

# Implementation of skin tone assessment in pressure ulcer prevention

**Abstract:** Accurate skin assessment is key to pressure ulcer prevention. It has been shown that a lack of accurate assessment means that patients with dark skin tones are more likely to be diagnosed with higher-category pressure ulcers, leading to poorer outcomes (Oozageer Gunowa et al, 2017). This article highlights training and development carried out at the Christie NHS Foundation Trust in Manchester, to incorporate skin tone awareness into aSSKING bundle assessments and PURPOSE T pressure risk assessments, using the skin tone tool (Dhoonmoon et al, 2021).

Pressure ulcers are well known to be painful, costly and can negatively affect a patient's quality of life. It has long been recognised that they increase the risk of infection, prolong hospital stays and can result in death (Young, 2021).

Discrepancies and systemic biases have been identified across healthcare systems, meaning that patients with dark skin may receive suboptimal care. It has been found that patients with dark skin tones are more likely to be diagnosed with higher-stage pressure ulcers due to a lack of accurate assessment and early identification (Oozageer Gunowa et al, 2017).

Many of the signs and symptoms that clinicians have been educated to look for as part of pressure ulcer prevention and identification may present differently depending on the patient's skin tone. For example, it has been found that dark skin rarely shows the blanching response that clinicians are trained to look out for, and erythema may also be hard to detect (Grimes, 2009). A focus on 'redness' can be misleading, as the colour change can run the spectrum of pink, red, and purple – in some cases it may be limited to a subtle darkening of the existing skin tone (British Association of Dermatologists, 2021; Dhoonmoon et al, 2021).

Further, a study on undergraduate nurse education at five higher education institutions in the UK confirmed that learning was predominately framed through a white lens, with white normativity being strongly reinforced through teaching and learning activities were predominantly focused on white skin tones (Oozageer Gunowa et al, 2020), highlighting that teaching skin tone diversity is needed for many healthcare professionals.

Best Practice has stated that skin inspection with an awareness of skin tone should be carried out as part of a full holistic assessment that includes the patient's skin, their overall health and medical history, and their wound, ensuring

that care is tailored to the individual and their needs. It is important to note that patients with all skin tones should receive an equitable level of assessment (Dhoonmoon et al, 2021).

## The Christie project

The Christie NHS Foundation Trust, located in Manchester, stands as one of Europe's largest cancer treatment centres. Given its diverse patient demographic, it is important for the staff to have the training and awareness to be able to provide optimal care for all and prevent potential patient harm. Within the Christie Hospital, there's an increased likelihood of patients facing pressure ulcer risks. As the incidence rate of cancer rises, so does the potential for pressure ulcers, particularly when cancer affects a patient's mobility and nutritional intake. Research strongly advocates for implementing comprehensive prevention strategies, citing their effectiveness in reducing incidence rates (Lyder, 2006).

A training and development project was developed, using the evidence in the Wounds UK Best Practice Statement (Dhoonmoon et al, 2021) to support staff awareness of skin tones. The aim of this project was to evaluate clinicians' knowledge of skin tone assessment, through a survey completed pre- and post-education, and to implement skin tone assessment into the existing aSSKING bundle and the PURPOSE T pressure ulcer risk assessments.

The nurse training package was based around the Best Practice Statement addressing skin tone bias in practice and use of the skin tone tool (Dhoonmoon et al, 2021). The training highlighted the need to measure and document baseline skin tone as part of the aSSKING bundle, with skin tone assessment included in ongoing patient aSSKING bundle assessments [Box 1] and any altered skin tone through skin inspection triggering repeat PURPOSE T pressure risk assessment [Box 2].

### Susy Pramod

Lead Tissue Viability Nurse, The Christie NHS Foundation Trust, Manchester

### Jane Mayes

Honorary Tissue Viability Nurse, The Christie NHS Foundation Trust, Manchester, Clinical Education Manager, Essity

### Katie Bowling

Tissue Viability Nurse, The Christie NHS Foundation Trust, Manchester

### Ged McDermott

Tissue Viability Nurse, The Christie NHS Foundation Trust, Manchester

### Key words

- Assessment
- Skin tone
- Pressure ulcer
- PURPOSE T

A survey was completed by staff pre- and post-training, to establish existing knowledge and the impact of the education package.

### Pre-training survey data

Nurses initially completed the survey before completing the training package, to establish baseline knowledge and measure the impact of the training.

The survey results showed that 96% of clinicians had not received previous training on skin tone assessment, with over half (54%) unaware of the issue of skin tone bias in healthcare. Pre-training, 46% of clinicians incorrectly thought patients with light skin tone were at higher risk of developing higher category pressure ulcers than those with dark skin tone.

Only 13% of clinicians reported feeling confident discussing skin tone with patients (33% were 'not confident', 13% 'slightly confident' and 41% 'unsure'). None of the clinicians reported feeling 'very confident' discussing skin tone.

Less than half (42%) correctly identified that, according to best practice, patients' skin tone should be assessed using the inside upper arm.

The initial survey gave the positive finding that, even pre-training, 79% of clinicians were aware of the value of touch in skin assessment, which is an important part of assessing all patients' skin.

### Skin tones training package

The training sessions were concise (15–20 minutes) face-to-face sessions held on the wards to align with the Best Practice Statement (Dhoonmoon et al, 2021). The primary focus was on integrating knowledge and awareness of skin tones into the existing aSSKING assessment bundles and ensuring that any changes in baseline skin tone triggered a repeat PURPOSE T pressure risk assessment.

The sessions began with an introduction citing research (Oozageer Gunowa et al, 2017) showing higher occurrences of higher-category pressure ulcers in people with dark skin tones due to lack of early identification and accurate assessment.

Discussions during the sessions highlighted differences in symptom presentation based on patients' skin tones. For instance, dark skin typically rarely exhibits the blanching response which clinicians are trained to look out for, which also may pose challenges in detecting erythema (Grimes, 2009). This emphasised the need to engage all senses, particularly touch, in comprehensive skin assessments.

The training also covered specific questions integral to comprehensive skin assessments (page 5 of the Best Practice Statement;

### Box 1. aSSKING assessment bundle

The 'aSSKING' (assess risk; skin assessment and skin care; surface; keep moving; incontinence and moisture; nutrition and hydration; and giving information or getting help) model provides a structured system to ensure fundamental aspects of pressure ulcer prevention are included in patient care (Young, 2021).

The training resulted in skin tone awareness being added to the model for use in practice, ensuring that equitable care is provided, potentially improving patient outcomes and reducing the risk of patient harm.

### Box 2. PURPOSE T pressure risk assessment

Pressure Ulcer Risk Primary or Secondary Evaluation Tool (PURPOSE-T) is an evidence-based pressure ulcer risk assessment tool developed by the University of Leeds (CTRU Leeds, 2022). PURPOSE-T supports clinical decision-making and makes a distinction between three groups of patients: those not at risk of developing a pressure ulcer, those patients who have no pressure ulcer but who are at risk (requiring primary prevention) and those patients with an existing pressure ulcer/scar or who have had a pressure ulcer in the past (requiring secondary prevention and treatment; Nixon et al, 2015).

The training highlighted that any altered skin tone through skin inspection should trigger repeat PURPOSE T pressure risk assessment.

Dhoonmoon et al, 2021). The introduction of the skin tone tool for establishing baseline assessment was accompanied by distributing this tool to all clinicians.

Integral to the training was the incorporation of skin tone considerations into the aSSKING bundle, detailing both baseline and altered skin tones, and how identification of altered skin tone triggered the PURPOSE T pressure ulcer risk assessment [Figure 1]. Additionally, education focused on integrating skin tone considerations into the PURPOSE T pressure ulcer risk assessment tool.

For continuous reinforcement of learning, all training sessions were recorded and subsequently uploaded to the Christie HIVE intranet system, ensuring accessibility and facilitating ongoing education and knowledge consolidation for all staff members.

### Post-training survey data

After completing the training, clinicians were required to complete the survey again, to measure the impact of the training on their

Figure 1. PURPOSE T pressure ulcer risk assessment with the inclusion of baseline skin tone assessment

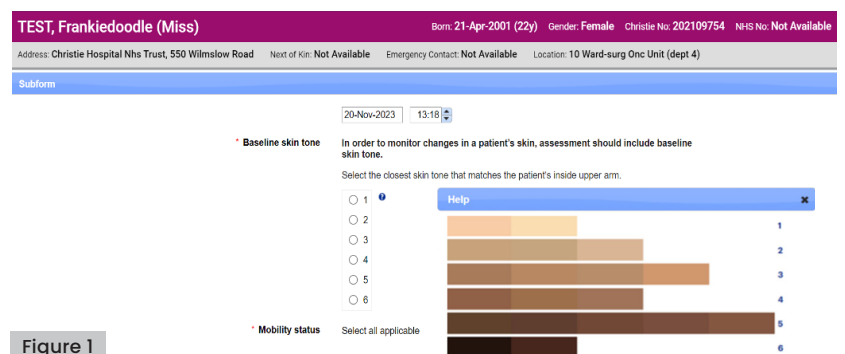


Figure 1

Table 1. Survey results pre- and post-training		
	Pre- training results (n=24)	Post- training results (n=14)
<b>Grade of staff</b>		
Band 7	3% (1)	7% (1)
Band 6	26% (6)	29% (4)
Band 5	35% (8)	21% (3)
Band 4	8% (2)	14% (2)
HCA	22% (5)	29% (4)
Student nurse	3% (1)	
Bank nurse	3% (1)	
<b>Have you received any training around skin tone assessments?</b>		
Yes	4%	100%
No	96%	
<b>Are you aware of skin tone bias in healthcare?</b>		
Yes	46%	
No	54%	
<b>Other than sight, which other senses could be used effectively during a skin assessment?</b>		
Touch	79%	71%
Smell	17%	21%
Taste	0%	0%
None of the above	4%	7%
<b>During a skin assessment, which patients are more likely to be diagnosed with a higher category pressure ulcer? Patients with a skin tone that is...</b>		
Light	46%	29%
Dark	29%	71%
Neither	25%	0%
<b>Where on the body can you assess baseline skin tone?</b>		
Inside upper arm	42%	86%
Face	0%	0
Sacrum	0%	0
Elbows	0%	0
All of the above	54%	14%
None of the above	4%	0

knowledge. After training, only 7% of clinicians expressed that they did not feel confident in discussing skin tone with patients.

Pre-training, 46% of clinicians incorrectly thought patients with light skin tone were at higher risk of developing higher category

pressure ulcers. After training, this shifted to 71% being aware of the fact that patients with dark skin tones are more at risk of developing higher-category pressure ulcers.

For full information on the pre- and post-training survey data, see [Table 1](#).

Table 1. Survey results pre- and post-training (Continued)

	Pre- training results (n=24)	Post- training results (n=14)
<b>How confident do you feel about discussing skin tone with patients?</b>		
Not confident	33%	7%
Slightly confident	13%	29%
Confident	13%	50%
Very confident	0%	7%
Unsure	41%	7%
<b>Do you think altered skin tone should be incorporated into the aSKING bundle?</b>		
Yes		79%
No		14%
Unsure		7%

### Use of the skin tone tool

The skin tone tool (adapted from Ho and Robinson, 2015) is a validated classification tool that shows a range of skin tones [Figure 2] so that the tone can be selected that most closely matches the patient's inside upper arm. The skin tone tool has been found to be a simple and economical way of assessing skin tone and can be used across care settings, including in patients who may have limited literacy (Ho and Robinson, 2015). The tool encompasses more gradients than binary 'light' and 'dark' generalisations so is more useful for use in practice (Dhooonmoon et al, 2021).

Following the training, clinicians were asked to identify patients' skin tone, using the skin tone tool in practice. A baseline skin tone of one was identified in 101 patients; two in 13 patients; three in 4 patients and five and six in 1 patient each. This showed the ability of the staff to identify skin tone appropriately.

### Implementation into practice

The training resulted in developments to practice, with the aim of providing equitable care to all patients, and ultimately improving patient outcomes and reducing the risk of patient harm.

The skin tone tool was added to the aSKING bundle [Figure 3], so that baseline skin tone can be established at initial skin assessment (every new aSKING bundle /24 hours). This is important to ensure that any changes to the skin are spotted, and potential pressure damage is identified as early as possible.

Any changes in baseline skin tone should then trigger a further PURPOSE T pressure risk assessment, to ensure that risk of patient harm is reduced.

### Challenges to implementation

During the early stages of implementation, discussions focused on establishing a

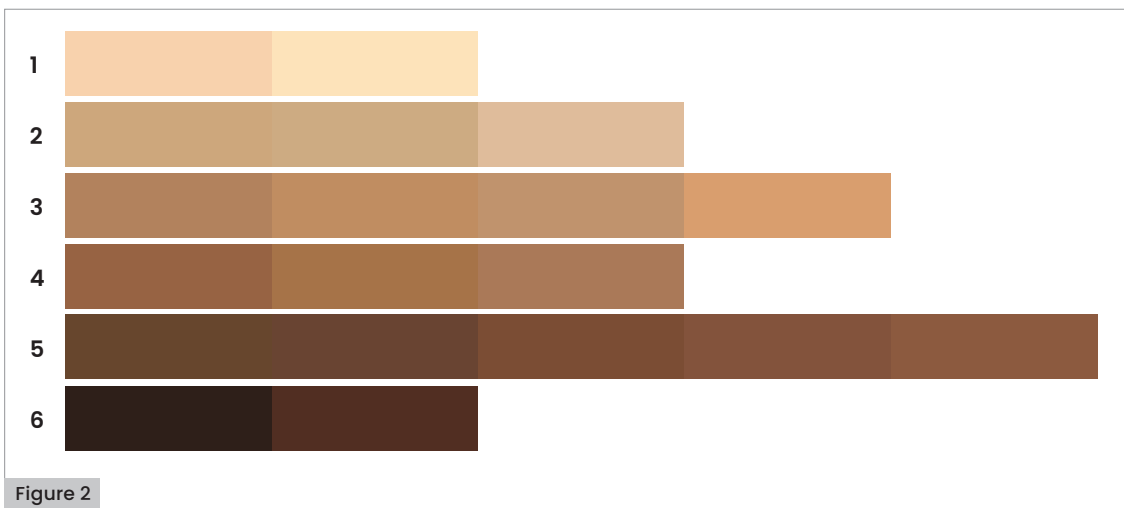



Figure 2. Skin tone tool (adapted from Ho and Robinson, 2015)

Figure 3. Christie SSKIN\* Bundle with the inclusion of skin tone assessment

\*Note: The title is set to be updated to the Christie aSSKIN Bundle.



**The Christie**  
NHS Foundation Trust

### Christie SSKIN Bundle

Patient Name: _____	RN early shift : _____
Hospital Number: _____	RN late shift : _____
Ward: _____ Date: _____	RN night shift : _____ Date: _____

	TIME: 0600	0800	1000	1200	1400	1600	1800	2000	2200	2400	0200	0400
<b>S = SURFACE</b>												
SURFACE	Mattress settings checked? Yes / No / N/A											
SURFACE	Appropriate mattress/seat, cushion/sheets smooth? Yes / No											
<b>S = SKIN CONDITION (Document using skin codes)</b>												
FREQUENCY FOR SKIN INSPECTION: (please circle)												
Heel:	2 hourly			4 hourly			12 hourly					
Heel:												
Buttock: Left												
Buttock: Right												
Sacrum Left												
Sacrum Right												
Nose:												
Ears:												
Other:												
Other:												
<b>K = KEEP MOVING</b>												
CHANGE POSITION (Document using position codes)												
Move 2 hourly if unable to reposition independently												
<b>I = INCONTINENCE / EXCESS MOISTURE</b>												
Incontinence / excess moisture if yes, apply barrier products Yes / No												
<b>N = NUTRITION AND HYDRATION</b>												
Food and drink offered? Yes / No												
Designation												
Initials												
Key												
SC - Scar	ST - Skin Tear	C1 - Category 1 Pressure Ulcer										
SW - Surgical Wound	LU - Leg Ulcer	C2 - Category 2 Pressure Ulcer										
F - Fungating Wound	B - Blanching Erythema (redness)	C3 - Category 3 Pressure Ulcer										
MASD - Moisture Associated Skin Damage	C - Non Blanching Erythema (redness)	C4 - Category 4 Pressure Ulcer										
R - Bruise	RA - Rash	DTI - Deep Tissue Injury Pressure Ulcer										
A - Abrasion	TI - Thermal Injury	US - Unstageable Pressure Ulcer										
H - Haematoma	BL - Blister	Other - Please describe										
L - Laceration	DFU - Diabetic Foot Ulcer											
1. Nasogastric tube	10. Splint											
2. O2 face mask/nasal specs	11. POP / backslab											
3. Tracheostomy	12. Antiembolic stockings											
4. PEG/RIG	13. Patients glasses											
5. Cannula/PICC/MID/CVC	14. Cervical collar											
6. Catheter	15. Syringe driver											
7. Brace	16. _____											
8. VAC dressings	17. _____											
9. Flowtron boots												

Figure 3

baseline area for skin tone assessment. The Best Practice Statement (Dhoonmoon et al, 2021) recommends using the patient's inside upper arm and choosing a skin tone. However, there was some debate about whether baseline assessments should include different anatomical locations on the body. Finally, it was agreed that assessing baseline in multiple

locations was impractical and that the inside upper arm should be used instead.

However, the importance of inspecting a comparable area of skin for reference was emphasised. When examining the heel for a potential pressure ulcer, it is important to also examine the other heel whenever possible, especially in patients with dark skin tones

because skin tone differences between areas such as the soles are common.

As print quality impacted the validity and accuracy of the skin tone tool, ensuring high-quality print files for skin tone documents became critical. The material of the cards was also considered important because it had to comply with trust infection prevention guidelines. Changes were made to high-quality printing to ensure skin tone colours were accurate, as well as the material of the cards to ensure they could withstand decontamination.

Despite these challenges, the project received support and endorsement from both documentation and clinical governance/quality groups. This support was instrumental in overcoming any initial implementation challenges.

### Clinician feedback

Clinicians initially expressed concerns about potential discomfort or awkwardness in raising the topic of skin tone assessment with patients. However, these worries dissipated as they engaged with the training, ultimately embracing it and feeling empowered by the knowledge gained.

Feedback from clinicians highlighted a notable shift in perspective. Many expressed newfound awareness regarding the crucial role of considering skin tone during skin assessments for all patients—an aspect they hadn't previously taken into account. One clinician specifically acknowledged the potential negative impact on care delivery due to overlooking this factor in the past — “After the training I now know how important it is to consider skin tone when carrying out skin assessments on all my patients. This is something I haven't considered before and the negative impact it could have had on my care delivery.”

The introduction of the skin tone tool significantly influenced clinician behaviour, prompting them to routinely include skin tone assessment in their evaluations. This integration swiftly became a habitual part of their assessment process, demonstrating how quickly it was adopted and internalised within their practice. One clinician noted, “As soon as I see the skin tone tool, it prompts me to include a skin tone assessment.” Another mentioned, “It very quickly has become my habit to complete.”

Moreover, the feedback echoed a sentiment of reassurance from patients. One patient expressed appreciation for the nurses' awareness of different skin tones, highlighting the significance of receiving standardised care irrespective of individual differences, stating, “It is nice to know nurses are aware of different skin tones, so we all get the same care.”

### Box 3. Tips for skin assessment (Dhoonmoon et al, 2021)

- Good lighting is needed to assess a patient's skin properly and to ensure that nothing is missed – ideally skin assessment should be carried out in bright daylight; if this is not possible, a torch or pen light can be used when necessary
- The senses should be used when assessing the skin, especially touch
- It is vital to listen to the patient's perspective, and to understand their choices, needs and preferences relating to their care
- Ask about any history of skin changes and how they presented
- Awareness of skin tone should be incorporated into existing assessment frameworks and pathways.

### Future developments

The Christie Hospital's future developments involve expanding the scope of skin tone assessment by including it in their incident reporting tools, specifically DATEX. This strategic initiative aims to facilitate the auditing of both incidence and prevalence related to skin-related incidents within their setting.

### Additional implementations sites

A number of other trusts have collaborated with Essity to formally integrate skin tone assessment into their pressure ulcer prevention protocols.

### University Hospitals Sussex, NHS Foundation Trust

Claire Gillespie, Tissue Viability Clinical Nurse Specialist at University Hospitals Sussex, NHS Foundation Trust, has implemented skin tone assessment as a mandatory element of patient skin inspection throughout the Trust using a training and education programme, including 'TAKE the Steps' to Prevent Inequality in Pressure Damage Prevention Methodology: A Nurse's Guide on Assessing Patients' Skin Tones which is shown in [Figure 4](#). The acronym 'TAKE' stands for Touch, Ask, Knowledge and Examine.

Additional work needs to be done to ensure that the language used is appropriate for each patient.

### Whipps Cross Hospital, Barts Health Trust

Maria Rebouco and Lourdes Rivera, Tissue Viability Specialists at Whipps Cross Hospital, Barts Health Trust, have implemented skin tone assessment into patient assessments. This decision came after an audit aimed at investigating the identification and treatment of pressure ulcers. Findings revealed that staff were still looking for signs of redness on patients with dark skin, potentially resulting in the oversight of category 1 or 2 pressure ulcers.

Whipps Cross Hospital serves a diverse community; 50% of residents and 48% of the workforce in the area identify as 'non-white'. Formal skin tone assessment was implemented to ensure equitable care for all patients. An education programme was delivered to all staff, and skin tone is now included in all mandatory training at the Trust.

**Manchester Foundation Trust**  
 Maryam Bi, Senior Infection Control and Tissue Viability Specialist Nurse at Manchester University NHS Foundation Trust, with the support of her team has implemented skin tone assessment into patient assessments. A comprehensive questionnaire with 30 staff members was undertaken to gauge competence in assessing dark skin tones and confidence levels. The forthcoming analysis of pre- and post-questionnaire results will be used to guide the implementation of skin tone training across acute and community settings. In

addition, the topic of caring of patients with dark skin tones is included in face-to-face monthly sessions at the Tissue Viability Academy.


To emphasise the importance of the assessment of dark skin tones further, the slogan “suspect it, touch it, feel it” has been introduced in mandatory pressure ulcer eLearning sessions for Trust staff.

Wound assessment now includes evaluation of the surrounding skin tone, and the plan is to implement baseline skin tone in patients’ demographics using the HIVE intranet system.

Figure 4. ‘TAKE the Steps’ to Prevent Inequality in Pressure Damage Prevention Methodology: A Nurse’s Guide on Assessing Patients’ Skin Tones

## ‘TAKE the Steps’ to Prevent Inequality in Pressure Damage Prevention Methodology

### A Nurses Guide on Assessing Patients Skin Tones



**University Hospitals Sussex**  
NHS Foundation Trust

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T

**Touch**

**TAKE the steps to;**

- Touch and palpate skin** on inspection and assessment. Excluding the sacrum be confident to use a non-gloved hand to palpate anatomical locations of risk. Comply with a high standard of infection prevention for decontaminating your hands following a non-gloved assessment.
- Does the skin feel **warm/cool**? Are there any **temperature changes**?
- Do **anatomical locations** feel the same as each other, or different on palpation?
- Does the skin **feel spongy or firm to the touch**? Does the skin look or feel **shiny or tight**? Can you feel **swelling or inflammatory changes**?
- Are there any changes in the **texture of the skin** and underlying tissue(s)?

A

**Ask**

**TAKE the steps to;**

- Listen to the patient’s perspective and choice.** Their views and feelings about their own skin needs are crucial to a comprehensive assessment. You must advocate for your patients and their preference(s). For example, *“I manage this area of dry skin with an emollient” or “this bit is always bumpy”.*
- Ask **direct questions** such as *“Are any parts of your skin sore?” or “Have you noticed any changes to your skin?”*
- If suitable talk to the patients relatives to uncover whether there are any changes they have noticed. Are they concerned about their relatives skin? Have they noticed any changes related to the appearance or texture or firmness of their skin?
- Ask the patient what language they want to use to talk about their skin tone. This may include terminology that includes colours or food items. For example *“Caramel”, “Black”, “Fair”.*
- If the patient is not able to tell you what their preferred language is then use terminology that reflects what you see including language such as **light, dark, white, brown, and black.**

K

**Knowledge**

**TAKE the steps to;**

- Acknowledge **there is racism within healthcare** which needs urgent action, your action, to tackle systemic biases.
- Statistical **evidence demonstrates** there is a lack of accurate assessment and early identification of patients with pressure damage and dark/black skin tones.
- This means this patient group have a **higher rate and severity of pressure ulcers.** White bias in education and resources means you may not have the knowledge and understanding you require to deliver inclusive care.
- Recognise that skin diversity exists.** Take the time to understand your responsibility as a role model. Your role as a healthcare professional contributes towards a health care system that is equitable.
- Ensure you are self-reflecting and treating all your patients in an inclusive manner? Delivering equitable care is the biggest priority and the most efficient way of reducing harm within healthcare settings.

E

**Examine**

**TAKE the steps to;**

- Inspect the patients skin** for changes in colour including locations of **redness, darkening, lightening, or grey/blue/purple tones.** Ensure the skin inspection is thorough.
- Compare anatomical locations to each other. Do both legs have the same appearance? Heels, elbows etc.
- Does the patient have dry skin? Can you do something about this? Can you apply moisturiser to prevent skin integrity failure?
- What is the **wound/peri-wound skin like in comparison to the surrounding skin?**
- Examine your own practice.** Have you taken the additional steps to assess and prevent the patient developing pressure damage? If not, why not?

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**Resources**

Addressing skin tone bias in wound care: assessing signs and symptoms in people with dark skin tones. 2021

Mind The Gap: Malone Mukwende

Wound care and skin tone: Signs, symptoms and terminology for all skin tones. International Consensus Document. 2023

- Being white in the helping professions: Developing effective intercultural awareness: Judy Ryde
- Why I’m no longer talking to white people about race: Reni Eddo-Lodge
- The Good Ally: Nove Reid

Author C Gillespie. Published 02/2023. For reviewed 06/2025

Figure 4

**Declaration**

This article is supported by an education grant from Essity. Essity’s strategic healthcare partners are available to support the implementation of skin tone projects into clinical practice. Please contact [concierge.service@essity.com](mailto:concierge.service@essity.com) for help. Additional tools are available to raise awareness of skin tone bias in wound care; see [Box 4](#) for further reading.

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## Conclusion

It has been shown that there are gaps in clinicians' knowledge around skin tone, which can result in inequitable care and potential patient harm. In particular, there is strong evidence that patients with dark skin tones are more likely to be diagnosed with higher-category pressure ulcers, leading to poorer outcomes (Oozageer Gunowa et al, 2017).

Skin assessment is a vital part of pressure ulcer prevention, and should be carried out with an awareness of skin tone (see Box 3 for tips for a good skin assessment). The patient's baseline skin tone should be measured and recorded using the skin tone tool, so that any changes to the patient's skin can be monitored and appropriate action can be taken promptly. An awareness of the patient's baseline skin tone should mean that the clinician does not rely on generalised markers such as 'redness', which are not applicable to all patients and may result in pressure damage being missed in patients with dark skin tones.

Clinicians at the Christie NHS Foundation Trust completed a survey before and after completing training on skin tone awareness, to gauge clinicians' existing knowledge and measure the impact of training. The training has resulted in the skin tone tool being added to the aSKING assessment, with any changes in patients' baseline skin tone resulting in a PURPOSE T pressure risk assessment being carried out. The aim of this development is to improve patient outcomes and reduce the risk of potential patient harm. ●

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## Box 4. Further reading

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- Rebouco M and Rivera L (2023) Patient safety: skin tone diversity education in pressure ulcer prevention. *Journal of Wound Care* 3(2): 9
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