

Addressing Value-based Care Needs with Parenteral Packaging

Three Key Considerations to Boost Quality of Care and Outcomes Amid Demographic Shifts

According to the World Health Organization (WHO), the pace of the population aging is faster today than ever before. From 2015 to 2050, the number of people aged over 60 is predicted to increase from 12 percent to 22 percent, creating challenges for countries around the world to ensure both health and social systems are capable of dealing with what the WHO refers to as a demographic shift. To put this into perspective, the figures show that in 2050 the number of people over 60 will reach two billion globally – with the majority living in low to middle income countries – and with healthcare budgets largely decreasing.¹ As more people are diagnosed with chronic health conditions and costs continue to rise, it has never been more important to maintain the highest level of care using all available tools and resources, including parenteral packaging.

A more holistic approach could be the solution, and many believe that value-based healthcare is the answer. In 2020,

for example, value in health was identified as a priority area for the G20 nations, and the establishment of a knowledge sharing platform was welcomed by WHO Director General Dr. Tedros Adhanom Ghebreyesus. The overarching theory is that by monitoring the complete journey of a patient as they progress through a healthcare system, value can be measured through assessing the entire cost of that patient's care, the quality of that care, and the ultimate outcome.

Of course, when looking at the bigger picture – as value-based healthcare demands – value can be added from a wide range of sources, and manufacturing is a key factor to achieve the intended outcome. Thus, it is essential for device manufacturers and drug developers looking to better address the shift to value-based care to work with component manufacturers that can add value directly, through thoughtful design, material selection, and quality-driven manufacturing processes. Here, we look at three key areas of consideration in parenteral packaging selection that can support a value-based care approach to drug delivery.

1. Avoid Overengineering: Add Value, Not Cost

One key aspect of value-based care is reducing the cost of patient care. During the development of a device or treatment, overengineering can inflate cost, making it difficult to adapt to a value-based healthcare industry. To avoid this challenge, manufacturers can work closely with suppliers to recommend optimal solutions that deliver the best possible cost per unit, provided there is transparency from the outset on both sides. Understanding expectations is fundamental, and time must be taken in the earliest stages to ensure the solution offered does not deliver elements that are surplus to requirements.

For example, in pre-filled syringes, cartridges and vials, it is possible to recommend a coated stopper in every instance where a stopper is required. The risks posed to formulation integrity by extractables and leachables often necessitate protective coatings. Components that use proprietary fluoropolymer spray coating can prevent any unwanted drug interactions by providing barrier properties



and even eliminate the closure as a source of silicone oil-based subvisible particles. However, this is not always required. If the drug is stable with an uncoated stopper, a 100 percent coated solution is not necessary to protect formulation integrity. There are highly efficacious uncoated compounds which offer good stability even with biological drugs. However, it is important to note that 100 percent coated solutions should still be used for the packaging of drugs that could be compromised by extractables and leachables. Components that are only partially coated in areas exposed to the drug are still packaged and transported in bags where coated and non-coated areas can rub and potentially displace rubber particulates on the coated surfaces. It is imperative for drug manufacturers and packagers to work closely with suppliers to fully understand the pros and cons of both options based on the sensitivities of the formulation.

If we translate this to a real-world example, a serious initiative to make the drug Insulin more affordable looked to the entire process to reduce its cost. There were no development elements as the patent had expired, but manufacturers collaborated with components suppliers to find safe, cost-effective options to drive savings, including the use of uncoated stoppers and plungers where perhaps coated options had been used historically. When coupled with the fact that processes had been optimised over the many years of the drug's production, this ultimately made the drug more accessible to patients who had historically found the cost prohibitive.

This approach to adding value as opposed to cost is particularly important to the treatment of chronic diseases, which continue to put pressure on both patients and the economy as a whole. A report published by the Milken Institute in 2018¹ showed that when lost economic productivity was included, the total costs of the varying types of chronic disease in the US was equivalent to almost one-fifth of the American economy.

2. Agility is Critical: Adapting to an Ever-Evolving Industry

As the healthcare patient and industry needs shift, device and drug manufacturers looking to fulfil those needs must adapt. Drug delivery devices must increasingly enhance convenience for patients – whether that means using pre-filled syringes in medical settings to save time or equipping

patients with wearables that deliver timed doses – partnering with suppliers that can move seamlessly between designing unique components and scaling up for production is critical to success.

An agile supplier can advise as to the best possible components, as well as to ensure that the design can accommodate those components without causing an issue in production or beyond. Most components can be adapted to suit by simply changing the mould and die setup, while most standard compounds have a wide range in processability which makes it possible to provide the requested design in a compound which is best compatible with the drug.

In general, standard portfolio products will apply to the largest part of the market and can add the most value in terms of cost. However, where a customer is convinced that patient care can be improved exponentially through the deployment of customised components, to have a supplier with the capabilities to develop and produce such components is a distinct advantage. In most cases, these customised projects concern components for a specific device. Once key benefits are defined, it is essential to partner with a supplier that can identify the ideal solution that also takes into account compatibility, functionality, producibility, and supply chain.

3. Customisation is often the catalyst for greater long-term value

In the value-based care model, positive outcomes are a high priority, but the patient experience is also a crucial element. Customisation plays a key role in the patient experience, especially as consumers call for greater personalised healthcare experiences.²

At times, custom components are added to a supplier's portfolio when they address a broad industry need, making them more cost effective through standard production activities. However, not all suppliers are capable of taking on such a feat, which is often influenced while working with drug delivery device manufacturers to help add value to patients in a number of areas.

Many medical devices, for example, are designed to enable patients to stay at home, to have fewer appointments and fewer visits to the hospital. This not only makes the experience a better one for the patient, but also reduces the amount of time clinicians spend with their patients – adding value on many levels.

One such device is the on-body injector, which enables a drug to be administered to a patient via the device from the comfort of their own home. The needle is protected and can be safely disposed of and doctors have the ability to monitor the data captured via the device in terms of how long it took, when the dose was administered, and a range of other statistics. Recognising the need for the similar size diameter cartridges for devices of this nature, some drug delivery component manufacturers were able to better address these needs.

Expert manufacturing partners are essential to the value-based care model

Customisation, agility to respond to changing market needs, and designing parenteral packaging components that are not over-engineered for the application are all important ways that suppliers can support the value-based care initiatives of drug manufacturers. Each of these approaches aim to enhance the overall experience of patients – often, without adding significant cost – to encourage adherence, improve accessibility, and drive more positive treatment outcomes.

REFERENCES

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