

## INSIGHT

COMMENTARY BY MARTA WOSINSKA, FDA

## Solving Drug Shortages Requires Incentivizing Reliability, Infrastructure Quality



Marta Wosinska

In addition to the FDA's efforts to fix the drug shortage crisis, manufacturers must be incentivized to be proactive about sustaining quality operations, writes Dr. Marta Wosinska, Director of Economics Staff at the FDA's Center for Drug Evaluation and Research.

Buyers and their representatives can help by considering quality when making their purchasing decisions, she said. While companies have been alerting the FDA about production disruptions before a shortage occurs, sometimes the shortfall is too much for the company to fill the void in supply, she said.

Over the past few years, a number of critically needed medicines have gone into short supply, adversely affecting patient care and disrupting clinical trials. A production disruption preceded virtually every such shortage. These disruptions are more likely to turn into actual shortages in markets where production is highly concentrated among few manufacturing facilities, production cannot be easily shifted to other manufacturing lines, or tight production schedules limit firms' ability to quickly ramp up production. All these are critical reasons why sterile injectable products have featured so prominently among products affected by drug shortages.

Companies have increasingly been notifying the FDA before these production stoppages hit the market. These early notifications help buy valuable time between the production disruption and the depletion of existing inventories that ultimately triggers the shortage. The FDA has been able to use this time to coordinate a response with manufacturers and prevent a number of these shortages. Unfortunately, sometimes the shortfall is too large for companies to fill in the void in supply, even with advance warning.

So why are these production disruptions happening? The primary factors leading to disruptions, especially for sterile injectable products, are failures in manufacturing process dependability. Just like an older

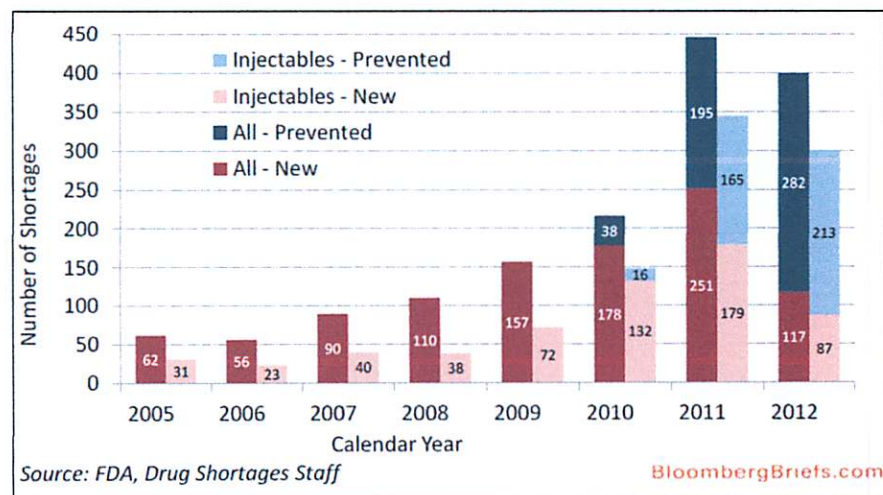
car, aging production lines and the facilities that house them require much more upkeep. For example, poorly maintained old equipment has led to introduction of steel and iron particulates into injectable products. But the processes that manufacturers have put in place to maintain quality have also been faulted. Failure to follow proper operator procedures on sterile lines, for instance, has allowed the growth of bacteria and fungus, and other manufacturing lapses have allowed the introduction of glass and metal particles. All these issues pose serious safety risks to patients.

A drug manufacturer is responsible for implementing highly controlled operations that ensure consistent drug quality. Management's daily decisions on issues involving equipment, materials, maintenance, staff qualifications, supervision, process control, and investigations ultimately determine the quality of the drugs that are shipped from a given facility. Putting systems in place that can sustain a consistent operation necessitates a commitment to quality through-

out an organization. But the realities of the marketplace continually test a firm's commitment to quality. Economic theory predicts that when buyers do not reward firms that excel in manufacturing quality, firms have an incentive to minimize investments in quality systems and manufacturing infrastructure. A reactive rather than proactive approach to manufacturing quality would then result: a firm might wait until problems are identified before taking action, instead of taking the proactive and vigilant approach to quality that is needed to sustain a robust operation.

In the long run, solving the drug shortage crisis is about economics that support firm investment in reliability and quality of manufacturing operations. The FDA is proactively engaging in efforts to further steer manufacturing quality into alignment with public health objectives. However, buyers and their representatives, such as group purchasing organizations, also have a significant opportunity to help to improve drug quality by exploring ways to integrate quality considerations into their purchasing decisions.

## Early Notification of Disruptions Helps Manage Drug Shortages



Early notification of manufacturing disruptions has given the FDA more time to coordinate a response with manufacturers, which in turn has led to more prevented shortages. The chart above shows a breakdown of shortages that occurred as well as those prevented by early notification.