

Ankle–brachial pressure index thresholds in flux: Untangling peripheral arterial disease diagnosis from compression safety in clinical practice

Venous leg ulceration (VLU) remains one of the most common and costly chronic wounds managed in community practice, with healing rates continuing to vary widely despite the availability of evidence-based guidance. Strong compression therapy (approximately 40 mmHg at the ankle) is consistently recognised as the cornerstone intervention for healing and recurrence prevention; however, it must be applied safely, with consideration of underlying arterial perfusion. This requirement has historically driven widespread use of the ankle–brachial pressure index (ABPI) as part of vascular assessment prior to compression. In practice, ABPI has often become viewed as a binary “gateway” to treatment, contributing to delayed initiation of time-critical compression and reinforcing fear-driven practice.

Recent updates to peripheral arterial disease (PAD) guidance for diagnostic interpretation, have created additional confusion in wound care settings. In some services, PAD diagnostic thresholds are being incorrectly extrapolated to compression decision-making, resulting in unnecessary withholding of therapeutic compression and increased variation in care. This article clarifies the distinction between ABPI thresholds used to support PAD diagnosis and those used to guide compression safety, highlighting that these are not comparable frameworks and should not be conflated. It also explores the clinical consequences of misalignment, including delayed healing, prolonged patient suffering, and increased demand on community services. Finally, the article argues that arterial assessment in lower limb wound care must evolve towards a more pragmatic, risk-based approach that supports timely initiation of appropriate compression while ensuring patient safety, particularly within the constraints of modern community practice.

Venous leg ulceration (VLU) remains one of the most common forms of chronic lower-limb wound, placing a substantial burden on patients, clinicians and health systems (Guest et al, 2017; Wood et al, 2026). Despite evidence-based pathways, advances in wound products and national strategies, healing rates remain variable (Guest, 2021; Wood et al, 2026). A key reason for this is that successful VLU management depends not only on local wound care, but also on addressing the underlying pathophysiology, most notably venous hypertension, with timely application of strong compression therapy.

Compression therapy is consistently recognised as the cornerstone intervention for patients with a VLU, both in terms of healing and recurrence prevention (Ratliff et al, 2016; Atkin, 2025). The evidence base supporting compression therapy in VLU is extensive (Ratliff et al, 2016; Patton et al, 2023), and clinical

outcomes are strongly linked to the delivery of adequate therapeutic pressure. In general, strong compression (in the region of 40 mmHg at the ankle), is required to counteract venous hypertension, reduce oedema, improve venous return and support the physiological conditions necessary for wound healing (Karanikolic et al, 2018). Where this level of compression is delayed, reduced, or withheld, healing will be stalled; the consequences of delayed or ineffective wound care extend well beyond the wound itself. The longer a wound remains open, the longer the patient is at increased risk of complications, such as infection, which may culminate in a lengthy hospital admission (Wood et al, 2026).

However, while compression is essential, strong compression is not universally appropriate. Before strong compression can be safely initiated, clinicians must be confident that arterial perfusion is sufficient to tolerate

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external pressure without increasing the risk of ischaemia or limb-threatening complications. This requirement has historically driven the widespread use of the ankle-brachial pressure index (ABPI) as a screening tool prior to compression application.

In practice, ABPI has often become viewed as the “gateway” to treatment, sometimes overriding clinical judgement and delaying time-critical intervention. As a result, VLU care now sits at the intersection of two equally important priorities: delivering effective compression at therapeutic levels and ensuring that compression is safe for the individual patient. The challenge for modern community and wound-care practice is achieving this balance consistently, within the 2-week recommended window (National Wound Care Strategy Programme [NWCSP], 2023), while working within current NHS challenges of capacity and capability.

Historically, the ABPI reading used for the application of strong compression has been 0.8–1.3. However, a recent National Institute for Health and Care Excellence (NICE) publication has caused some confusion and uncertainty within wound care practice and questioning of whether the current recommendation needs amending (NICE, 2025).

In some settings, the revised diagnostic threshold described by NICE (2025) is being incorrectly extrapolated to compression decision-making, resulting in inappropriate withholding of therapeutic compression, delayed healing, and increased variation in care.

This emerging confusion highlights a critical issue. Therefore, this article will explore why ABPI thresholds used to diagnose peripheral arterial disease (PAD) are not equivalent to thresholds used to guide safe compression and, as such, the two should not be conflated.

Peripheral arterial disease

PAD is a long-term condition in which the arteries supplying the lower limbs become narrowed or occluded, most commonly as a result of atherosclerosis. PAD is a major manifestation of systemic cardiovascular disease and is associated with significant morbidity and mortality (Kengne and Echouffo-Tcheugui, 2019). Reduced arterial perfusion limits oxygen delivery to the muscles and skin, particularly during activity, and can impair tissue viability and wound healing.

PAD is estimated to affect more than 200 million people worldwide, and up to 50% of individuals may be asymptomatic, contributing to under-recognition and delayed diagnosis (Shamaki et al, 2022). In clinical practice, PAD

is assessed using a combination of patient history, symptoms, examination of lower limb pulses and ABPI measurement (NICE, 2020).

The ABPI is a well-established, simple and non-invasive bedside test used to support the identification of PAD (Wounds UK, 2024). It has demonstrated good diagnostic performance, with reported sensitivity of 79–95% and specificity of approximately 95% for PAD, although accuracy may be reduced in patients with arterial calcification (Kim et al, 2012). The ABPI threshold used to diagnose PAD has historically been ≤ 0.9 (Ögren et al, 1993; NICE, 2020). Current PAD guidance also considers an ABPI >1.4 to be unreliable or inconclusive, due to the potential for arterial wall calcification to falsely elevate readings (Nordanstig et al, 2024; NICE, 2025). In recent publications, this upper limit has shifted from 1.3 (American Diabetes Association, 2003) to 1.4 (Nordanstig et al, 2024; Wounds UK, 2024; NICE, 2025). While the rationale for this change is not explicit, what is clear is that this revised threshold relates specifically to PAD detection and diagnostic interpretation.

Lower limb wound care

Arterial assessment is a fundamental component of lower limb evaluation and supports identification of the underlying aetiology of ulceration. Across UK recommendations, calculation of ABPI remains a standard element of assessment (Atkin and Tickle, 2018; NWCSP, 2023; NICE, 2024). However, these same guidelines consistently emphasise that ABPI should be interpreted as only one component of a holistic patient assessment.

In lower limb wound care, ABPI is typically used for two distinct purposes: first, to support assessment of whether arterial perfusion is sufficient to facilitate wound healing (i.e. screening for PAD); and second, more commonly in suspected venous ulceration, to inform whether strong compression therapy can be applied safely. It should be remembered that ABPI does not assess venous hypertension or confirm venous disease, as this is determined through clinical features and venous assessment. In this context, ABPI functions primarily as a safety check to identify whether there is evidence of underlying PAD and whether arterial perfusion is adequate to tolerate strong compression of 40 mmHg without increasing the risk of tissue ischaemia.

In general, leg ulcer guidelines and publications describe a “normal” ABPI range for compression decision-making as approximately 0.8 to 1.2 or 1.3 (Atkin and Tickle, 2018; Wounds UK, 2022; NWCSP, 2023). Variation in the upper threshold reflects the fact that

these accepted ranges are based on limited empirical evidence and consensus rather than robust outcome-driven studies (Male et al, 2007).

A persistent misconception in clinical practice is that an ABPI of 1.0 represents a universal “normal” value and that an ABPI of 0.8 should be interpreted as a 20% reduction in blood flow. This interpretation is incorrect, as ABPI is a ratio intended to support PAD screening and does not represent a direct linear measure of tissue perfusion (Male et al, 2007). Therefore, in the context of venous leg ulceration, ABPI should be interpreted as a range rather than a single ideal value. An ABPI anywhere between 0.8 and 1.3 should be considered safe (from an arterial supply perspective) to apply strong compression; this is in line with commercial companies’ compression products instructions for use.

Lower threshold (0.8): The ABPI threshold used to support PAD diagnosis has historically been ≤ 0.9 . Consequently, patients with an ABPI between 0.8 and 0.9 may have mild PAD. However, this group can still safely tolerate strong compression when clinically indicated, provided a holistic assessment does not identify additional arterial insufficiency concerns.

Upper threshold (1.2–1.3): In the past, some compression guidance used an upper ABPI threshold of 1.2 (Team et al, 2019). More recent wound-care publications commonly cite ABPI of 1.3 (Atkin and Tickle, 2018; Wounds UK, 2022). Notably, national guidance does not consistently define an upper limit: neither the NWCSP (2023) nor NICE (2024) for venous leg ulceration explicitly state an ABPI upper threshold for compression decision-making. As a result, practice varies, with publications typically citing either 1.2 (Team et al, 2019; Weller et al, 2019) or 1.3 (Atkin and Tickle, 2018; Dowsett and Taylor, 2018; Wounds UK, 2022).

The absence of a clearly defined national threshold has contributed to clinical uncertainty. Importantly, an ABPI above the accepted upper range does not automatically indicate that a patient is unsuitable for compression. Rather, it suggests that the ABPI may be unreliable, most commonly due to arterial calcification, and that alternative methods of arterial assessment may be required to determine compression safety. In practice, ABPI values above 1.3 are frequently interpreted as a contraindication, leading to inappropriate withholding of therapeutic

compression and delayed healing in patients with otherwise clear signs of venous insufficiency (Male et al, 2007).

At present, there is no new compression-specific evidence, safety alert, or national compression guideline update that supports changing established compression ABPI thresholds solely in response to revised PAD diagnostic guidance. PAD diagnostic thresholds and compression decision-making thresholds are not comparable frameworks: they serve different clinical purposes and should not be conflated.

Fear factor of compression therapy

There remains a pressing need to improve access to compression therapy for patients with VLU. Healing rates for VLU in community settings have been reported to be as low as 37% at 12 months (Guest, 2021). In contrast, when care is delivered in alignment with the evidence base, substantially higher healing rates have been reported, exceeding 85% at 24 weeks (Gohel et al, 2018). While these figures are not directly comparable, they highlight the scale of unwarranted variation and the opportunity for improvement. Increasing access to evidence-based compression has the potential to improve healing, reduce NHS costs and lessen patient suffering.

One proposed contributor to the underuse of compression is a persistent negative narrative and fear of compression therapy among clinicians (Hopkins, 2023). It was anticipated that the NWCSP emphasis on clinical “red flag” assessment, enabling early initiation of lower levels of compression, would help reduce this therapeutic hesitation (NWCSP, 2023). In 2020, the first NWCSP lower limb recommendations introduced the concept of “immediate and necessary” care. This included the ability to commence up to 20 mmHg compression in the absence of clinical red flags, without the need for formal vascular assessment such as pulse palpation or ABPI measurement (Brown and Adderley, 2021).

At the time, there were concerns regarding the safety of initiating compression without formal arterial assessment. However, over time, this approach has become widely adopted in UK community practice.

In 2025, Tickle et al (2025) completed a retrospective, multicentre, non-comparative clinical study in UK community settings to assess the effectiveness and safety of reduced compression in real-world practice. Data from 102 patients was analysed. Patients received reduced compression for a median of 44 days (IQR 30–61). During this period, 77 patients (75%) healed, with a median time-

to-heel of 45 days (IQR 33–63). A further 23 patients (23%) improved, and two (2%) worsened. Overall, 99% of patients tolerated the compression, and only one adverse event was reported, relating to infection. These findings demonstrate substantial benefit from early compression and provide reassuring evidence regarding the safety of commencing reduced (20mmHg) compression based on clinical signs and symptoms alone. This study supports the NWCSP “red flag” approach and challenges the assumption that compression is inherently unsafe in the absence of ABPI testing. However, despite growing evidence supporting early reduced compression, fear-driven practice persists, and ABPI continues to be used as a binary “gateway” test, particularly when diagnostic PAD thresholds are incorrectly applied to compression decision-making.

Consequence of misalignment

Misalignment between PAD diagnostic ABPI thresholds and compression safety thresholds has important clinical consequences in lower limb wound care. When the revised PAD diagnostic threshold (i.e. ABPI 0.9–1.4; NICE, 2025) is incorrectly applied to compression decision-making, therapeutic compression may be withheld unnecessarily, even in patients with otherwise clear signs of venous insufficiency. This delays initiation of strong compression, prolonging venous hypertension and oedema, and increasing the likelihood of wound chronicity, infection, pain, reduced mobility, and impaired quality of life (Atkin et al, 2024). It must be remembered that not applying compression is not a safe or “no harm” option (Atkin et al, 2021; Hopkins, 2023). The vast majority of patients who will benefit from compression must not be disadvantaged because of a false belief that withholding compression is safer. At a system level, delayed healing increases treatment duration, the frequency of community nursing visits, and overall NHS costs, while widening inequalities for patients living in areas with limited access to timely vascular assessment (Atkin et al, 2021). Ultimately, conflating PAD diagnostic thresholds with compression safety thresholds risks undermining evidence-based venous leg ulcer care by delaying the single most effective intervention for healing.

Arterial assessment needs to evolve

Arterial assessment in lower limb wound care must evolve to reflect the realities of modern community practice and the increasing burden of chronic wounds. While ABPI remains a valuable component of vascular assessment, its delivery is resource-intensive and requires

trained staff, equipment, and time – factors that are not consistently available across community services (Wounds UK, 2024). As a result, reliance on ABPI as a prerequisite for compression can inadvertently create treatment bottlenecks and increase variation between services. A more pragmatic, risk-based approach is therefore required, one that supports timely initiation of appropriate compression while ensuring that patients with suspected arterial insufficiency are identified promptly and escalated for further vascular assessment.

Conclusion

Compression therapy remains the cornerstone intervention for venous leg ulceration, and timely application of strong compression is critical to improving healing rates, reducing recurrence, and minimising patient suffering. However, achieving safe and effective compression in clinical practice continues to be undermined by over-reliance on ABPI as a binary “gateway” test and by growing confusion created through the misapplication of PAD diagnostic thresholds to compression decision-making. The recent change in PAD guidance, including the revised ABPI upper threshold of 1.4, relates specifically to PAD detection and diagnostic interpretation and should not be automatically extrapolated to compression safety thresholds.

In the absence of updated national compression guidance, clinicians require clarity and confidence to avoid unnecessary delays in evidence-based care. ABPI remains an important component of holistic vascular assessment, but it should be interpreted within its clinical context and alongside wider limb assessment findings. Until compression-specific guidance is updated, continued use of the established compression ABPI range (0.8–1.3), supported by clinical judgement and appropriate escalation where ABPI is unreliable, remains a pragmatic approach to balancing safety with timely intervention. Ultimately, reducing fear-driven practice, strengthening risk-based assessment, and reframing compression as a time-critical therapy are essential steps in ensuring that non-healing venous leg ulcers become the exception rather than the norm. ●

Key messages for practice

- PAD diagnosis thresholds and compression safety thresholds are not the same.
- The NICE PAD update to 1.4 should not be extrapolated to compression use.
- Patients with ABPI 0.8–0.9 may still safely receive strong compression (40 mmHg).

- There is an urgent need for NICE to update national VLU diagnosis and treatment guidelines including timely and appropriate compression therapy.

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