

Steerable catheter to treat cardiac arrhythmia

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King's College London has worked with design and technology consultancy Cambridge Design Partnership to develop a novel steerable catheter which King's researchers have designed. The catheter is designed to improve the treatment of cardiac arrhythmia – a range of conditions which can lead to stroke or heart failure that [affects 2 million people a year in the UK alone](#).

The new steerable, micro moulded catheter enables targeted delivery of radio frequency energy to specific points in the [heart tissue](#) for corrective treatment. Compared with traditional catheters, the new device has been designed to be quicker and easier to manoeuvre into the correct position, improving the accuracy of positioning and minimising damage to healthy tissue, which should improve success rates of the treatment.

Cambridge Design Partnership won a four-way competitive bid to further develop the device created by King's, involving helix-shaped interlocking tubes that would allow improved steerability over other catheters on the market, and greater compatibility for robotic control.

The team at Cambridge Design Partnership successfully refined the initial [design](#), enabling the device to meet key regulatory and biocompatibility requirements, whilst ensuring suitability for commercial manufacture. Through Cambridge Design Partnership's experience of developing highly technical medical devices, the team was able to miniaturise the design to allow improved space for the delivery

of ablation energy and irrigation. The new catheter design is also assembled from micro injection moulded sections, incorporating features that enable the device to be built on an automated assembly line at reduced manufacturing cost.

Professor Kawal Rhode, Biomedical Engineering, commented: 'We have been delighted with the results of Cambridge Design Partnership's work on this project. The team was chosen for the strength of their existing experience in developing catheters across both start-ups and global corporations. We were very pleased with the engineering approach and practical improvements that they managed to incorporate. They delivered fully moulded parts, and specified other components and the assembly route which fully met our aspirations for the project.'

Matt Brady, head of Medical Therapy, Cambridge Design Partnership, said: 'The steerable catheter is an extraordinary product, with innovative features that enable corrective treatment to be delivered to very specific areas of the heart. By enabling greater accuracy and quicker treatment time, we believe it is possible to preserve more healthy heart tissue, and increase the success of the treatment. It's been hugely exciting to be involved in this joint project with King's College London and use our expertise to bring such an innovative product one step closer to commercial use.'

King's is now undertaking extensive lab testing of the catheter device, with clinical trials expected to take place in two to three years.

Provided by King's College London

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