

Advance Market Commitments for Vaccines

Background

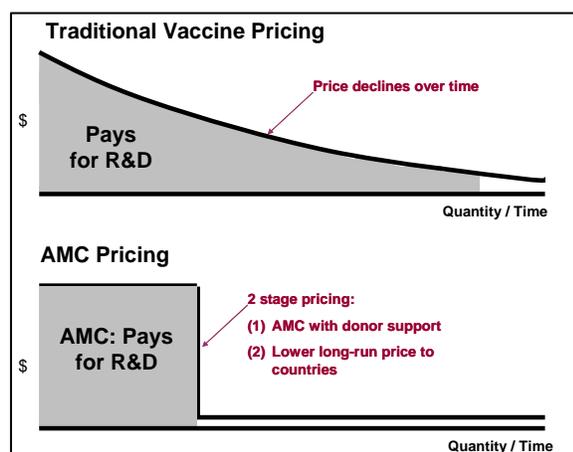
Production of knowledge-based products, such as vaccines, is characterized by high fixed costs because the product development phase can be lengthy and costly and involves a high risk of failure. Once developed, however, these products tend to be relatively easy to replicate, and production costs can fall quickly, causing prices in a competitive market to fall as well. These characteristics create both a problem and an opportunity in addressing the challenges of international health.

The problem facing health organizations is that high up-front costs mean that vaccines are not developed with the poorest people on the planet in mind. Millions of people – mostly children – die each year in poor countries from infectious diseases. Vaccines are generally not developed for children or do not reach them effectively because the potential revenue stream is too small and unpredictable to be a viable business proposition. On the other hand, the opportunity to change these economics lies in the long-term low marginal cost of production. An adequate supply of new vaccines could persist at low, unsubsidized prices if the development costs could be financed. The advance market commitment (AMC) is a mechanism to solve the problem and take advantage of the opportunity.

This snapshot describes the purpose, infrastructure and mechanism of an AMC for vaccines.

How does an AMC work?

At the core of an AMC is the concept of two-stage pricing, illustrated in the figure to the right. In a traditional market, the price of a vaccine declines gradually as it turns into a commodity. The shaded area is total revenue for the vaccine, which finances development, manufacturing, distribution costs, and profits. Two-stage AMC pricing finances development costs through an up-front subsidy from donors for a negotiated period. As a quid pro quo for the AMC, the supplier agrees to continue selling (or licensing) the vaccine at a lower price following the AMC period. Eventually competition in the market keeps the price low.



The AMC thus has two key elements. The first is that donors make a commitment to finance, at a high negotiated price, a specific quantity of the vaccine for a period of time to defray development costs. The second is that manufacturers agree to continue producing the vaccine at a lower price after the AMC is depleted. A third less obvious element is that technical specifications, or the Target Product Profile, must be explicitly agreed in advance. A technical committee must decide that the vaccine being offered

by manufacturers meets those specifications. A legal framework agreement determines the total value of the AMC, the length of time over which it will be paid, the price and technical requirements for the target vaccine, and donors' financial commitment.

The AMC is not a purchase agreement. A manufacturer can tap into the AMC only when the vaccine is purchased by eligible low-income countries. Developing country governments can purchase as much or as little vaccine as they choose, but will pay only a small fraction of the AMC price. The difference is paid by donors' commitments during the first pricing stage. In effect, an AMC seeks to mimic a regular pharmaceutical product market by promising companies a price that would include an adequate return on their investment to develop the vaccine, bring it to production, and sell it. If no vaccine is sold, however, the manufacturer's investment is lost.

Multiple suppliers could sign an AMC for any single vaccine to encourage innovation and competition among suppliers. Suppliers thus face normal competitive risks in the market, but they have an incentive to enter it because they can recover the development costs if they succeed – just as they do for products targeted to markets in wealthy countries. An AMC is, in short, “pull funding” to attract suppliers.

What are strengths and weaknesses of the AMC mechanism?

Tremendous intellectual and organizational effort has gone into developing the AMC. It addresses the presumed causes of inadequate innovation in vaccines for developing country markets and it does this in a way that maintains incentives for performance by suppliers and encourages competition.

Many alternatives to AMCs also exist, including public funding of research and development (R&D), purchase guarantees, prizes for new vaccines, purchase funds for new vaccines, and patent buyouts. In essence, the AMC is a hybrid of some of these other options, and its use does not preclude experimentation with other options. Continued or expanded public or charitable funding of R&D (“push funding”) for poor-country diseases is an essential complement to an AMC.

Present status and expected future directions

The first pilot AMC was launched in February 2007 for vaccines against two strains of the *Streptococcus pneumoniae* bacterium that cause 80 percent of global pediatric cases of pneumonia, middle ear infections, meningitis, and sepsis. These are late-stage vaccines that are expected to be licensed by 2010. The \$1.5 billion AMC would finance incremental costs associated with global efficacy research and scaling up for poorer countries, with an estimated price per dose of \$5–7. Payments would begin in 2010, would continue for seven to 10 years, and would support two to four manufacturers. The AMC is financed primarily by Italy, the United Kingdom, and Canada, with contributions by Norway, Russia, and the Bill & Melinda Gates Foundation. The World Health Organization (WHO) has established a Target Product Profile and will assess the viability of the pilot AMC vaccine. An Independent Assessment Committee has been established to decide if candidate vaccines meet the Profile and are eligible for funding. The WHO approved the Target Product Profile on December 17, 2007, and the IAC is expected to approve it in March 2008.

A second AMC has been recommended for a malaria vaccine, which would be an early-stage vaccine. There are 89 candidate malaria vaccines – only one of which is late stage – with an estimated earliest delivery date of 2016. The size of an AMC large enough to support two to three manufacturers is estimated at \$4.5–\$5.0 billion, but the amount is uncertain and depends on how long the time lag is between new products. Success with malaria vaccines will also require additional push financing for R&D.