



Predictive Wearable Monitoring for Haemodialysis Vascular Access

The Problem

More than 3.5 million haemodialysis patients worldwide depend on vascular access as their “lifeline”. Yet arteriovenous fistulas (AVFs) remain highly vulnerable to stenosis and thrombosis, leading to emergency interventions, hospitalisations, missed dialysis sessions, and significant healthcare costs.

Current monitoring methods are:

<ul style="list-style-type: none">• episodic and reactive• infrastructure-dependent	<ul style="list-style-type: none">• operator-dependent• limited to dialysis sessions
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Patients spend most of their time unmonitored at home — precisely when early dysfunction often begins.

Our Solution

Pulse-HD is a wearable medical technology platform designed to enable proactive, home-based AVF surveillance.

Using proprietary multimodal sensing technology, the device combines: acoustic monitoring, optical sensing and AI-driven cloud analysis to detect subtle haemodynamic changes associated with early vascular access dysfunction.

Why It Matters

<ul style="list-style-type: none">• Earlier detection of AVF dysfunction• Fewer emergency procedures• Reduced thrombosis risk• Improved dialysis continuity and quality of life	<ul style="list-style-type: none">• Reduced hospitalisations• Lower vascular access management costs• More efficient resource allocation• Scalable monitoring without major infrastructure investment
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