

Using price to avoid vaccine shortages

February 10 2016, by David Ridley



No one worries about vaccine supply—until there's a shortage. New research from Duke University's Fuqua School of Business studied the market tensions that can keep manufacturers out of the business and the price points needed to entice them in.

"The government doesn't want to overpay," Professor David Ridley said,

"but there's a tension between responsible use of government funds and giving manufacturers sufficient incentive to get into [manufacturing](#)—and stay in."

Ridley found that over the last decade, every 10 percent increase in the price of vaccines was associated with a 1 percent lower probability of a shortage.

Ridley worked with Duke colleagues Xiaoshu Bei and Eli Liebman on the research, "No Shot: U.S. Vaccine Prices and Shortages," published in the February issue of the journal *Health Affairs*.

"Unfortunately, many people forego vaccines and jeopardize herd immunity, putting at risk the health of people with compromised immune systems," Ridley said. "That's the demand side. But what about supply? How do we encourage suppliers to be in the business?"

The danger is that some children only visit a doctor once per year, so if a [vaccine](#) is not available at their next checkup, they won't get that vaccine for another year. The risk of preventable infection spreading grows every time vaccines are not available at those appointments.

In 2004, an Institute of Medicine report warned of a fragile vaccine supply. They found shortages affected eight out of eleven [childhood vaccines](#), prompting 35 states to suspend school immunization requirements.

Ridley and his colleagues studied the supply and price of 22 vaccines between 2004 and 2013. They found 24 instances of a [vaccine shortage](#) in a calendar year during that spell. The shortages resulted not from an increase in demand, but a dwindling of supply.

The shortages peaked in 2007 with seven, including polio, mumps and

measles. The average shortage lasted 510 days. But the researchers found the situation has improved since then. Specifically, they found no shortages since 2004 for vaccines priced above \$75 per dose.

But Ridley said improving supply is not as simple as the government announcing it would pay \$75 for any vaccine, since some are far cheaper than that.

"It's not a magical number," Ridley said, "but it's a useful framework."

Today's price affects tomorrow's supply. Manufacturers have to make investment decisions based on current prices.

The Food and Drug Administration (FDA) requires that manufacturers maintain current [good manufacturing practices](#). If FDA requires a manufacturer to update its facility, the manufacturer might simply exit, Ridley said, especially if profitability is already low.

"You'll be reluctant to invest in expensive new technology if you're not going to make any money," he said.

Furthermore, other manufacturers might not enter to take their place.

"It's expensive to get into manufacturing, so if someone exits it's hard for someone to step in and take their place," Ridley said. "If you're not making money anyway, you're not going to have excess capacity sitting around."

The government has been willing to pay higher prices for new vaccines, like the [pneumococcal conjugate vaccine](#). The problem is that older vaccines fetch lower prices, and manufacturers are often unwilling to invest in manufacturing capacity or improvements as a result.

"I think the public has a sense that higher prices encourage investment in research," said Ridley. "I think what's overlooked is that higher prices also encourage manufacturers to invest in capacity and quality. Without those investments, shortages become more likely."

Provided by Duke University

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