

Assessing the Market Opportunity for Preventive HIV Vaccines in India

Annual sales revenue could peak at US\$ 415 - 911 million [Rs 1,831 - 4,017 crore] for a first-generation HIV vaccine of medium or high efficacy less than ten years after launch.

The importance of HIV vaccine forecasting

- Elucidating the potential market magnitude might help multinational R&D organisations determine whether they include trial participants from a country like India, or in the future, might assist with investment decision making to determine manufacturing scale. In addition, it may allow local developers and producers to appreciate the potential opportunities that might exist, if a vaccine was developed and supplied to the Indian market.
- The sheer magnitude of India's population means that gaining a good understanding of the market demand and revenue potential in this market alone is an important consideration for biopharmaceutical and investment analysts in the context of the wider global picture.

Modelling demand for an HIV vaccine in India

- Consultations with key policymakers and other stakeholders to assess the preferences and perceptions that could affect the adoption, implementation, uptake and demand for future HIV vaccines suggested the following:
 - If an HIV vaccine can protect against all strains of HIV, it would likely be adopted in India 2-3 years after initial licensure in US and Europe;
 - HIV vaccines with an efficacy of at least 50% are likely to be adopted by the Government of India (GOI) and implemented in a vaccination programme targeting groups at higher risk of exposure to HIV. HIV vaccines with an efficacy of 70% may be needed for GOI-sponsored use in populations at lower risk of exposure;
 - Policymakers would like to see a vaccine with at least 3-years duration of protection for use in GOI-sponsored programmes; and
 - HIV vaccines with an efficacy of less than 50%, but at least 30%, are likely to be made available but only via the private market.
- On the basis of these findings and along with data from other published sources, a mathematical model was developed to generate demand forecasts and to conduct scenario analyses to explore the effects of different vaccine profile and pricing conditions on demand.
- Cumulative demand over 30 years is estimated at 221 million and 788 million courses for vaccines of medium and higher efficacy (50% and 70%, respectively).

Figure 1. Total annual demand forecasts for India

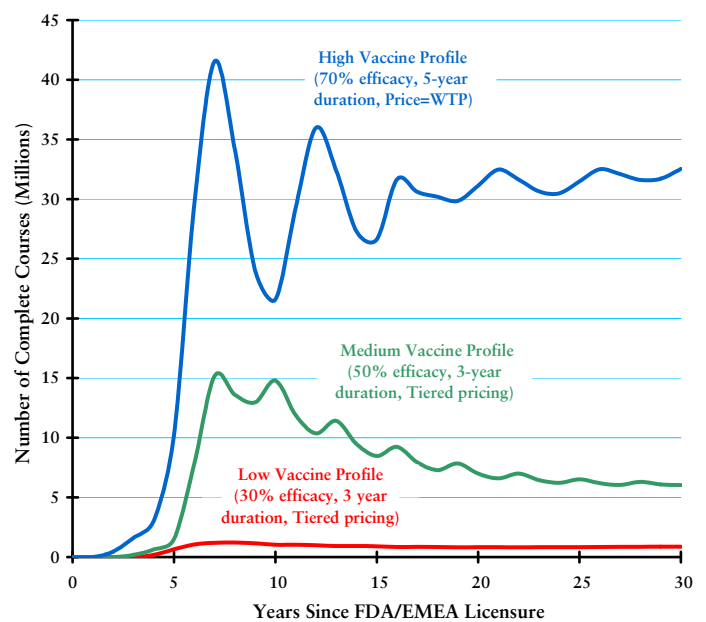


Table 1. Relative contribution to cumulative demand of private versus public initiatives

Market / Programme	Vaccine Profile Scenarios Demand in millions of courses		
	Low	Medium	High
Private	24.0	24.4	49.8
Public	High Risk	196.6	162.9
	Low Risk	-	575.6

Forecasting demand and revenue for India

- For vaccines of medium and higher efficacy (50% and 70% respectively), peak demand in India from public and private markets is projected to range between 15.2 million and 41.5 million persons fully vaccinated per year, depending on the vaccine's profile (i.e. level of efficacy, duration of protection, and price per dose).
- Assuming tiered pricing between public and private markets (US\$ 10 - 50 per dose for a two-dose vaccine), medium or higher efficacy vaccines could achieve undiscounted annual sales revenues that peak at US\$ 415 - 911 million [Rs 1,831 - 4,017 crore] less than ten years after launch (Figure 2).
- These results imply that under certain market conditions, an HIV vaccine could account for up to 1.1% - 2.4% of total Indian biopharmaceutical market sales. To put these figures into context, India's biopharmaceuticals market was valued at US\$ 8.8 billion in 2005 and is expected to grow at around 9% per annum and reach US\$ 38.1 billion in 2022, the year of peak sales revenues.
- Even levels of demand for a low efficacy vaccine (30%) translate into significant revenues, with average annual sales projected to be around US\$ 58 million [Rs. 255 crore]. Cumulative demand under these circumstances is estimated at 24 million courses (Table 1), but demand is derived entirely from the private market.
- During the first 10 years following product launch, in which a company may have market exclusivity or patent protection in India, undiscounted average annual sales revenues range between US\$ 54 million and US\$ 322 million [Rs. 239 - 1,423 crore] highlighting the importance and value of being the first entrant to capture the value of the private market.
- Table 2 describes the relative contribution of private and public initiatives to national sales revenue. This breakdown underscores the fact that even low efficacy vaccines can still generate significant revenue.
- The development of an HIV vaccine is likely to take several more years of concerted efforts; however, these analyses illustrate the potential opportunities that the Indian market could offer.

Figure 2. Revenue forecasts by vaccine profile scenario

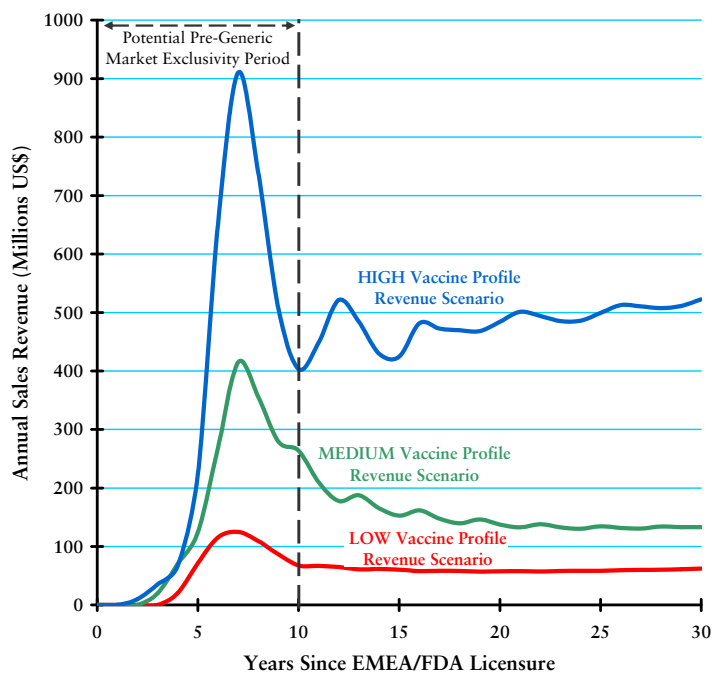


Table 1. Relative contribution to cumulative demand of private versus public initiatives

MARKET / Programme		Vaccine Profile Scenario % of total cumulative revenues		
		Low	Medium	High
PRIVATE		100%	38%	6%
PUBLIC	High Risk	-	62%	19%
	Low Risk	-	-	75%
Total Cumulative Revenue (US\$ m)		\$1,800m	\$4,800m	\$13,000m
Average Annual Value of Private Market (US\$ m)		\$58m	\$59m	\$25m

Full citations for this study can be found in the new IAVI Policy Research Working Paper, *Forecasting Demand for Preventive HIV Vaccines in India*. This and other IAVI policy research publications are accessible online at www.iavi.org.

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