

# Revolutionizing Dialysis Care with Dynamic AVF Technology

At this year's Innovation for Health conference, the spotlight was firmly on the future of health innovation—from medtech to life sciences and pharma. Among the 28 promising start-ups that pitched their innovations, XS Innovations, led by CEO and co-founder Toon Stilma, emerged as the winner of the I4H Start-up Pitch Award 2025.

The award recognizes the most impactful and forward-thinking young company in health innovation. Sponsored by AXON Lawyers and F.INSTITUTE, the prize includes an in-kind award of €10,000 in legal and financial consulting services—support that could be pivotal as XS Innovations moves toward clinical validation and early market entry. The win also secures them a coveted feature in BiotechNEWS & Life Sciences—and for good reason.

## A Pressing Challenge in Dialysis Care

Globally, over 2.5 million patients depend on dialysis machines for survival, typically undergoing treatment three times a week for several hours at a time. To facilitate this life-saving process, most patients receive an arteriovenous fistula (AVF)—a surgically created connection between an artery and a vein that allows for high blood flow. While AVFs are considered the gold standard in vascular access, they come with a critical downside: the fistula remains open 24/7, subjecting blood vessels to abnormally high flows even outside dialysis sessions. This constant stress frequently leads to complications, including vein enlargement, heart strain, clotting, and narrowing of blood vessels. On average, patients require follow-up surgeries at least annually to maintain the function of their AVF.

XS Innovations is tackling this challenge head-on with a deceptively simple yet potentially game-changing solution.

## The First Dynamic AVF Valve

The core innovation from XS Innovations is a smart, implantable valve that opens the AVF only during dialysis sessions and remains closed at other times. This Dynamic Arteriovenous Fistula (DAVF) is designed to restore the natural vascular balance, drastically reducing complications caused by constant high blood flow.

"Rather than treating the symptoms, we're addressing the root cause," explains CEO Toon Stilma. "With the DAVF, we can maintain



the benefits of AVFs for dialysis access while dramatically reducing the burden of complications, interventions, and hospital visits."

The device has already shown strong results in animal studies and is now undergoing further preclinical validation. The company plans to begin first-in-human trials in 2026, with market introduction targeted for 2028–2029. If successful, the DAVF could transform care for more than half a million patients starting dialysis each year.

## Medtech Expertise Meets Clinical Insight

Founded in 2024 as a spin-off from LUMC and TU Delft, XS Innovations brings together expertise from engineering, nephrology, and vascular surgery. The company's progress is driven by a clear clinical need and a tightly aligned team of researchers, clinicians, and developers.

At the helm is Toon Stilma, whose career spans over 25 years in medical devices, aerospace engineering, and business consulting. Prior to founding XS Innovations, he led Roland Berger Tenzing, advising early-stage ventures on scaling strategy and operations. His current role involves steering the company's vision, securing funding, navigating regulatory pathways, and forging strategic partnerships.

"We're building something that not only works technically but also fits seamlessly into clinical workflows," says Stilma. "The ultimate goal is to improve both outcomes and quality of life for patients."

## Recognized for Vision and Impact

The I4H Start-up Pitch Award jury praised XS Innovations for its clear clinical relevance, thoughtful go-to-market plan, and the potential to significantly improve outcomes for a growing patient population. As kidney disease rates rise globally, innovations like DAVF are becoming increasingly urgent.

Winning the award brings both recognition and practical support. With legal and financial advisory services from AXON Lawyers and F.INSTITUTE, XS Innovations gains resources that are often make-or-break for start-ups navigating the early phases of medtech development.

## What's Next for XS Innovations?

Looking ahead, the company is focused on completing preclinical validation, refining its device design, and engaging with regulators to prepare for human trials. Stilma emphasizes the importance of strategic collaboration in this journey.

"We're actively seeking partnerships with clinicians, research institutions, and forward-thinking investors who share our mission. This award is a huge boost—not just in visibility but also in credibility."

## Call for Future Innovators

As the I4H Start-up Pitch Award continues to spotlight game-changing innovations, XS Innovations' win sets a high bar for future contenders.

Are you an entrepreneur working on a disruptive healthcare solution with real-world impact? Want to gain visibility, connect with experts, and win practical support for your journey?

Then don't miss your chance. Apply for the **I4H Start-up Pitch Award 2026**, taking place at **Innovation for Health on 26 March 2026 in Utrecht**, under the theme **"Bridging the Gap"**.

For more info: [www.hyphenprojects.nl/i4h](http://www.hyphenprojects.nl/i4h).

Whether you're bridging the gap between lab and market, technology and care, or vision and execution—Innovation for Health is your platform.

**SIGN UP. STAND OUT. START INNOVATING.**

