



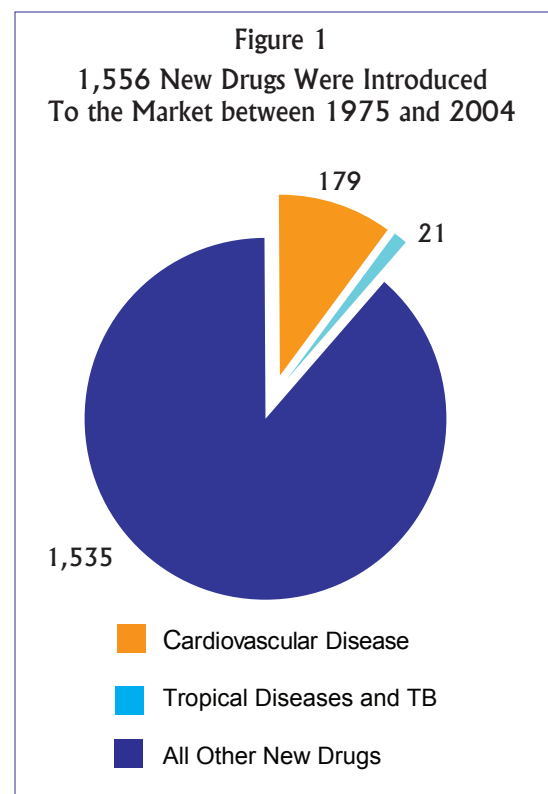
## Investing in Global Health Research: Government Should Play a Larger Role

Between 1975 and 2004, 1,556 new drugs came to market.<sup>1</sup> There was a steady increase in the number of drugs launched to address problems associated with aging – even baldness. And at about 50 new drugs a year, this pace would suggest that we have witnessed unprecedented improvements in health and medicine. Indeed, many of us have enjoyed the benefits of this revolution. However, these pharmaceutical advances were not evenly distributed across all categories. For example, during this period, 179 new drugs for cardiovascular disease entered the market.<sup>2</sup> However, for tropical diseases and tuberculosis – conditions that affect the same number of people worldwide as cardiovascular disease – only 21 new drugs were developed during the same time period (Figure 1).<sup>3</sup>

### The Research Gap

The treatments that come out of the drug development pipeline do not always reflect medical needs. Drug companies decide where to invest, to a great extent, based on a drug's potential to generate sales and profits. Therefore, the pharmaceutical and biotechnology industries have focused on the diseases of the wealthier, developed world – where drugs are more likely to generate profits – while largely ignoring diseases that primarily affect developing nations.

A staggering \$100 billion a year is spent on health research and development (R&D). Only 10 percent of that is spent on diseases that primarily affect the developing world – diseases that represent 90 percent of the world's disease burden.<sup>4</sup> This disparity is often referred to as the "10/90 gap." And as long as drug development is driven predominantly by market forces, this disparity will continue, meaning that millions of people will remain without treatment. The 10/90 gap is the result of both the failure of the private market and the failure of governments to recognize the shortcomings of the private market and respond to the medical needs of countries around the world.



## Failure of the Private Market

Tuberculosis, malaria, chagas disease, and leishmaniasis are examples of diseases that are far-removed from our everyday lives—or even unheard of in developed countries. Yet in the developing world, such diseases are an everyday reality for no fewer than 1 billion people. Combined, tropical diseases and tuberculosis affect one in six people worldwide.<sup>5</sup> Their victims live in the poorest parts of the world, where people lack the kind of buying power that would motivate private companies to develop new drugs.

In the U.S., the process of drug development involves several stages. It typically begins with basic research, which is often conducted at universities or research institutes. Basic research is largely funded by taxpayer dollars through government agencies such as the National Institutes of Health (NIH), and it is the knowledge base from which future products are derived. Basic research findings are then purchased by or licensed to pharmaceutical and biotechnology companies.

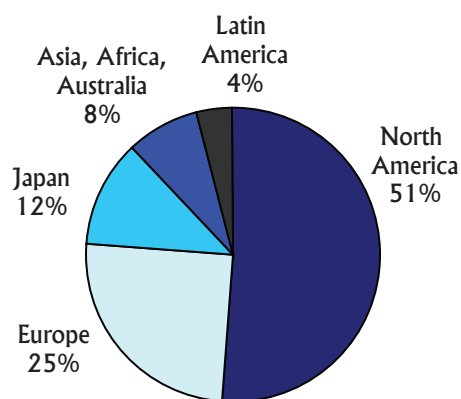
In the second stage, private industry pursues and develops the research that shows the most promise. A large part of how that promise is measured is the potential product market and value of future sales. It is in this second stage that potential products with no likely market—products that are designed to treat diseases of the poor—are dropped from the pipeline because private companies are not interested in pursuing their development.

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In 2002, 88 percent of the global pharmaceutical market was concentrated in North America (51 percent), Europe (25 percent), and Japan (12 percent), although these countries represented only 20 percent of the world's population (Figure 2).<sup>6</sup> Investment in new products has followed the larger, more attractive sales potential in wealthier countries such as our own. The result: A critical underinvestment in medicines for the diseases of poor nations.

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**Figure 2**  
Wealthy Nations Offer the Largest Market For Pharmaceutical Sales



## When the Private Market Falls Short, Governments Must Step In

When markets fail to meet the public's needs for vital goods and services, government must step in to fill the gap. One example of this is our health care system: Medicaid was created to meet the health care needs of low-income communities where the private market alone did not provide an adequate response. Similarly, we consider education to be an

essential service. Therefore, the government has stepped in and provided a public system to guarantee access to basic levels of education, which would otherwise not be accessible to everyone if left to the private market.

In the case of global health, greater government investment is needed for HIV/AIDS, TB, and malaria – both for basic research and to move more promising discoveries through the development process. Unfortunately, the governments of the affected countries do not have the capacity or the necessary infrastructure to do this. However, there are compelling humanitarian, economic, and political reasons for governments of developed countries such as the United States to fill this gap. Agencies and institutions already in place in the United States have significant potential to respond to needs that have not been adequately addressed by the private sector.

### The Need Is Great

- **HIV/AIDS:** 40 million people are living with HIV/AIDS, and 4 million more become infected every year. 15 million children have been orphaned by AIDS.<sup>7</sup> There is still no HIV vaccine.
- **Tuberculosis (TB):** 2 million people die of TB every year. TB outbreaks are reemerging around the world. The vaccine against TB is outdated and ineffective, and the diagnostic tools are inaccurate. Current treatments are failing due to drug resistance.<sup>8</sup>
- **Malaria:** Malaria is the number one killer of children under age five in Africa. Climate change around the world will contribute to the reintroduction of malaria and other insect-borne diseases.<sup>9</sup> The most-widely used treatments for malaria are less effective due to drug resistance.
- **Neglected Tropical Diseases:** The diseases known as “neglected tropical diseases” receive significantly less attention than AIDS, TB, and malaria, even though they affect one in six people worldwide.<sup>10</sup> Private sector investment in new drugs to treat these diseases is minimal, and there are very few new drugs in the private sector R&D pipeline.

### The Research Infrastructure Is in Place

As the home of the National Institutes of Health, the Centers for Disease Control and Prevention (CDC), and the United States Agency for International Development (USAID), the U.S. is uniquely positioned to make an impact on the health of millions of individuals worldwide through the research it performs.

- NIH is the world’s premier public research institution, responsible for many of the notable medical discoveries of the past century. Research supported by NIH has led to the development of drugs to treat cancer, AIDS, TB, hypertension, and depression,

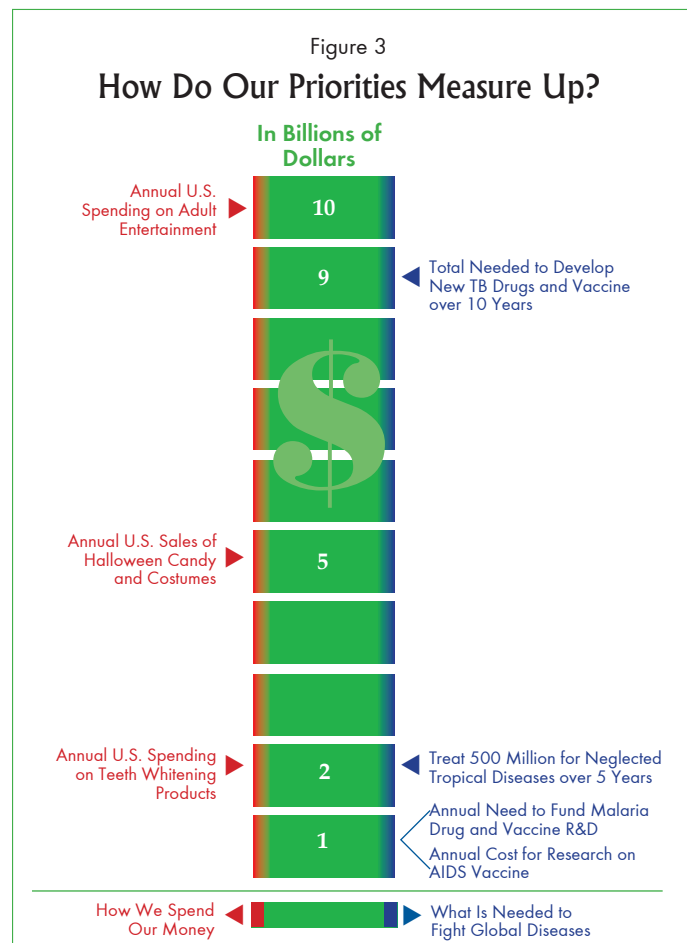
to name just a few. Research on antiretroviral therapy has ensured that today, the spread of HIV in the body can be slowed. Vaccines for rubella, whooping cough, and pneumococcal pneumonia are quickly eradicating these diseases in most parts of the world.

- The Centers for Disease Control and Prevention supports global health through detection, surveillance, and control activities.
- The United States Agency for International Development assists foreign governments in assessing health conditions, as well as adapting and implementing medical technologies through local health systems.

Federal funding for medical research has slowed, in spite of the fact that such research holds enormous potential for discoveries that will improve health both here and abroad. In recent years, funding has not kept pace with general inflation, and it has lagged far behind the rate of inflation for biomedical research.<sup>11</sup> In effect, then, funding has declined. This decline threatens to cripple the ability of NIH and the CDC to improve medicines for Americans, respond to emerging threats such as avian flu, and improve countless lives around the globe with new treatments.

There are myriad opportunities for the United States to influence the direction the world’s health will take. The most immediate opportunity, and perhaps the most efficient way to have an impact, is to invest directly in drug research and development. The infrastructure and facilities are already in place. Given the potential that medical advances such as vaccines and new treatments have to save lives, as well as to transform economies and societies, the payoff is incalculable.

Improving the world’s health significantly requires a relatively modest investment. The payoff from research is obvious – it is reflected in every infection that is prevented, every life that is made longer and healthier, and every child that lives to develop his or her potential.



## Endnotes

- <sup>1</sup> Pierre Chirac and Els Torreale, "Global Framework on Essential Health R&D," *The Lancet*, vol. 367 (May 2006): 1,560-1,561
- <sup>2</sup> Ibid.
- <sup>3</sup> Ibid.
- <sup>4</sup> Global Forum for Health Research, *Monitoring Financial Flows for Health Research 2006* (Geneva: Global Forum for Health Research, 2006).
- <sup>5</sup> World Health Organization (WHO), *Neglected Tropical Diseases: Hidden Successes, Emerging Opportunities* (Geneva: WHO, 2006).
- <sup>6</sup> H.P.S. Chawla, Nalin Dewan, and Keertiman Joshi, "Emerging Trends in World Pharmaceutical Market - A Review," Business Briefing: Pharmatech (London: Touch Briefings, 2004).
- <sup>7</sup> Joint United Nations Programme on HIV/AIDS (UNAIDS), *2006 Report on the Global AIDS Epidemic* (Geneva: World Health Organization, 2006).
- <sup>8</sup> World Health Organization (WHO), *Factsheet No. 104: Tuberculosis* (Geneva: WHO, 2002).
- <sup>9</sup> United Nations Framework Convention on Climate Change (UNFCCC), *United Nations Fact Sheet on Climate Change* (Bonn: UNFCCC, 2006).
- <sup>10</sup> World Health Organization (WHO), op. cit.
- <sup>11</sup> Research!America, *2005 Health Research* (Alexandria, VA: Research!America, 2006).

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