

The Accelerated Rollout of Pneumococcal Conjugate Vaccine: Its Impact on Health and Global Equity

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INTRODUCTION

Historically, it takes approximately 15 years for new, life-saving vaccines to reach low income countries where they are often needed the most. Recently, new financing mechanisms such as the GAVI Alliance and the Advanced Market Commitment (AMC) for pneumococcal conjugate vaccines (PCV) have helped low-income countries overcome financial barriers to the uptake of new vaccines. In this project, we compare the rate of introduction and distribution of Hib vaccine and PCV to demonstrate the potential health impact of accelerated PCV introduction and lessons for the rollout of future vaccines.

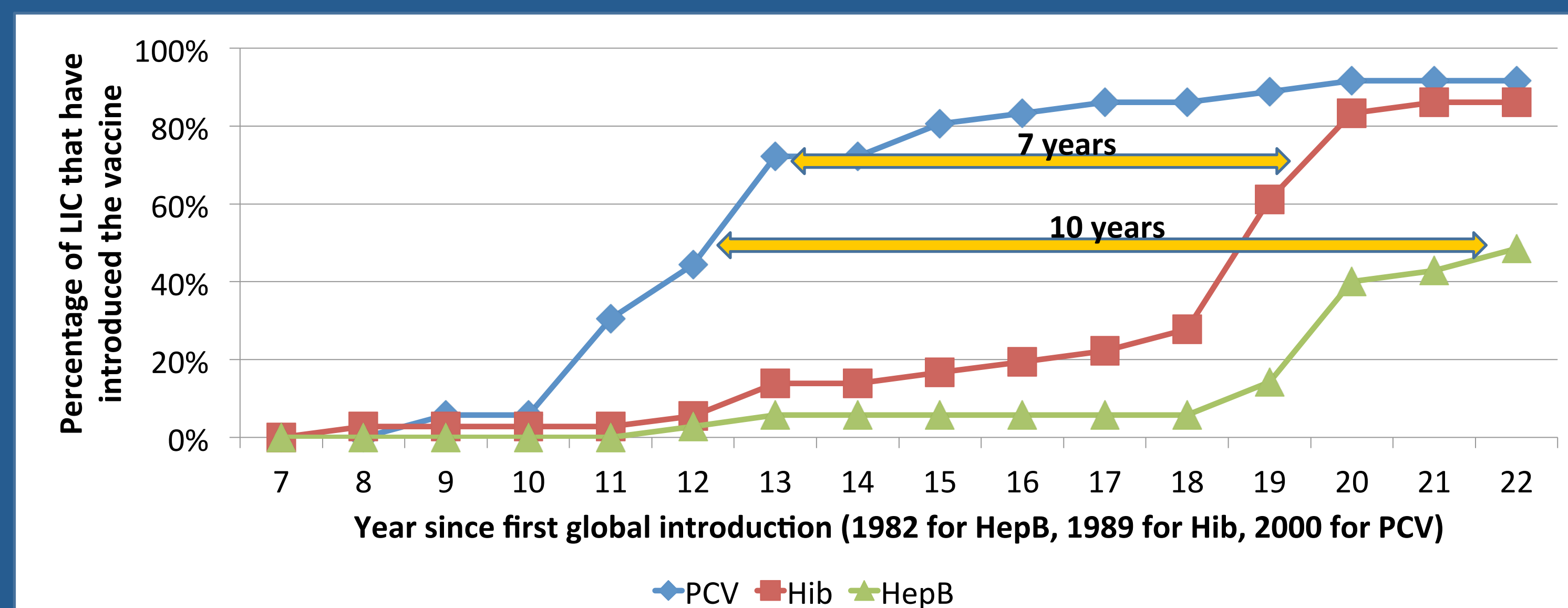
METHODS

- Data on country demographics, disease burden, vaccine introduction status, projected introduction dates, and infants with access were gathered from the **Vaccine Information Management System (VIMS)**, a database maintained by IVAC at Johns Hopkins University.¹ To learn more about VIMS visit <http://www.jhsph.edu/ivac/vims.html>
- **PCV acceleration** was measured as the difference in infants with access to Hib vaccine over the first 20 years of use and infants with access to PCV over the first 20 years its use (projected after 2011).
- **Mortality impact** from PCV acceleration was estimated using the number of deaths averted per 1,000 infants fully vaccinated modeled by the Lives Saved Tool (LiST)² and applied to the number of additional children with access compared to Hib vaccine rollout.

RESULTS

Accelerated Introduction of PCV

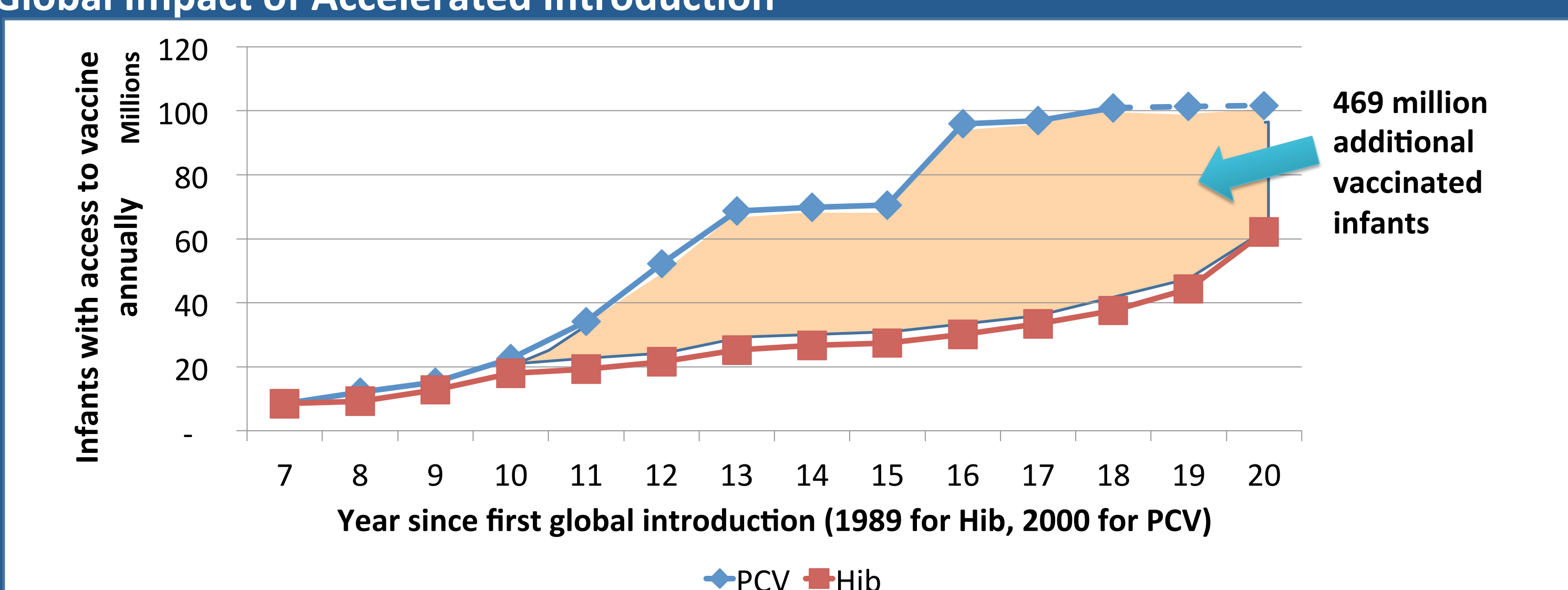
FIGURE 1
The Acceleration of New Vaccine Introduction in Low-Income Countries



As seen in Figure 1, the accelerated rollout allowed PCV to reach 50% of low-income countries 10 years faster than the Hepatitis B vaccine and be introduced in 70% of low-income countries seven years faster than Hib vaccine.

Impact of Acceleration

FIGURE 2
Global Impact of Accelerated Introduction



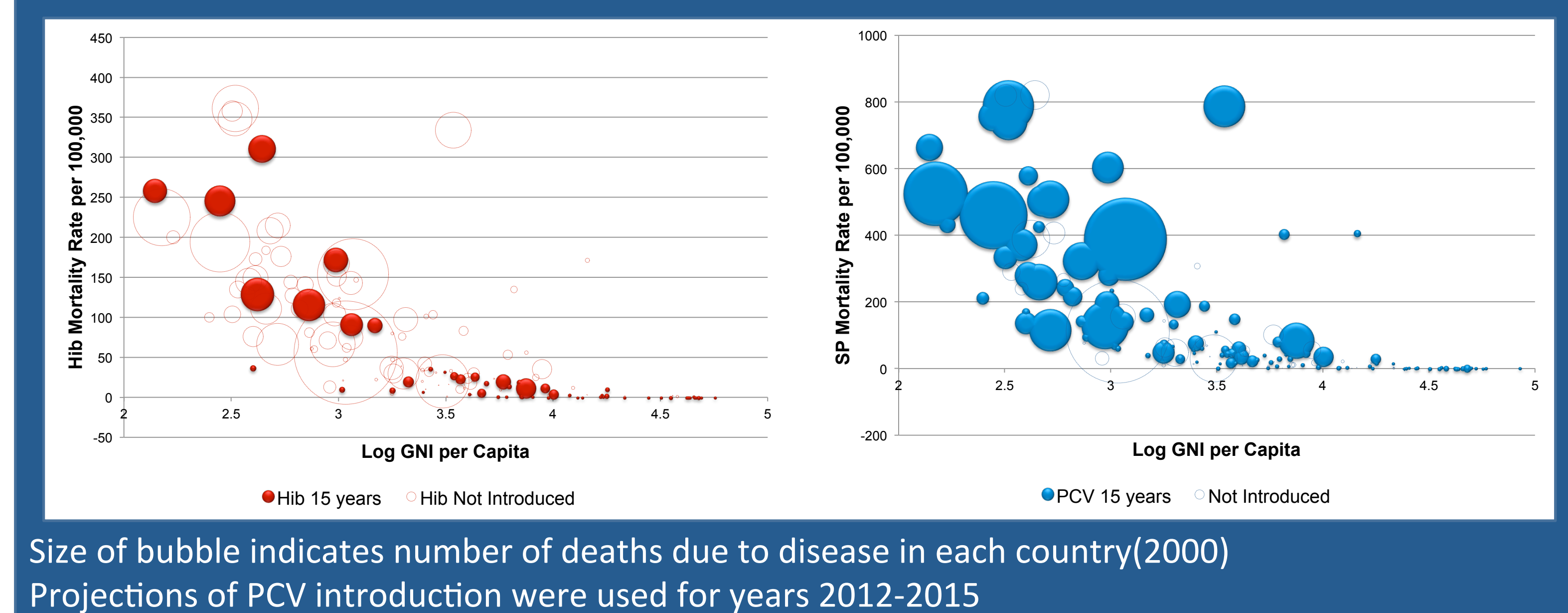
By accelerating introduction to PCV over the historical trend of Hib vaccine introduction, 469 million more infants may be vaccinated.

In the first 20 years of use, 887 million infants are projected to gain access to PCV. In contrast, only 418 million infants had access to Hib vaccine during its first 20 years. The difference is shown in Figure 2. Vaccinating 469 million more infants against pneumococcal disease has the potential to **avert 2 million child deaths** over the next decade.²

Equity of Acceleration

Figure 3 compares the relationship among vaccine introduction status, GNI, mortality risk and crude number of deaths due to Hib (red) and SP (blue) for all countries. Bubbles that are filled in represent countries that introduced the vaccine less than 16 years after it became available. Countries with lower GNI per capita and higher disease burden introduced PCV sooner than Hib vaccine, reducing global disease faster.

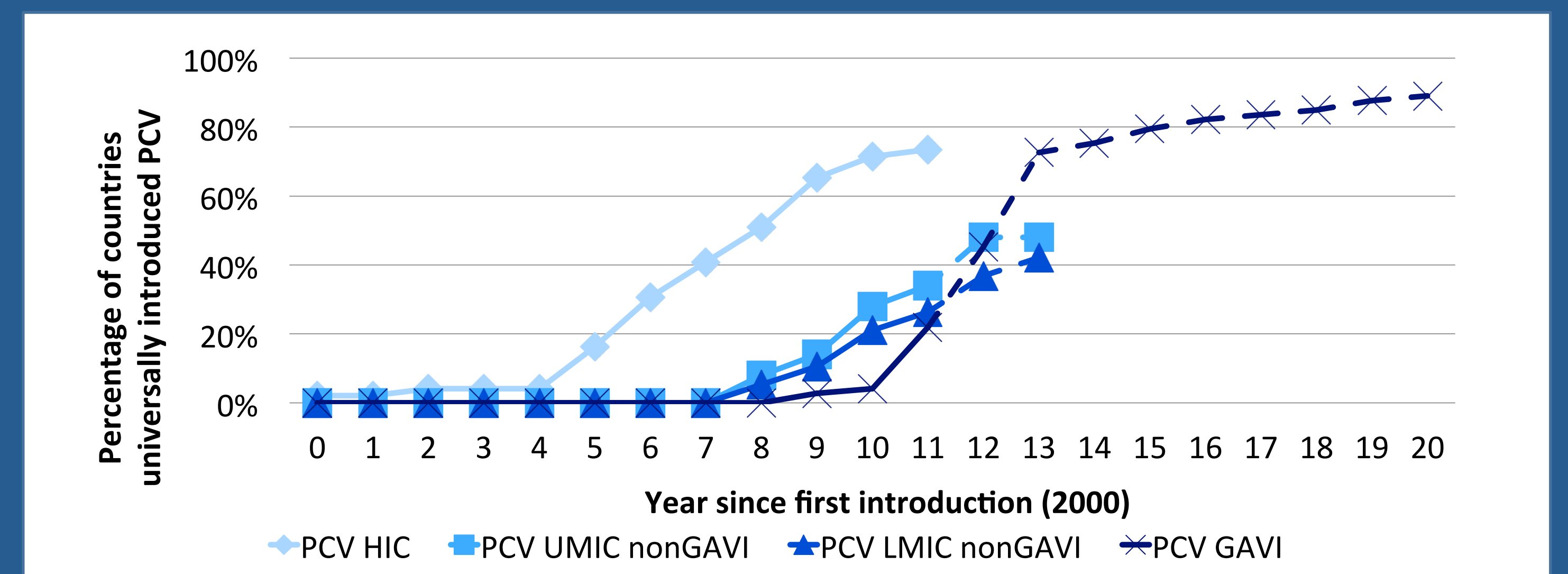
FIGURE 3
Accelerating Access to the Most Vulnerable



Size of bubble indicates number of deaths due to disease in each country(2000)
Projections of PCV introduction were used for years 2012-2015

Figure 4 shows the rate of PCV introduction by income group. It projects GAVI countries, generally with the highest disease burden, soon surpassing middle-income countries in level of introduction.

FIGURE 4
Rate of PCV Introduction: Middle income countries are being left behind



Note: Limited projections are available for PCV introduction in HIC, and non-GAVI UMIC, LMIC

CONCLUSION

- The use of financing mechanisms have helped to bring life-saving **pneumococcal conjugate vaccine** to countries with the highest burden of disease **faster than historical precedents**.
- As compared with Hib, the acceleration of **PCV introduction** in low- & middle- income countries is projected to **save over 2 million additional lives** by vaccinating an additional 469 million children.
- **Financing or distribution methods** that provide the most vulnerable populations, wherever they live, with vaccines first would greatly **increase global equity** and have a much faster impact on global disease reduction.

REFERENCES

- ¹ IVAC, Johns Hopkins Bloomberg School of Public Health. Vaccine Information Management System (VIMS) <http://www.jhsph.edu/ivac/vims.html>. Accessed February, 2012.
- ² Lives Saved Tool (LiST), Johns Hopkins Bloomberg School of Public Health. October, 2011. Available at: <http://www.jhsph.edu/dept/ih/IIP/list/index.html>