Innovation in Action: UK's First Machine-Assisted Cochlear Implant Surgery Performed in Manchester

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MED-EL and CASCINATION AG combine expertise to advance surgical care.

Manchester, UK – 14 August 2025 – In the operating theatre, precision is everything—especially in ear surgery, where even a fraction of a millimetre can make a difference. A major milestone in UK healthcare has been achieved at Manchester Royal Infirmary, where Emma Stapleton FRCS, Consultant Otolaryngologist and Surgeon at Manchester University NHS Foundation Trust, successfully performed the UK's first cochlear implant surgeries using OTODRIVE* and OTOARM.

These systems, developed collaboratively by hearing implant leader MED-EL and medical engineering innovator CASCINATION AG, are designed to support surgeons in performing cochlear implant surgery with enhanced control and consistency—while preserving the human expertise at the heart of every procedure.

How the Technology Works

- OTODRIVE allows surgeons to insert cochlear implant electrodes with highly controlled motion—at speeds as slow as 0.1 mm per second—supporting a more deliberate and stable surgical approach.
- OTOARM assists in positioning surgical tools with high accuracy, helping to reduce the impact of natural hand tremors and enabling smoother, more consistent movements.

Surgeon's Perspective

When asked what it meant to be the first surgeon in the UK to use these precision tools for otologic surgery, Emma shared:

"It's a great honour! I'm really grateful for all the support from MED EL, and of course from within Manchester University NHS Foundation Trust, for supporting its implementation."

Regarding her first impressions of the systems, she added:

"It's a lovely, elegant system. It's easy to set up and use, and doesn't take up space in the operating room, as it attaches to the operating table and can be manoeuvred easily both before and after draping. I was also impressed with its use with the operating microscope – I'd expected this to be a challenge but it worked really well. It didn't add on much time to the procedure either – just a few extra minutes."

Patient Reactions

Emma offered the following insights from her discussions with her patients about the new technologies.

"They both trusted us to deliver the best care for them. One of them had done a lot of reading about robotic cochlear implant surgery! When I explained that the OTODRIVE supports a slow and smooth insertion of the electrode, he understood why this was important – there is already some great information out there."

Supporting Precision in Surgery

For surgeons, these tools are designed to reduce physical strain and simplify workflows, allowing them to focus on delivering the best possible care. For patients, greater precision during cochlear implant surgery may help:

- Minimise trauma to the cochlea
- Support the preservation of delicate inner ear structures
- Preserve any remaining residual hearing [1][2]

This milestone at Manchester Royal Infirmary is part of a global wave of innovation in cochlear implant surgery. The UK now joins leading centres worldwide in adopting machine-assisted precision tools that are reshaping the future of hearing care.

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To learn more about the OTODRIVE and OTOARM systems, visit:
https://blog.medel.com/technology/cochlear-implant-surgery/

*CASCINATION AG is the legal manufacturer of OTODRIVE, while MED-EL is the exclusive distributor.

References

1. Chen, J.M., Lin, V.Y.W., Le, T.N., Spiegel, J.L., Ungar, O.J., Bajin, M.D., Ladak, H.M. and Agrawal, S. (2025). Synchrotron-Based Trauma Assessment of Robotic Electrode Insertions in Cochlear Implantation. *The Laryngoscope*. https://doi.org/10.1002/lary.32254
2. Aebischer, P., Anschuetz, L., Caversaccio, M., Mantokoudis, G., & Weder, S. (2025). Quantitative in-vitro assessment of a novel robot-assisted system for cochlear implant electrode insertion. *International Journal of Computer Assisted Radiology and Surgery*, 20, 323–332. https://doi.org/10.1007/s11548-024-03276-y

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About CASCINATION AG

CASCINATION AG is an award-winning medical technology company from Bern (Switzerland) dedicated to the development, manufacturing and commercialization of innovations in computer-assisted and image-guided surgery. The company's navigation systems and surgical robots are designed to improve outcomes for patients undergoing surgical or interventional procedures and offer new perspectives to patients worldwide.

About MED-EL

MED-EL Medical Electronics, a leader in implantable hearing solutions, is driven by a mission to overcome hearing loss as a barrier to communication and quality of life. The Austrian-based, privately owned business was co-founded by industry pioneers Ingeborg and Erwin Hochmair, whose ground-breaking research led to the development of the world's first micro-electronic multi-channel cochlear implant (CI), which was successfully implanted in 1977 and was the basis for what is known as the modern CI today. This laid the foundation for the successful growth of the company in 1990, when they hired their first employees. To date, MED-EL has more than 2,900 employees from around 90 nations and 30 locations worldwide.

The company offers the widest range of implantable and non-implantable solutions to treat all types of hearing loss, enabling people in 137 countries enjoy the gift of hearing with the help of a MED-EL device. MED-EL's hearing solutions include cochlear and middle ear implant systems, a combined electric acoustic stimulation hearing implant system, auditory brainstem implants as well as surgical and non-surgical bone conduction devices. www.medel.com/en-gb

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