



Supply chains: healthcare

The tonsillectomy tale

James Warren

An important issue in the supply chain healthcare is how it responds to changing circumstances. A crisis in 2001 provides a powerful illustration.

Deborah Darling

During 2001 the issue of single use instruments became a key critical and urgent issue that the NHS presented us with. It came from some research that was published that suggested that Variant CJD was not able to be sterilised, and therefore it wasn't - sorry, it wouldn't be eliminated from sterilisation, and therefore standard instruments, once they'd been sterilised, would still carry the prion. This led to an edict from government, basically, that surgeons had to use their instruments only once. Now, in that time for tonsils and adenoids which is the particular condition that was being discussed, we were selling instruments for that condition that would be used over a period of 20 years because they were made to last for 20 years, and as such were highly engineered, very sophisticated instruments, retailing at a cost that would be unsustainable when you want to use several thousand of these in a year, which the NHS would want to, they'd want to use about 75,000 in a year.

So, that suddenly presented with a challenge that they asked us to work with them on in terms of, hey, how quickly can you develop something that is actually far more disposable. Now, yes, overnight, you can't just develop a new instrument set. However, what we could do was work on our current instrument set so that they weren't quite so highly engineered and therefore could bring down our costs significantly without compromising quality. And there was a range of about 20 instruments that we had to do that with, very, very quickly because patients - they had to stop all operations until industry found a way through this.

Mark Gronow

There were initial problems in terms of the supply of products. Because, suddenly, you had all the acute units in the area, for approximately 75,000 tonsillectomies, requiring the same sets of single use instruments. And we definitely saw the effects there of tremendous supply issues. That may have, in some cases, had an effect on, on waiting lists perhaps.

James Warren

What this meant was that instruments which previously were in use for many years could only be used once. Clearly this was unsustainable. But not everyone had problem with single use instruments.

Graham Cox

In fact it didn't cause my department any problems by moving over to disposable tonsillectomy instruments, because what that meant was that they were supplied into the trust in a pre-sterile form. So they were supplied from the manufacturer supplier, directly to the theatres, who would then use the equipment. So to a certain extent, that then reduced the amount of work that we were actually undertaking for that theatre.

James Warren

In fact, the move to disposable products wasn't just an emergency reaction to the crisis, it had been long discussed.

Peter Mitchell

The industry is tending to move more into disposable products, it's because of some of the problems that hospitals are facing now with decontamination. A hospital has to supply a product, after use, it has to reprocess it and bring it through cleaning, sterilisation and present it back to the next user, in a clean and sterile condition. The regulations have always been in place, but they're now tightening these regulations. They're having to validate this process. This processing by

definition, requires a high degree of - quite a complex unit to clean it and bring it back round, and costs a considerable amount of money.

It's therefore in the customer is prepared to take an instrument at a cost which is beneficial to him, where he can then use the instrument once, the instrument is guaranteed clean and sterile, after use he disposes of it, and the next time he does that procedure he starts with a new instrument, a validated product.

Ian Stockley

I suppose you could argue that in the ideal world, everything should be single use, because there's no problems then of fatigue, and breakage of the implants, there's no question of disease transmission, etc, etc. But, obviously one must draw a balance. I mean saw blades and drill bits are the items used most of all by orthopaedic surgeons, and they have, you know a finite lifespan. The manufacturers will probably tell you once or twice, and we will be told by our colleagues in CCSD, 10, 15 times. There's a balance between the two. Recent headlines with potential for disease transmission has changed things a little bit and they've gone the whole way for single use items only. That may be the way forward, I don't know. But the question is, can a disposable plastic instrument perform the same function?

Peter Mitchell

Typically, this is a single use surgical instrument made out of a lightweight polymer material. It has very high strength properties. Clearly there's no corrosion problem with it, it's a lightweight material. We believe that compared to a stainless steel material, a surgeon will enjoy using this because of the properties, because of its lightweight properties, and the reproduction on it is very good. We can reproduce this thousands and thousands of times, the same instrument comes out of a mould, we're not getting high wear rates on moulds, as we do with metal industry.

Using polymers in our industry is something of a new revelation. In principle, we are metal manufacturers. We manufacture with titanium stainless steels, cobalt chromes. By definition, these materials are expensive. We're now looking to move onto plastics, or polymers, which are new to the industry. Surgeons are not used to using these, however we believe, in some instances, that a surgeon will be quite receptive to them because of their lighter weight, because of their guaranteed uniformity.

Typically, here we have a tonsil snare, which is a high quality product. This is designed to guillotine the tonsil from a patient in a very clean and efficient way. The fact that it's made out of a polymer will make absolutely no difference to the functionality of the product.

Ian Stockley

I think for me, as a surgeon, as long as the instrument does the same job as the one before, probably none. I think in terms of the NHS there'll be increased costs because you have to find new materials for these instruments, for the design, research, etc, etc. So, need to be work between the surgeons and the manufacturers to make sure what they're making is what we want, so that'll go backwards and forwards a few times.

James Warren

The traditional supply chain looks at products from cradle to grave. And with single-use products, there's an acute problem with disposal.

Peter Mitchell

Well, it's a good question, how do you dispose of these types of plastic instruments? And it's a question that we have to answer to our customers as to how they how they dispose of it. Because, of course, we're all living in this world environment where we must take care that we're not polluting the atmosphere. The bottom line is that these types of polymers, in fact, when they're destroyed through correct incineration, are less toxic than burning wooden products. So, we don't have any major concerns about the disposal of such a product. In fact in hospitals of today, they're disposing of vast quantities of this type of product, anyway, in a day-to-day basis.

I doubt that we'll ever see the day where all instruments are made out of plastics. However, material technology is moving all the time and tomorrow we may have materials that are capable, that have the strength and capability of steels, which can be injection moulded at low

cost. But certainly, in the near future, there's a lot of mileage to be taken for producing low cost product out of polymers, out of plastic materials, to compete in the marketplace with stainless steels.