

# Stimulating R&D on Vaccines for AIDS, Tuberculosis, and Malaria: The Role of Tax Credits for Sales of Vaccines to Non-Profit Organizations

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The Vaccines for the New Millennium Act (HR 3812; SR 2132) includes both enhanced R&D tax credits and a tax credit for sales of vaccines to non-profits and international organizations. The combination is likely to be effective. The enhanced R & D tax credit will provide an immediate benefit for firms doing research in the area. The tax credits for sales will provide incentives for firms to follow through by designing appropriate vaccines for the regions where the diseases are most deadly and will help increase accessibility of any vaccines developed.

There are several reasons why tax credits for sales of vaccines are an essential element of any package to promote vaccine R&D:

## 1. Tax credits for sales to non-profits are necessary to create incentives for the development of vaccines appropriate for the regions where the diseases are most deadly.

- **AIDS.** 70% of new infections of HIV-AIDS occur in Africa, where clade C is most common. However, commercial development is focused on clade B, which is common in the U.S. It is unclear whether a vaccine incorporating only antigens from clade B would be effective against clade C. An R&D tax credit could get the ball rolling on general AIDS vaccine research, but with only an enhanced R&D tax credit, firms might have incentives to create a vaccine appropriate for only the commercial market. A tax credit for sales to non-profits serving developing countries is essential to create incentives to develop a vaccine that also includes antigens for the clades common in Africa and Asia.
- **Malaria.** A vaccine for the commercially important markets of travelers and military personnel would likely focus on the sporozoite stage of malaria, but a vaccine focusing only on sporozoites might not be useful for long-term residents of malarious regions. It could potentially even be counter-productive, weakening the limited natural immunity built by those long-term residents who survive childhood. With an R&D tax credit alone, firms might focus their research only on sporozoite-based travelers' vaccines. A tax credit for sales to non-profit organizations serving developing countries will create incentives to design a malaria vaccine that also includes antigens from other stages of malaria's life cycle, and thus is suitable for long-term residents of malarious regions. In addition, a tax credit for sales to non-profits will strengthen incentives to develop a vaccine against the deadly falciparum strain, which is prevalent in Africa and causes more than 90% of malaria fatalities, as well as the vivax strain of malaria, which is prevalent in the more commercially attractive markets of middle-income Latin America and Southeast Asia.
- **Tuberculosis.** The importance of targeting vaccines to local conditions is illustrated by the existing BCG tuberculosis vaccine, which offers temporary protection against

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childhood tuberculosis. Trials of the vaccine in the United Kingdom suggest that the vaccine provides close to 80% protection. However, trials in southern India show close to zero protection. A tax credit for sales of vaccines to non-profits serving developing countries would create incentives for the development of vaccines appropriate for the countries where most tuberculosis deaths occur.

**2. Tax credits for sales to non-profits will improve access to any vaccines developed.**

As the dispute over pricing of AIDS drugs in Africa has highlighted, providing access to pharmaceutical products at an affordable price is critical. A tax credit for sales of vaccines to non-profits will both provide an incentive for the development of vaccines and help ensure they are made available at reasonable prices. Standard tax incidence analysis suggests that a tax cut (on vaccines, in this case) will partly flow to the seller and partly to the buyers (in the form of lower prices). By raising the return to the seller, the credit increases the incentive to develop appropriate vaccines. By lowering the price, the credit helps ensure the vaccine is affordable for non-profit organizations to distribute in poor countries. Since non-profit institutions would know that every dollar they spent would be matched by a dollar of tax credits, they would be in a better bargaining position and would be able to negotiate lower vaccine prices. Thus access is achieved without imposing price controls or eroding intellectual property rights and thus potentially undermining research incentives.

**3. Tax credits for sales are essential to creating incentives for small biotechnology firms, as well as large pharmaceuticals.**

Most biotechnology firms have no current profits or tax liability and thus would not benefit from an enhanced R&D tax credit, unless they were able to pass their tax credits through to their investors, which would be cumbersome. Tax credits for sales of vaccines, on the other hand, would help biotech firms. Most biotechs license their inventions to larger firms. A tax credit on sales would increase the interest of these larger firms in producing vaccines, and thus raise the price biotech firms receive for licensing their inventions. Large biotech firms which manufacture their own vaccines would benefit by offsetting tax liabilities on commercial vaccine sales and sales of other products with tax credits from vaccine sales to non-profit organizations.

**4. Tax credits for sales encourage matching contributions from outside the U.S. government.**

Each dollar of tax credit would be triggered only when a non-profit institution or international organization, such as UNICEF, spends a dollar on purchasing vaccine. The tax credit for sales thus catalyzes additional funds, helping it go farther than a non-matching program.

**5. Tax credits for sales do not require difficult decisions about how to allocate R&D expenses between qualifying diseases and other conditions.**

Expenses in vaccine research may be common to a number of research projects, not all of which would qualify for the extended R&D tax credit. For example, modern vaccines typically include both antigens specific to a particular organism and adjuvants that potentially boost the effectiveness of several different vaccines. It is not clear how research expenses on adjuvants would be split. To take another example, biofermentation facilities can be used in several different projects. A tax credit for sales of malaria, tuberculosis, and HIV vaccines avoids problems in allocating these costs.

**6. Tax credits for vaccine sales cost nothing unless an effective vaccine is developed and delivered.**

With a tax credit for sales of new vaccines, either vaccines will be developed against some of the world's deadliest diseases, or the tax credit will not be activated.

A tax credit for sales is an essential component of any viable proposal to encourage vaccine development. The combination of an enhanced R&D credit and tax credit for sales will create appropriate incentives. Because an enhanced R&D tax credit will immediately improve after-tax earnings for firms with existing tax liabilities, it can grab the attention of these companies, signal policy makers' concern about these issues, and reduce the risks firms face in taking on the difficult scientific challenges posed by vaccine development. A tax credit for sales will propel the initiative to its ultimate goal—the development and delivery of vaccines against diseases that kill 5 million people each year.