# Javelo's Origin Story

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**Reflections**

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*Javelo was founded by Ash, here he recounts the journey of how it all began.*

## The scenic route

Medical school teaches you a great deal about what goes wrong with the human body. What you won't get from a textbook; however, is why so much of what goes wrong becomes the accepted norm, the "baseline". That question, "why?", became something of a recurring theme for me.

This curiosity took me on a career detour – out of medical school and into an intercalated degree (exploring the science underpinning medicine), and eventually to a PhD at The Royal British Legion Centre for Blast Injury Studies within Imperial College London's Department of Bioengineering. There, alongside military and civilian clinicians, biologists, engineers and physicists, I spent three years working on an urgent problem: how do you mitigate severe traumatic injuries sustained in combat? It was demanding, precise, and often humbling work.

A few papers and books later, I completed my PhD and returned to finish medical school, now equipped with a set of skills that would help me identify, explore and try to help solve the challenges we encounter every day in healthcare. I moved from London to Edinburgh to begin life as a junior doctor. I arrived with limited clinical experience and the hunter-gatherer instincts of someone who had spent years in research. Always looking for the mechanism, always asking *why*.

## We've got a problem

As a junior doctor, placing IV cannulas was a daily reality. On a standard ward, that might mean five to ten procedures a day – more than 70% of admitted patients receive an IV at some point, and access to that line is key to delivering modern medicine, from saline to antibiotics to adrenaline.

But frequently, I was asked to re-cannulate patients I'd already treated the day before. When I asked why, the answer was always the same: the line had failed. So, I would spend the twenty minutes it takes (on a good day) – assembling ten or more items, locating the patient, preparing them and performing the procedure, again.

One patient that I'm reminded of while writing this was an elderly man, on long-term antibiotics for a heart infection. In one week, I cannulated him ten times. Not because anyone was being careless. But because we had no longer-dwelling line service, and between his agitated nights sweating with an infection and days walking around the ward, we kept losing his line. Ten procedures, one patient, seven days.

Alongside the patient impact and clinical time consumed, IV cannulation generates carbon intensive waste. There's therefore a significant environmental challenge associated with this problem, too.

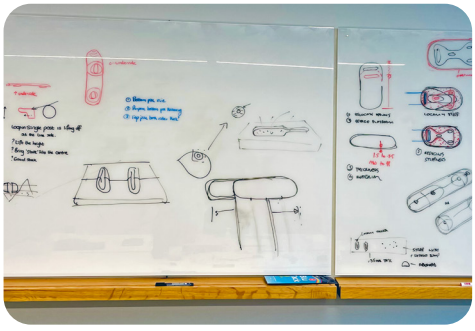
## Thinking about the 'why'

Over 50% of admitted patients experience IV line failure. It is one of the most common complications in modern medicine, and one of the most normalised. I wanted to understand why.

The instinct is to think of failure as a single event – a line gets pulled out, and someone replaces it. And yes, this happens hundreds of thousands of times a day worldwide.

But dislodgement or accidental removal accounts for roughly a third of failures. The other two thirds? They happen inside the vein itself – fluid leakage, blockage, infection – processes that are slower and less visible.

This is where my oddball combination of medicine, science and engineering turned out to be quite useful. I hypothesised that what was actually at play here was akin to an iceberg. The pulled line is the bit everyone sees – while everything happening below it goes largely unnoticed. The assumption was that these two factors are separate processes. They're not, and the scientific evidence now supports this.



*Hypothesising*

If the infusion tubing attached to it moves around (because it's only held in place by sticky tape) it creates micromotion at the tip inside the vein. That tip, if you look closely on a clean IV cannula once the needle is withdrawn, is coarse rather than smooth at its edges.

And if you scratch your skin with this flexible plastic tubing – not something I'd recommend, but I speak from experience – it won't take long to draw blood. Against the delicate wall of a vein, over hours and days, that causes real damage.

External instability, in other words, drives internal instability. Which means that if you secure the line properly on the outside, you don't just prevent pullout – you're contributing to the protection of the vein on the inside too.

And then I had *one of those* night shifts. A sick, sweaty patient. Cardiac arrest. A room full of people trying to bring them back – and an IV line held in place with nothing more than adhesive tape, which slid cleanly off sweat-soaked skin in the middle of the resuscitation. I left that shift with one thought: we can and must do better than sticky tape to secure people's lifelines.

## Pathfinding a solution

The following morning, I got to work.

A new cannula? That's a hard one – it's a fiercely competitive market, and the IP landscape alone would have finished me before I started. Secure the cannula site itself? Possibly – but companies like 3M Inc dominate the primary adhesive dressing market (...and that's a big company right there). Besides, I don't have a problem with the primary dressing. It is an effective barrier, there to catch leaks (think tea spills) – rather than offering robust securement.

What about the infusion line's stability? Now that was interesting – and I mean that in the genuine sense, not the British one. If we could secure the line better, we could reduce the static/impulse loads on the cannula, reducing the risk of pullout while also dampening the micromotion damage happening inside the vein.

I sketched out some concepts between clinical shifts and went looking for support. It did not go well, initially. A local NHS hospital wasn't sure how they could help – and made clear that anything I developed would belong to them anyway.

*Ash prototyping at home*

A university offered £100k in grant funding, which sounded promising right up until the point they explained that anything I created would be theirs too. Neither felt like a fair deal for a clinician trying to solve a problem that affects one in two patients admitted to hospital, worldwide.

So, I went to someone even more formidable: my eighty-year-old Jamaican grandmother (a Windrush pioneer and thus the queen of detours). She heard me out, was not visibly unimpressed, and lent me £5,000. With that, I started Javelo.

## Growing pains

Timing is everything. I started Javelo one month before a global pandemic arrived – and spent much of the year that followed on the regional infectious diseases unit treating COVID patients. Clinical medicine took priority and the early progress Javelo made was held together largely by friends, family, and goodwill.

What the pandemic did do, unexpectedly, was create appetite for solutions. Healthcare mobilised in ways it hadn't before, and with that came new funding.

I was fortunate enough to be offered a grant from Innovate UK, and with the backing of private investors Adjuvo, we properly capitalised Javelo and began in earnest in Spring 2021.

## Now what?

Since then Javelo, with the support of mentors and our investors, has quietly built a platform of technologies designed to address the securement challenges patients and professionals face in healthcare and beyond. We've cycled through three generations of product, developed in lockstep with our customers – always staying focused on the needs of our patients and the brilliant professionals that care for them.

*Javelo prototypes from 2021-2023*

At last, we're ready to introduce what we've built to the world and go on this next stage of the journey, with you, together.

In the words of someone considerably more famous than me: keep moving, keep growing, keep learning.

See you at work.

Ash

## About Javelo

Javelo is a British medical devices company founded by Dr Ashton Barnett-Vanes. Its Chairman is Sir George Buckley, the Former President and CEO of 3M. Javelo supplies public and private healthcare providers with reliable, patient-friendly securement products that enhance the standard of care.

For further information
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