

Reflections on the Landmark Imperial College London Study Published in PLOS One

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Research note



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When you work on a product, especially a medical device, you have to do a tonne of internal testing. So, you/your team become really knowledgeable about the function and capability of your device. Most of this data isn't published, and if we did publish it, the risk for you - the reader - is that we'd be biased due to our love/vested interest in the success of our product. That's where this study comes in.

Published in March 2026, the study by Morgan et al from Imperial College London [1] took our Gen 1 product and subjected it to a rigorous set of mechanical tests alongside other adhesive and non-adhesive securement devices. Now, disclaimer – I worked in the same centre as the authors when I did my PhD, so I know how good they are at what they do. As detailed in the paper, we at Javelo provided the consumables and equipment they needed for the study. We had no role in data analysis or writing the paper, that's for the pros.

What the study did and found

The authors sought to explore the relative function and comfort of line securement products currently on the global market. They did this by subjecting the devices to a series of tests under controlled and simulated clinical conditions, with different types of forces applied to the line. A bit like a "tug of war" but for securement devices...

The following devices were part of the study:

- Two non-adhesives: Javelo and Medow
- Two adhesives: Micropore tape and Grip-Lok

Each device was applied to the arms of 10 healthy volunteers, with IV tubing secured according to the manufacturer's instructions. The tubing was then connected to a testing machine designed to apply a consistent, controlled pulling force. The line was pulled in a straight direction to mimic real-world accidental tugging, and the force required to dislodge it was recorded. Participants also provided feedback on comfort, ranking each device from most to least comfortable (1–4).

The authors then moved to a second stage of testing focusing only on the Javelo and Grip-Lok device, the other two were eliminated due to poor performance at Stage 1. This bit is really cool – they simulated what life is really like... It's sweaty! Sick patients are sweaty patients, and we know that adhesives can struggle to maintain adhesion on wet skin.

In other words, those who are most sick and in need of IV treatment are also most at risk of IV complications due to poor adhesive performance.

They performed this advanced stage of testing as follows:

- Pulling at angles (90° and 135°)
- A "peel-off" scenario (lifting away from the skin)
- Pull-out under sweaty conditions - here the devices were applied, the participant then exercised and skin wetness was measured to ensure comparability between participants.

They found that in both peel-off and on sweaty skin, Javelo performed significantly better than Grip-Lok ($p < 0.05$).

In summary, this study showed that Javelo was the most effective and comfortable line securement product studied under controlled and clinically representative conditions. It shows, perhaps globally, that the device is currently market leading.

I'd make one more observation – adhesives are one time use only. Once it lifts, slips or slides – it's coming off, hopefully without causing adhesive related skin injury [2].

So, what's next?

Great question.

This study conducted testing on our Gen 1 product, and we've since gone through several improvements in design and function. We know (through that cheeky internal data of ours) that our device can secure forces more than those studied in the Morgan et al paper. We also get asked regularly if our device affects fluid flow (it doesn't – yes, more internal data). So that's our next objective, we're currently working with collaborators on studies that deliver independent, objective data to you all from world leading academic centres like Imperial College London.

Footnotes

[1] Morgan GKH, Spiteri M, Masouros S (2026) Evaluation of peripheral intravenous line securement devices under clinically relevant loading and perspiratory conditions. PLoS One 21(3): e0341618. <https://doi.org/10.1371/journal.pone.0341618>

[2] Savine, L. and Snelson, K. (2024) Medical adhesive-related skin injury (MARS): Preventing patient harm. Wounds International, 15(3), pp. 28–36. Available at: Medical adhesive-related skin injury (MARS): Preventing patient harm

Final word


A big well done to the authors who worked on this study, recruited the participants and spent hours analysing data, writing and then submitting the paper. PLOS One is a widely respected international journal - it takes effort and commitment to put results into the world.

And that's it, back to work.

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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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