



Beyond the tipping point: selling innovative medical technologies

The NHS has traditionally been a ‘slow adopter’ of new technology. Ewan Phillips of Deltex Medical explains what this means for the medtech industry, and how the situation is changing.

Businesses that successfully develop revolutionary new medical technologies – ones that enable a significant step forward in patient care – are rare.

The goal of any new medical technology is to become a standard of care. This means that anyone not using the technology is providing sub-standard care, so the successful technology achieves very high market penetration. The innovator can look forward to years of growth and sustainable revenue streams – thus creating enormous value for the company’s shareholders while improving public health.

Can you afford to succeed?

However, success is difficult to achieve. Many good ideas never make it, and it takes a very long time and large amounts of money for an innovative product to become a standard of care. A new medtech company needs the infrastructure to manage its regulatory affairs and quality systems. It also needs to protect its intellectual property, invest in research and development, sponsor trials, market its product and train and support its customers.

My own straw poll of a handful of innovative British medtech businesses that are finally at or near to breaking even suggests that they have spent about £40 million to get there over 15–20 years.

The costs and time frames, along with the high risk of failure, mean that most revolutionary medical technologies are developed by small companies. Ironically, the big boys – the cash-rich multinationals – simply cannot afford to do it: the need to report growth every quarter is too much at odds with the profile of the early-stage development of the next world-beating product. It is easier for them to buy the occasional winner.

The point of no return

The life cycle of new (non-medical) technologies is often depicted as a bell-shaped curve: technology adoption starts with innovators and expands through early adopters, then late adopters and laggards. Eventually the technology reaches a plateau before its use starts to fall as it is supplanted by newer technology.

Medical technologies follow a similar adoption curve, but one characterised by very high adoption rates over very long time frames. The innate conservatism of the medical profession means that the vast majority of potential users fall into the ‘late adopter’ category. With the life cycle of a new technology lasting fifty, sixty or more years, innovators naturally focus on the growth half of the curve.

As usage starts to spread through the early adopters, there is a ‘tipping point’ (point T in Figure 1). This is where the late adopters start to take notice, and where the business has developed unstoppable momentum up the curve. Figure 2 shows what this means in terms of medical practice.

In the UK, it is particularly difficult to be sure when you have reached the tipping point. Technology rationing means long delays in translating evidence-based medicine into NHS practice. As the delay between British doctors deciding to use new technology and their getting the necessary funding is longer than anywhere else in the developed world, the innovator has to climb first a clinical demand adoption curve and then a later, slower, sales curve (see Figure 3).

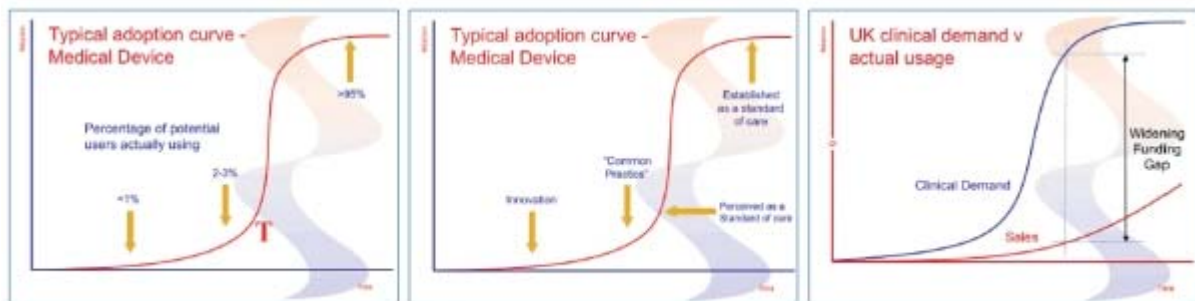


Figure 1

Figure 2

Figure 3

Getting a product into circulation

A case history may illustrate these issues. Since 1989, Deltex Medical has developed the CardioQ oesophageal Doppler monitor. The real-time data on circulating blood

volume generated by the CardioQ is unique, and allows doctors to intervene rapidly in order to optimise oxygen delivery around the body. During surgery, the effects of anaesthetics inevitably reduce circulating blood volume; using the CardioQ reduces post-operative complications and reduces the length of hospital stay.

The scientific evidence supporting the CardioQ has grown steadily since the first randomised controlled trial was published in 1995.

All trials have shown better patient outcomes and reduced costs through shorter lengths of hospital stay. However, by 2003 large numbers of doctors' business cases to secure NHS funding for the use of this product were being rejected or dramatically scaled back. Deltex Medical repackaged its value proposition in language aimed at bridging the gap between clinical and management agendas.

This helped managers and doctors at the Medway Maritime Hospital to work together on a 'real world' audit of the impact of widescale adoption of the CardioQ. The results were impressive: average reductions in length of stay of over 3 days per patient across a broad range of surgical procedures. In September 2004, the Chief Executive was quoted in *The Times* as saying that £1 million a year in savings had been achieved through patients leaving theatre in better shape.

As the Medway story coincided with new trial data from Worthing Hospital, the company was confident that this union of science and economics would prove a tipping point.

There are two reasons for buying a medical technology – to improve care or to reduce costs – and we had proved the CardioQ did both. But in reality, sales of the monitor fell sharply and have yet to return to 2002 levels. UK doctors today want to treat 250,000 patients a year using the CardioQ, compared to just 10,000 in 2001: a 25-fold increase. Yet only 25,000 patients a year are being treated in this way, compared to 5,000 in 2001: a mere 5-fold increase.

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In hindsight, our tipping point clashed with growing NHS awareness of financial difficulties. The traditional Micawber approach to NHS finances did not allow for 'spend to save' projects, and hospitals were not looking to the efficiency improvements now required by PbR.

The only way is up

However, the outlook for innovative medical technology in the UK is improving.

The Government is taking steps to move care out of hospitals and closer to patients' homes. All NHS hospitals are now looking to reduce lengths of stay and engaging with doctors to achieve this. New organisations such as the Centre for Evidence-Based Purchasing, the National Innovation Centre and the NHS Institute for Innovation and Improvement are charged with improving the adoption of new medical technology in the NHS.

Most encouraging of all is the growing awareness that how the doctor treats the patient is fundamental to both quality and efficiency.

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