# Not your average manufacturing partner

Contract manufacturer **Tegra Medical** has been producing finished medical devices and complex components, including surgical instruments, needles and implants since 2007, but its roots in the medical device industry go back for decades. Mike Treleaven, Tegra Medical senior vice-president of engineering, discusses how the company works with clients from the early stages through the entire manufacturing process, simplifying the supply chain and guaranteeing efficiency.

If you have ever struggled to sew on a loose button you can probably imagine the challenge a surgeon faces tying suture knots inside a human body. Add to that the constraints of minimally invasive surgery, where the surgeon is working in an extremely small space with minuscule access.

Surgeons rely on specialised suturing devices every day, during procedures such as cardiac catheterisation, where a stitch is needed inside the femoral artery; meniscal repair, where work is done within a tight space inside the knee; and even during surgery to correct a hammertoe.

The process of manufacturing suturing tools – and many other medical devices used in minimally invasive surgery – pose their own unique challenges. They must be small enough to work with minor incisions or fit into blood vessels.

Yet they have big jobs to do, packing sophisticated features and controls into a small geometry. Given their critical role in healthcare, their tiny mechanisms must work flawlessly.

### Broad experience ties it together

After they have been designed by the original equipment manufacturer (OEM) customer, getting these devices along their journey to production works best when a team has the vision and ability to harness a broad range of technologies. A contract manufacturing organisation (CMO) that offers true end-to-end solutions can ensure that products benefit from the best technology and expertise from start to finish.

A CMO with expertise in both metal and plastic – key components of suturing devices – is better positioned to have innovative ideas on how to combine traditional and non-traditional technologies like laser cutting, metal forming, and moulding to come up with the best way to make a product.

### Sharp where it counts

Some of the device's parts, such as the tips inserted into an incision, need to be very sharp. But others, like slots in metal tubes, must not be sharp enough to cut the suture.

Making the device sharp is one thing, but maintaining the sharpness during insert moulding, assembly and packaging is another challenge – one best handled by a CMO that can take responsibility for the whole device and is invested in the entire end-to-end process.

### Turning conventions upside down

Using a suturing device as an example, end-to-end manufacturing begins with design for manufacture (DFM).

The OEM customer has already designed the device and defined its function, but Tegra Medical's role as a CMO is to make sure it does what it is supposed to do. This includes figuring out the smartest way to make it, making the process more efficient and reducing costs as much as possible.

Sometimes this can mean turning preconceived notions of how to manufacture a product upside down. For instance, a conventional approach to making device components is to machine parts from solid materials. But, starting with blank tubes and combining technologies like laser cutting, custom grinding and electrical discharge machining could yield the same result while streamlining high-volume manufacturing and lowering costs.

### An investment in brainstorming

Convincing an OEM to manufacture a device in such a radically different way can require a large amount of collaboration and trust.

However, diving into the details can certainly pay off when the device gets to the production stage. Brainstorming over DFM with a customer's engineers allows Tegra Medical to make a suturing needle for less than one-third of its previous cost, creating significant savings over the product's lifetime.

*"A CMO that offers true end-to-end solutions can ensure that products benefit from the best technology and expertise from start to finish."*

True end-to-end CMOs earn the trust of their OEM customers by using their broad range of capabilities and expertise in all phases of the manufacturing process.

Suturing devices are just one example of the many precise devices and components that are made more efficiently and cost-effectively with a manufacturing partner like Tegra Medical. ●

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