Supply Chain Risk Mitigation

Addressing the inherent risks in an increasingly fragmented supply chain

The proliferation of globalized, culturally diverse, suppliers of goods and services has created a perfect storm for securing the supply of high quality medicines. In her 2014 plenary address to the joint PDA/FDA Regulatory Conference, Dr. Janet Woodcock, FDA CDER Director, described the supply chain for medicinal products as "stressed, complex and fragmented."[1] This acknowledgment confirms FDA's understanding that 21st century pharmaceutical manufacturing now routinely entails a complex chain of outsourced suppliers across an increasingly fragmented product lifecycle.

This trend for outsourcing activities is often altruistically positioned as facilitating organizations to focus their key resources on the search for, and development of, new life-saving therapies, now described as core activities. However, is this adequate justification for license-holders to consider the processing, manufacturing and filling of dosage forms, testing, packaging, distribution, and perhaps even product release of their products as non-core activities? One might ask is patient safety or profit at the heart of these board room decisions?

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The foundation for my work is over 20 years experience in the pharmaceutical industry in a variety of engineering operations, facility design and start up and regulatory consultancy roles. I serve on ISPE's core team responsible for the Quality Metrics Pilot and co-lead ISPE's Quality Culture team. I also co-lead ISPE's PQLI Task Team on Knowledge Management and conduct operational excellence research in the pharmaceutical industry in conjunction with the St. Gallen University OPEX Benchmarking Team.

Each of these stressed, complex and fragmented interfaces present potential risks to product quality and therefore patient safety but they also present inherent risks to the business. As highlighted by Murray & Deshpande, patients want high quality medicines delivered on time, in the correct dosage, and at an affordable price and are "largely uninterested in the complexities of the pharmaceutical supply chain or the challenges involved in managing multiple suppliers."[2] However, if something does go wrong "the responsibility and consequences are inevitably borne by the pharmaceutical manufacturer listed on the product pack, even though the issue may have occurred somewhere in their supply chain."[3]

The traditional Good Manufacturing Practices (GMPs) did not adequately address the effective management of these potential supply chain risks, however the global regulatory landscape in this area is changing rapidly.

Navigating regulatory changes

In a concerted effort to secure the supply of high-quality, available medicines, a range of updated guidance and regulations have emerged from both the U.S. and the EU in recent years. Stemming from the 2011 EU Falsified Medicines Directive (FMD), which set out to address the "alarming increase of medicinal products detected …which are falsified in relation to their identity, history or source,"[4] the requirements for full product traceability throughout the supply chain, i.e. serialization, were established. This was followed in 2013 by EU guidance on Good Distribution Practice (GDP),[5] which expanded the expectations relating to the management of outsourced activities and the qualification of suppliers. In relatively quick succession, the following updates to the EU GMPs followed: Chapter 7 Outsourced Activities (January 2013), Chapter 5 Production, including a new section on the qualification of suppliers and outsourcing of testing (March 2015) and most recently Annex 16 Certification by a Qualified Person and Batch Release (April 2016), designed to prevent entry into the legal supply chain of falsified medicinal products and introduce the requirement to document the supply chain or use of supply chain diagrams.[6]

In parallel with these publications, the U.S. Drug Quality and Security Act (DQSA)[7] was enacted in November 2013 with Title II specifically addressing the Drug Supply Chain Security Act (DSCSA), the purpose of which is to enable verification of the legitimacy of the drug product identifier down to the package level; enhance detection and notification of illegitimate products in the drug supply chain; and facilitate more efficient recalls of drug products. This has led to the U.S. FDA's publication of a series of DSCSA implementation guidance and draft guidance documents, including the following: Draft Guidance—DSCSA Implementation: Annual Reporting by Prescription Drug Wholesale Distributors and Third Party Logistics Providers (December 2014),[8] Draft Guidance—DSCSA Standards for the Interoperable Exchange of Information for Tracing of Certain Human, Finished, Prescription Drugs: How to Exchange Product Tracing Information (November 2014),[9] Guidance for Industry—Drug Supply Chain Security Act Implementation: Identification of Suspect Product and Notification (December 2016),[10] and Draft Guidance—Annual Reporting by Prescription Drug Wholesale Distributors and Third-Party Logistics Providers: Questions and Answers (January 2017).[11]

However, including these new requirements in legal contracts or supply agreements or even auditing suppliers for compliance to these new requirements will not alone reduce the potential risks presented across the fragmented supply chain. What

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is needed, is a shift away from reliance on contractual supply agreements and regulations as the basis for doing business and a transition towards real investment in developing and nurturing supply partnership.

Building sustainable partnerships

A commitment to supply chain excellence requires that organizations make a determined effort to invest in understanding each boundary between internal and external parties within their supply chain in terms of the expectations for consistently delivering quality excellence. This necessitates ensuring that each boundary also incorporates systematic processes to enable bi-directional knowledge flow about the products and processes—over and above the transactional data, record or document management practices that are typically mandated in supply contracts. Davenport and Prusak cautioned almost twenty years ago that if you are "renting knowledge, make sure you take steps to retain it,"[12] yet fundamental knowledge management practices are still not common practice for many within the pharmaceutical industry, particularly across the external network. An effort to establish a baseline of current knowledge management (KM) practices within the biopharmaceutical industry is the subject of a recent publication, which also shares KM insights from fourteen industry case studies.[13]

From this author's perspective, the best opportunity to develop a shared understanding of what quality excellence entails between contract givers and contract receivers requires acknowledgement of the impact of organizational culture on delivering the outcomes that matter to the patient. In April 2017 ISPE launched its Cultural Excellence Report—Six Key Dimensions, the first comprehensive pharmaceutical industry report linking quality culture and organizational mindsets and attitudes to critical to quality behaviors and the delivery of desired results. The report seeks to define, emphasize, and support the demonstration of desired behaviors as a means to deliver enhanced quality outcomes and provides a range of practical tools to "facilitate a holistic assessment of those elements required to foster, develop, monitor, measure, learn, and ultimately improve an organization's quality culture."[14]

The ISPE report highlights that cultural excellence recognizes quality not as an operational burden or compliance requirement, but as a necessity that allows organizations to make decisions that best benefit their patients and includes a very useful tool in Appendix 4 for assessing the culture of supply chain partners. An excellent starting point for those interested in building sustainable partnerships by enabling a clear line of sight of the patient for all partners involved across complex supply chains. **CP**

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