

A visionary medical device, beautiful and effortless to use

Client story: Universal Autoinjector Platform

Our client had a remarkable vision. Not content with asking us for the world's most technologically advanced autoinjector, they demanded that it be aesthetically pleasing; beautiful even. As the iPhone of medical devices, it needed to deliver an extraordinarily intuitive, satisfying and effective user experience. This was a challenge like no other, and one that sparked a three-year product design journey to deliver the seemingly impossible.

The brief was rooted in the client's desire to differentiate its market-leading drug portfolio by enhancing user experience. As a large European pharmaceutical company, the strategy was driven by the imperative to protect market share and avoid cost erosion in a hugely competitive, multi-billion-dollar market. The growing power of patients as discerning, well-informed consumers keen to exercise choice played an instrumental role in its thinking.

The patient vision, then, was to create an autoinjector that was so beautiful and so easy to use that it would be coveted as a status symbol. An unprecedented union of pleasure and utility would delight users while dramatically improving compliance and adherence to therapy regimes. The commercial vision was to create a platform that was so flexible it could be applied to all therapies across the portfolio. This would help maintain market share in multiple areas and reduce the development cost of individual devices over a long-term period.

Curved and elegant

We're proud to say that our breakthrough design, the Universal Autoinjector Platform, nailed the brief and answered the challenge. As the images here show, the device is



Beautifully smart...

- Internal custom barcode and/or RFID reader identifies drug and configures system
- Configurable tactile user interface, automatically manages regime and reminders based on drug ID
- Configurable insertion and injection speed, and insertion depth
- Tested by users with limited dexterity and vision. Usable by those with colour-blindness
- Designed for 43 languages
- Bluetooth connectivity for adherence tracking, disease management and re-orders

sleekly curved and undeniably elegant, shaped to fit the hand comfortably, and visually seductive with its dark, monolithic form. The aesthetics conceal a rich user interface inside the system and hidden-until-lit external user cues that appear only when needed.

The beauty is much more than skin deep. In answer to the commercial challenge, the platform is universal in that it accepts any registered 1mL standard subcutaneous staked glass syringe – the instrument used for a wide spectrum of drugs, including those for common, lifelong conditions such as multiple sclerosis and rheumatoid arthritis. The platform is adaptable to many drug viscosities. It is configurable to a wide product portfolio and a maximum number of patients across a maximum number of therapy areas.

The success of the project was testimony to the drive and commitment of our product and mechanical teams who applied incredible ingenuity to the various design hurdles. Colouring everything was the demanding task of packing complex engineering into such a compact form factor. The feat was not just achieved but delivered with a number of groundbreaking concepts.

Chief among them is the needle-free user experience. Needle-phobia is a key reason for non-compliance in self-administered therapy regimes. But users of the Universal Autoinjector Platform don't actually see the needle at all. After they insert a capped syringe into the system, the automatic uncapping and recapping feature takes over to eliminate any interaction with sharps. This remains a unique capability.

Proven track record

The client chose Cambridge Consultants because of our proven track record developing innovative drug delivery devices.

By their own admission, members of the client team had posed probably the most ambitious design challenge ever attempted in the space. And they were also generous to point out that in their view, no-one else could have pulled it off.

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“I’m not clear on what could be improved.”

“I’d love to try it!”

FREEDOM-FROM-CHOICE DESIGN

The intent was to remove options and simplify choice for the user. (Think Apple rather than Windows.) This creates a streamlined and natural experience. The internal screen allows step-by-step user guidance, user preference settings and health professional-only configuration. Internal interaction can be reduced to zero when the system has been learned, and the user can enjoy poka-yoke insertion.

Thanks to our multidisciplinary setup, we were able to deploy a 100-strong in-house team with all the necessary skills in design, usability, safety critical software, microelectronics, physics, manufacturing and more. Our independence from the supply chain enabled us to positively and objectively influence the design in ways that were beneficial for the client and its patients.

The sting in the tail of the story is that a switch of business strategy prevented the Universal Autoinjector Platform from being launched. We could end by saying this doesn't diminish the achievements of the project – but we'll leave it to members of our user study to have the final say. “Beautiful – let’s face it, when it comes to medical things, they are not attractive, and this is sleek.” “I’m not clear on what could be improved.” “I’d love to try it!”
