VascuChek®

WHITE PAPER

Diabetic Foot Ulcers, Limb Salvage, and Strengthening Perfusion Assessment with Doppler Evaluation

A review of multidisciplinary diabetic foot ulcer management, vascular assessment, and the role of Doppler evaluation in treatment planning and procedural decision-making.

Meeting the Challenge of Limb Salvage

Diabetic foot ulcers are complex clinical problems influenced by wound depth, infection, neuropathy, pressure, deformity, and ischaemia. When those factors overlap, healing becomes harder to predict and treatment decisions become more urgent, which is why local wound care alone is often not enough.

The World Union of Wound Healing Societies (WUWHS) highlights diabetic foot ulcers as a major source of hospitalization, infection, and amputation, noting that they precede up to 83% of major and 96% of minor amputations linked to foot wounds.

Limb Salvage Starts with a Complete Clinical Picture

When wound severity, infection, neuropathy, and perfusion are considered together, clinicians have a stronger foundation for referral and treatment decisions.

WUWHS also emphasizes structured assessment, coordinated care pathways, and multidisciplinary management that supports better decision-making, timely referral, and lower rates of limb loss. In limb salvage, perfusion assessment is essential because compromised blood flow can alter healing expectations, narrow treatment options, and change the direction of care.[1]

Patients with diabetic foot ulcers often present with more than a visible wound. Infection burden, offloading challenges, underlying arterial disease, and uncertainty around tissue viability can all affect whether a wound is likely to heal and how quickly care needs to escalate.

Early vascular assessment helps clinicians determine whether limited perfusion may be contributing to non-healing, whether referral should happen sooner, and whether the current treatment path is enough.

Supporting Better Perfusion Assessment

Perfusion assessment is a critical part of diabetic foot ulcer management because wound appearance alone cannot show whether blood flow is sufficient to support healing.

The Society for Vascular Surgery guideline recommends that patients with diabetic foot ulceration have pedal perfusion assessed by ankle-brachial index, ankle and pedal Doppler arterial waveforms, and either toe systolic pressure or transcutaneous oxygen pressure.[2] Doppler evaluation is part of a broader vascular assessment used to clarify whether arterial disease may be contributing to non-healing and whether further vascular evaluation is warranted.

The 2023 International Working Group on the Diabetic Foot guideline also supports Doppler waveform assessment as part of perfusion evaluation in people with diabetes and a foot ulcer or gangrene. It recommends Doppler waveform assessment in combination with ankle-brachial index, or ABI, and toe-brachial index, or TBI, to help identify peripheral artery disease. The guideline also recommends excluding peripheral artery disease before a non-emergency invasive foot procedure through vascular assessment that includes Doppler waveform evaluation alongside ABI and TBI.[3]

As part of a broader vascular assessment, vascular Doppler evaluation can help strengthen the perfusion picture when healing potential, referral timing, and procedural planning are all in question.

Meeting the Moment with VascuChek

As perfusion assessment takes on greater importance in diabetic foot ulcer management and limb salvage planning, the usability of Doppler evaluation matters too. A clinically useful assessment still has to work in environments where space, sterility, speed, volume, and direct operator control all affect how easily blood-flow assessments can be performed.

VascuChek® is the first cordless, handheld vascular Doppler FDA-cleared for intraoperative and subcutaneous evaluation of blood flow in a sterile field. In diabetic foot care, blood-flow evaluation may support vascular

assessment when healing is in question, pre-procedural planning when perfusion needs to be clarified before moving forward, and blood-flow assessments during procedures when clinicians need immediate feedback.

By eliminating the tethered transceiver box, VascuChek helps reduce one of the longest-standing frustrations in traditional vascular Doppler workflow. Cordless handling supports easy maneuvering, more direct clinician control, and single-clinician use in environments where cords can complicate positioning and sterile-field use. Physicians can select two internal speakers or an alternate external Bluetooth® speaker, directly from the handheld transceiver, to get the precise sound quality they need.

Removable and disposable probes with aseptic sheaths help support surgical applications, while the same handheld format helps make blood-flow evaluation easier to bring into clinical settings without the bulk and handling constraints associated with tethered equipment.

Stronger perfusion assessment also depends on how easily vascular Doppler evaluation fits into care delivery. VascuChek's handheld, cordless Doppler design helps clinicians and surgeons use Doppler evaluation with greater mobility, easier handling, and minimal physical constraints across clinical and surgical settings.

VascuChek®

Designed for the Demands of Perfusion Assessment

Developed with input from more than 100 leading clinicians, VascuChek was built to address the handling, sterility, and workflow limitations that have long made traditional vascular Doppler use challenging.

VascuChek's cordless, handheld design supports blood-flow evaluation in clinical and surgical settings with easy maneuvering, single operator control, and choice of speaker options to tailor audio quality for each environment, helping clinicians parlay blood-flow results into more definitive decision-making.

Transform stronger perfusion assessment into smarter action. **Schedule a consultation today.**

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Sources

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3. International Working Group on the Diabetic Foot. Guideline on the diagnosis, prognosis, and management of peripheral artery disease in people with diabetes and a foot ulcer or gangrene. 2023. https://iwgdfguidelines.org/wp-content/uploads/2023/07/IWGDF-2023-05-PAD-Guideline.pdf