

# Introducing ACHILES, a new decision tool for accurate heel ulcer diagnosis

**Nichola Beard** Podiatry Diabetes Lead  
The Shrewsbury and Telford Hospital NHS Trust

**Elizabeth Merlin-Kwan**  
Senior Clinical Specialist

## Introduction

Pressure ulcers are a significant healthcare issue affecting 700,000 people per year<sup>1</sup>, costing the NHS more than £3.8 million every day<sup>2</sup>. Of this, it is estimated that at least 20% are heel pressure ulcers, making them the second most common type<sup>3</sup>. Generalist clinicians are not usually experienced within this area of expertise and yet foot ulcers are considered most difficult to treat. Heel pressure ulcers can cause pain, reduced mobility, prolonged hospital stays, emotional distress and have the potential to result in an amputation and litigation.

Estimates on Pressure Ulcer incidence and prevalence vary widely according to the definition and category of the ulcer, the patient population and clinical setting. One large area of confusion, leading to variation in pressure ulcer reporting, is how to clearly categorise heel ulcers in patients with diabetes and how to differentiate between a heel pressure ulcer and a diabetes foot ulcer.

## Method

In the absence of other tools, the ACHILES decision tool (see figure 1) has been designed by a lead podiatrist to enable clinician's to correctly distinguish between a heel pressure ulcer and diabetes foot ulcer and signpost them to the correct specialty and report accurately.

**ACHILES: Aetiology, Circulation, Help, Infection, Load, Education, Score**

The tool is designed to aid the user to question the cause of the heel ulcer such as the underlying aetiology, circulation and infection and help guide the clinician's treatment plan to manage the wound appropriately. The ACHILES decision tool was developed, alongside a treatment pathway, to aid clinical decision making, to promote timely referrals and implement evidenced based treatment.

A pre-launch audit of foot ulcer referrals was completed to provide baseline data to allow for the efficacy of the ACHILES decision-making tool to be determined.

## Conclusion

The ACHILES tool is an innovative and inclusive tool that offers value and sustainability due to its ease of use. The Tool has been designed to be simple and practical to use, with very little training and equipment required, regardless of clinical designation, yet support standardisation and a consistent approach to define, treat and report heel ulcers.

## Results

A pilot of the ACHILES tool was executed by a group of community and hospital generalist clinicians with varying levels of knowledge of diabetes foot ulceration and pressure ulcers. They were provided with 8 foot-ulcer case studies with images and asked to anonymously provide a differential diagnosis for each prior to receiving the ACHILES decision tool. The same group were then asked to use the tool and the podiatry lead noted if it supported a correct diagnosis. They were provided with an overview on how to apply the tool and the group found it easy to use. Answers were documented on paper, which was collected and analysed.

As this was anonymous, it was only possible to see how many correct answers there were at each different stage.

The group and case studies resulted in 264 possible answers. When provided with the wound image only, the total correct were 164, with 100 incorrect or missing answers. The correct answers slightly increased when the patient case history was provided alongside the wound photograph with 197 correct answers and 67 incorrect or missing answers. The rationale for this stepped approach was to determine if the patient's diabetes diagnosis would influence clinical judgement.

Once the tool was provided to support the differential diagnosis, the incorrect answers significantly reduced from 67 to 10, with none missing and the correct answers increased to 254, demonstrating not only that the tool is effective but there is frequent misdiagnosis of heel ulcers. The correct diagnosis alongside the case studies were presented after the answers were collected. Due to these results the pilot was deemed successful and the possibility of rolling it out more widely is being explored. (see figure 2)

Figure 1

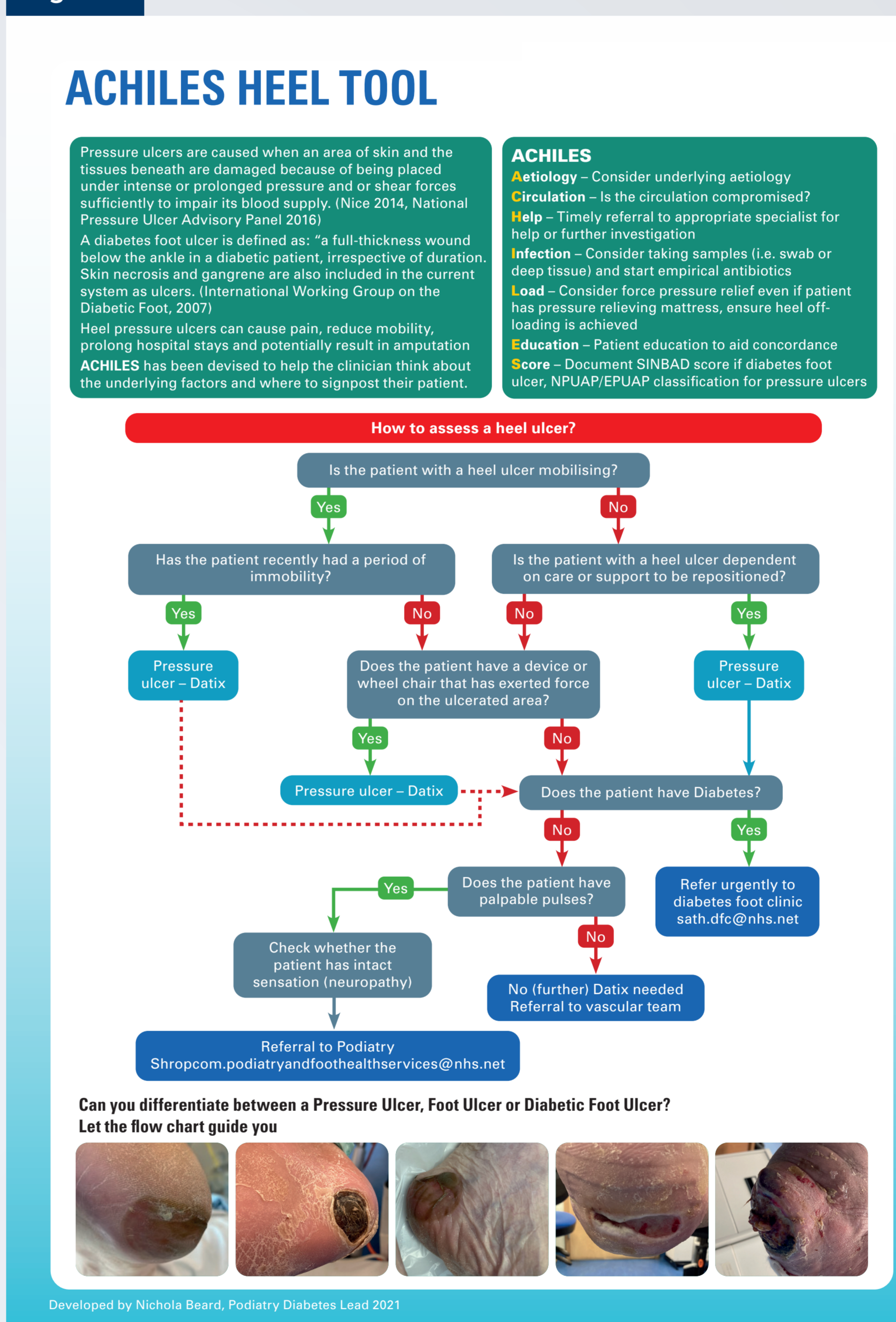
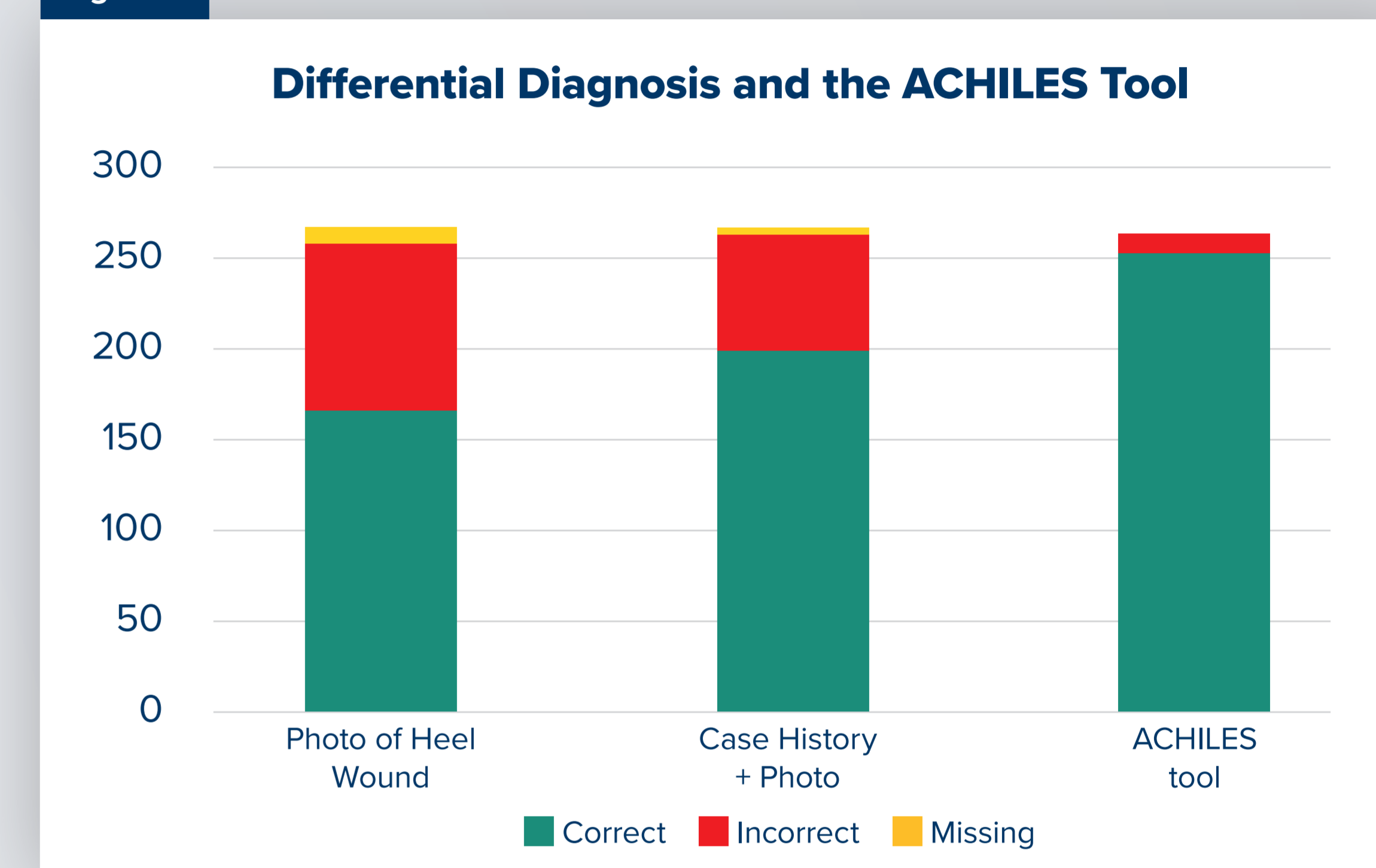


Figure 2



## Discussion

Reducing under-reporting is key to quality improvement within healthcare. Accurate assessment and diagnosis are key to effective care. Poor differentiation of foot wounds can negatively impact the accuracy of treatment, yet it is essential that these are identified, appropriately signposted and treated quickly to promote timely healing, prevent complications and improve patient outcomes.

Due to current variation of accurate diagnosis and reporting practice, it is suspected that both this and other organisations may initially experience an increase in reporting of heel pressure ulcers and referrals to specialist services.

## References:

1. Wood J, Brown B, Bartley A et al 2019
2. NHS improvement 2018
3. Vangilder et al 2008