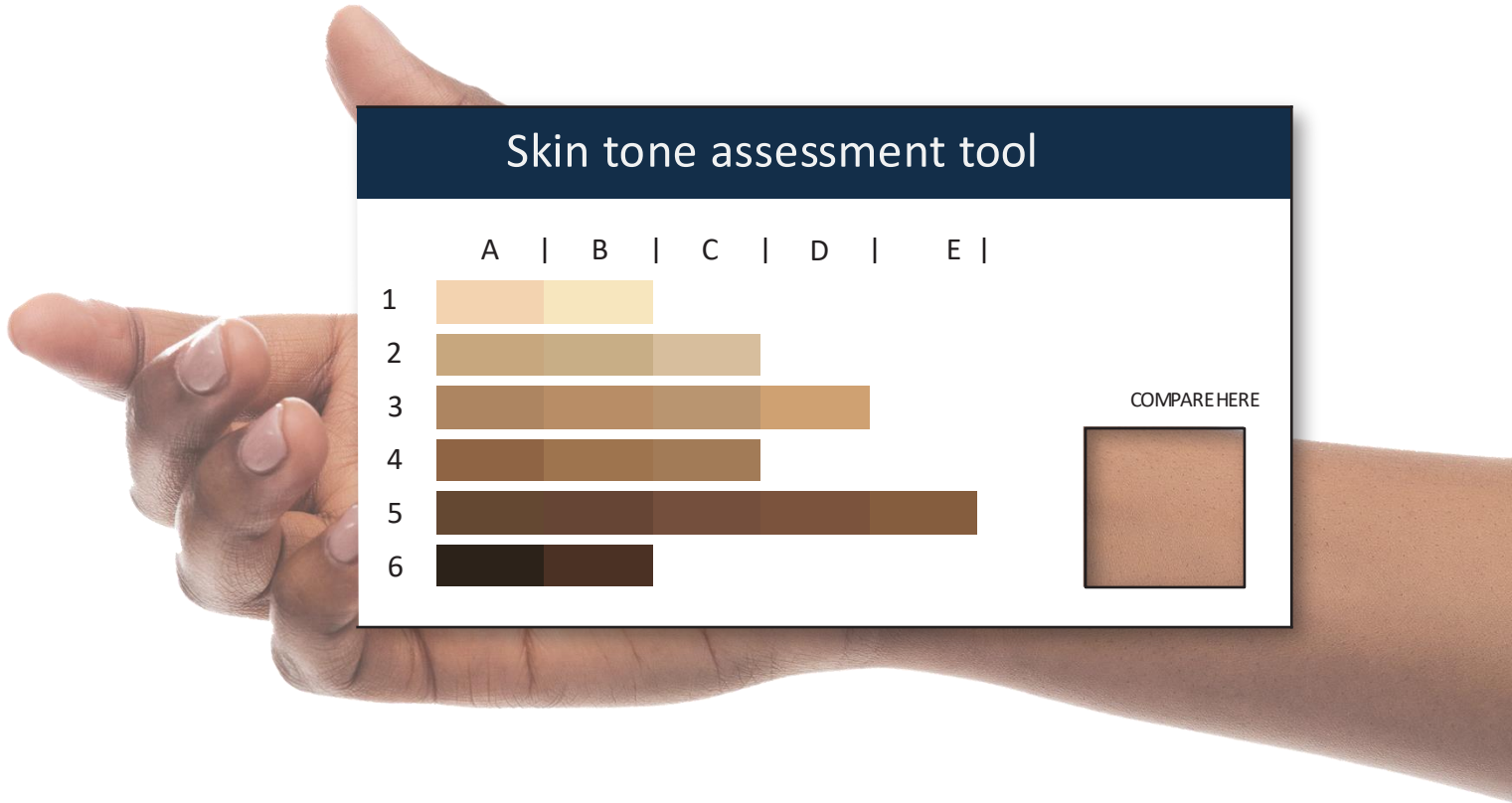
Scan to download the handbook

**in alphabetical order*

The skin tone tool

This is the recommended, technology-free method to assess skin tone objectively. It relies on visual examination and offers a range from 1A to 6B. This is the system we have adopted in the handbook.

The person with diabetes is the most valuable source of information and can report changes in skin colour to clinicians, who can compare these changes to areas of the skin that are unaffected, serving as a baseline.



Scan to download the handbook

Foot ulcers

Once they expose flesh, all ulcers become more visible, regardless of skin tone. Monitoring for subtle discolouration signs can early detect diabetes-related foot attacks.

Picking up subtle signs of discolouration

Ulcer on the fourth toe
The swelling and redness around the ulcer make it more noticeable against the light skin tone (1A). The presence of slough requires urgent attention.

Risk	●●● Urgent
Next visit	< 1 day
Refer to	Podiatrist*

*or diabetes foot clinic

Ulcer on the second toe
The person noticed the ulcer early by spotting a color change in their skin. Having previously lost toes to amputation, they are at higher risk for further foot complications.

Risk	●●○ High
Next visit	< 1 week
Refer to	Podiatrist*

*or diabetes foot clinic

Healing ulcer on the hallux
The presence of new skin cells, known as epithelial tissue, shows that the ulcer is healing, though it is still causing discoloration around the big toe (hallux).

Risk	●○○ Moderate
Next visit	< 1 week
Refer to	Podiatrist*

*or diabetes foot clinic

Plantar aspects

Heel ulcer on person with light skin tone

Heel ulcer on a person with dark skin tone

Note
The stratum corneum, the outermost layer of the epidermis, is thicker in the plantar region of the foot.

This thickness makes the melanin in the basal layer less visible. However, color changes can still occur, so regular monitoring is advised.

Infected foot ulcers

Infected ulcers require immediate attention from a multidisciplinary healthcare team. Early signs include swelling and warmth, but redness may not always be present.

What are the signs of infection?

Infected interdigital ulcer
No obvious redness (erythema) is seen on the left foot's dark skin. There is typical swelling of the foot and the foot is warm on touch. It's possible to see that the big toe is gangrenous and infected. Compare it with an infected ulcer on a lighter skin tone (below). Main photograph courtesy of Z. G. Abbas.

Risk	●●● Urgent
Next visit	< 1 day
Refer to	hospital-based diabetes foot clinic

Skin and muscle infections stemming from diabetes-related foot ulcers (DFUs) manifest symptoms such as fever, discharge, warmth, pain, and redness in the affected area. However, the visibility of redness is notably less likely in individuals with dark skin tones.

When the infection reaches the bone, it is called osteomyelitis. At this stage, the outer layer of the bone and the bone itself are damaged.

Infected wounds may exhibit signs such as impaired formation of granulation tissue, steep, rolled-up edges, necrotic tissue, and pus.

Scan to download the handbook

Key concepts

Erythema on dark skin tone
Redness (erythema) is somewhat noticeable on this right diabetes-affected foot. The big toe is gangrenous. The skin is warm to the touch, and the foot is swollen. Illustration based on photograph courtesy of Prof. Z. G. Abbas

Erythema

Erythema refers to a skin colour change resulting from increased blood flow.

It is vital to understand that while erythema might manifest as redness, it does not uniformly present as such across all skin tones.

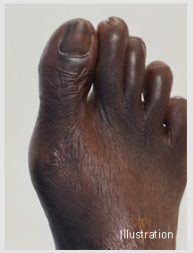
In individuals with dark skin, such as those with black or brown complexions, erythema may not readily appear as redness, making it less conspicuous than in those with lighter, less pigmented skin. The colour changes associated with erythema can vary widely, from pink to red to purple, and in some cases, it may simply cause a subtle darkening of the person's natural skin tone.

Detecting erythema in dark skin tones can be challenging, but it is not insurmountable. The most reliable method involves comparing changes in skin colour between affected and unaffected areas.

For example, if one limb is affected, it should be compared with the other, unaffected limb. The exact shade of erythema cannot be predicted with certainty as it greatly depends on an individual's skin tone, which itself varies widely among people.

Key concepts

Discolouration
Mirroring and comparing skin tones over a broader area of the leg highlight the darker patches in this person with peripheral arterial disease (stable without any acute ulceration). Based on photograph courtesy of L. Lovell.



Touch
Touch can help assess a change in skin texture and detect tightness and swelling, for example.

Skin pigmentation

When evaluating a person's skin, it is essential to consider their usual skin tone. For example, what may appear to be age-related pigmentation could either be a natural occurrence or a misdiagnosis. Therefore, establishing the person's baseline skin tone is critical, and vigilant monitoring for any deviations from this baseline is necessary.

Touch and temperature

When assessing a person's skin, it's crucial to go beyond visual examination, particularly when signs may not be easily visible.

Using all senses, especially touch, is vital in the diagnostic process, especially for individuals with dark skin where visual indicators might be less apparent.

For instance, cellulitis-affected skin often feels tighter and differs in texture from unaffected areas.

Additionally, it is important to gather information about the person's subjective experiences, such as changes in sensation like pain, itching, or other discomforts, and any visible changes.

In diagnosing and assessing conditions, the temperature of the skin is a significant marker. Comparing the warmth of various body parts, like between two limbs, can provide valuable insights. For precise temperature measurement, an infrared thermometer can be useful.

Scan to download the handbook

"No redness, but the foot was warm to the touch"

Zulfiqarali Abbas
MD, Endocrinologist
President,
D-Foot International

CASE STUDY*

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 discolouration on his toe.

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

▲ (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)

**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.*

"Discolouration was widespread but necrosis was localised"

Zulfiqarali Abbas
MD, Endocrinologist
President, D-Foot International

CASE STUDY*

"When I asked this 47-year-old person to show his left foot for a mirroring exercise, the discoloration on the right foot became even more apparent.

Upon further examination, it became apparent this was a case of ischemic necrosis affecting his right fourth toe, where gangrene had already set in.

There was no obvious sign of redness (erythema) that one might typically expect.

Instead, the right foot displayed hyperpigmentation compared to the left, which could have easily allowed this serious condition to go unnoticed."

▲ (Above) Hyperpigmentation and gangrene on the right fourth toe were seen in this person despite no visible signs of redness (photograph courtesy of Z. G. Abbas).

**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.*

Scan to download the handbook

How would you proceed with this assessment?

Luxmi Dhoonmoon
Nurse Consultant, Tissue Viability, London North West University Healthcare NHS Trust

Now that you're familiar with the content of the handbook, let's put your knowledge to the test. Look at the illustration and consider the following:

Initial reaction. How would you respond if someone presented with the condition shown? What are your immediate thoughts and concerns?

Procedure. Outline the steps to assess and address the condition. What would you do in order, and why?

THE EXPERT TIP

Consider the person as a whole, not just the hole in the person."

Information. Is there anything not visible that you need to know for a complete assessment?

Considerations for dark skin tones. What specific factors must you consider due to the person's dark skin?

Once you've completed this exercise, listen to Luxmi Dhoonmoon's insights on how she would approach this assessment (Click or scan the link on the left).

Listen to...

Luxmi Dhoonmoon describe her process for assessing someone with this clinical presentation at her clinic.

Click here

What do the guidelines say?

Although the NICE guidelines on Lyme disease acknowledge the challenges of identifying erythema migrans in people with dark skin tones, few guidelines are updated to take into account assessment of dark skin tones.

In fact, current guidelines may overlook the nuances of assessing dark complexions.

Guidelines often point to 'redness' around a wound as a critical marker for assessing the severity of an infection. This approach mirrors the criteria set by the IWGDF/IDSA*, which determine the level of infection by measuring the spread of erythema from the wound's edge.

Yet, this redness—a sign often clear in lighter skin—may present as dark pigmentation or not be visible at all in those with dark skin tones. Similarly, signals like skin pallor or a 'sunset' discolouration indicating ischemia can elude detection in dark-skinned individuals.

Listen to...

Dr. Chris Manu from King's College Hospital talk about redness.

Click here

This underscores the need for revised and inclusive assessment methods.

Readers who wish to explore this topic further may find it useful to consult the best practice statement issued by Wounds UK (Dhoonmoon et al 2021), on skin tone bias in wound care.

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)

Scan to download the handbook

@diabetesafrica

@diabetes_africa

@diabetesafrica1

/Diabetes Africa

/Diabetes Africa

Scan to download the handbook