

GMDP for the 21st century: pipe dream or real-world possibility?

Part 2

by Hedley Rees

Part 1 of this article concluded “Pipe dream it is then...unless?” The rationale was that complexity in the industry has spiralled upwards to the point where no single entity shoulders overall responsibility for its supply chains. Coupled with this is the arms-length ‘us and them’ relationships between the various stakeholders involved, such as marketing authorisation holders (MAHs), contract development and manufacturing organisations, third-party logistics providers, and wholesaler networks.

In part 2, we critique the strategy of big pharma companies from the beginning of the blockbuster era (early 1980s) to date. Then we turn that on its head to define a new, end-user focused strategy for the industry – and how that could catapult pharma good manufacturing and distribution practice (GMDP) into the 21st century.

How did the blockbuster strategy emerge?

In 1976, Smith, Kline and French (SK&F) launched Tagamet (cimetidine), an anti-ulcer treatment. The head of the programme, Sir James Black (a physician), was the first to employ rational drug design in practice, bringing Tagamet to market over 12 years of intense and collaborative research and development activity.

Five years after the launch of Tagamet, Glaxo launched a competitive product, Zantac (ranitidine), based on a similar compound but produced by a cleaner manufacturing process. Within 5 years, Zantac was outselling Tagamet 3:1. **Figure 1** depicts the thinking process of the large pharma companies and its investors following this remarkable ‘success story’. Glaxo’s exploitation of the market, using its apparent superior sales and marketing effort, stole the show. It created the following formula for success.

$$PS + RA + SM = M\$$$

Where:

PS = Patent secured

RA = Regulatory approval

SM = Sales and marketing

M\$ = Mega \$\$\$

That formula is now encoded into the industry psyche.

What has been the impact of the strategy on the industry?

This strategy dealt a crippling blow to what once was a fully integrated industry. Its impact has been nuclear. Product development in **Figure 1** did not make it into the formula. It was deemed ‘non-core’ to the business, and out it went.

Along with that, manufacturing for commercial products was shown the door, as was distribution for clinical trials and marketed products. The crucial links with end-users of its product was lost.

Since implementation of the strategy, the physical activities involved in developing, manufacturing and distributing pharma products has been in the hands of third parties. It is, however, the pharma companies that submit the applications to run clinical trials and market their products.

When a licensing application is approved, all aspects of the supply chain will be fixed on the basis of the



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Figure 1. Lifecycle of a patented prescription medicine driving industry thinking.

chemistry, manufacturing and controls section of the common technical document. The pharma company then, as the MAH, must ensure compliance with the registered information as licensed, and that GMDP is maintained throughout the end-to-end supply chain. They must do all that with merely discovery research and sales and marketing onboard to do the supply chain thinking.

You should not be surprised that they have not been doing a very good job.

What has been the impact of the strategy on GMDP?

If you ask a group of enthusiastic but unskilled people to design and build a house, you would not be surprised if you ended up with a dog's breakfast that was not constructed with cognisance of current building regulations.

The same applies to GMDP in pharma – skills in discovery research and sales and marketing are hardly the qualifications required to build and manage supply chains. Consequently, pharma supply chains have become hugely complex and multi-tiered, to the point where there are hundreds of quality management systems (QMSs) all working in splendid isolation from the mothership selling the products. Let's not forget, a QMS starts with those people who are going to use your products. Its purpose is to deliver to them products that are fit for their intended use, consistently. To do that, the organisation must align itself with the needs of those users and ensure its supply chain is aligned. With so much of the physical activities in the land of outsourced services, this is impossible.

Here we have it then. The companies responsible for ensuring that GMDP is facilitated by effective supply chain design, and that it operates throughout the supply chain, do not have the necessary skills and experience to carry it through.

The companies physically producing and distributing the products are many and varied, with little or no connection to each other, or with the company responsible for the integrity of the overall supply chain.

Is horizontal integration the answer?

In vogue in recent years has been horizontal

integration, where pharma companies merge to create bigger product pipelines and marketed product portfolios. This does not solve the GMDP problem however, as the supply chain issues underneath remain unresolved.

What about a return to vertical integration?

Now you are talking! That is the only solution, and here's why. Returning to 1976, when we learnt the following earlier on in the article.

*"In 1976, Smith, Kline and French (SK&F) launched Tagamet (cimetidine), an anti-ulcer treatment. The head of the programme, Sir James Black (a physician), was the first to employ rational drug design in practice, bringing Tagamet to market over 12 years of intense and collaborative research and development activity."*¹

Note, the entire development programme was devised and delivered by Black and his team. They had put a working supply chain in place to ensure safety, efficacy and quality of the product.

The vertically integrated nature of the industry in those days allowed close communication and working relationships, with the QMS covering most stages in the development supply chain, and that integration carried forward into commercial supply.

What happened next is crucially important in understanding the folly of the new strategy. Sir David Jack, who was head of the ranitidine development programme, famously said:

*"the development of Zantac had not been in the same order of inspired breakthrough as the research which produced Tagamet... It's not necessary to shake the earth on its axis to make money in this industry. We simply improved on James Black's product by choosing a substance with a cleaner reaction."*²

This meant Glaxo was able to bypass the development component, and move straight into manufacturing with a cleaner process, using the same

or similar supply chain. This diminished the importance of product development and supply in the eyes of the industry and its investors – it was a massive hit on GMDP.

What should happen next?

Maybe it's not for me to advise the industry, but even so, here are some thoughts.

- Big pharma companies should begin to negotiate strategic alliances with the major wholesalers, so they can get closer to the doctors and patients they serve. Have you ever tried complaining about a manufacturer's product to a wholesaler? They are not on speaking terms...
- The big pharmas should also acquire one or more contract development and manufacturing organisations and contract research organisations, so they regain control over physical drug development activities. They could then take a more strategic approach to building supply chains to market.
- Procurement policies that result in mass offshoring and outsourcing of critical assets have failed miserably and should be reversed.

- Big pharma should start to take an interest in modern concepts such as production systems and design for manufacture. The current quality by design initiatives have been rolling on for years, going nowhere.
- Modern production concepts question why big pharma drops products when out of patent, when there was more than enough time to drive the cost down and make them profitable – the generics industry manages it.

The above would lead to major improvements to GMDP, and maybe even see it catapulted into the 21st century.

References

1. American Chemical Society. Tagamet: The Discovery of Histamine H₂-receptor Antagonists. Washington, DC, USA: ACS, 1997. Available at: <https://www.acs.org/content/acs/en/education/whatischemistry/landmarks/cimetidinetagamet.html>
2. Sir David Jack, Telegraph, 17 November 2011. Available at: <https://www.telegraph.co.uk/news/obituaries/finance-obituaries/8897458/Sir-David-Jack.html>

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