SAVING LIVES THROUGH CHILDHOOD VACCINES 101

Case Study: MEASLES

Presentation Roadmap

- The Context: Global Child Survival
- The Problem: Measles
- The Solution: The Measles Initiative
- How It Works
- Cost-Effective Strategy
- Strategic Opportunities for Donors

The Context

Global Child Survival

- Millennium Development Goals (MDGs)
  - Millennium Summit of the United Nations
  - MDG4 – Reduce child mortality by two-thirds by 2015
- Despite progress:
  - Globally, 6.9 million children <5 years old died in 2011
  - More than half of these deaths were preventable or treatable

Photo & Source: World Health Organization, 2012

The Context

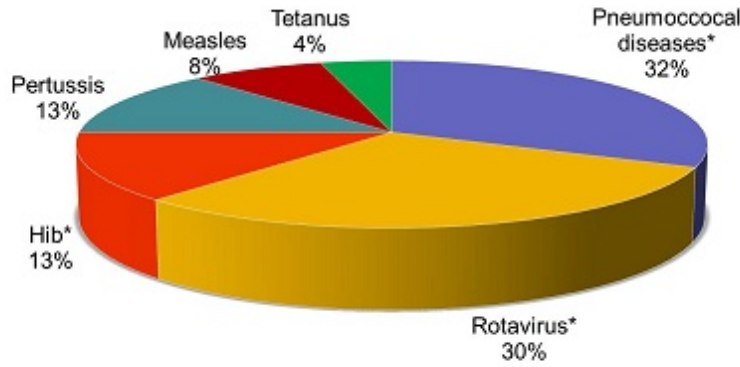
Vaccine-Preventable Diseases

- The World Health Organization (WHO) estimated that in 2008, 1.5 million deaths among children under 5 years were due to diseases that could have been prevented by routine vaccination

Leading causes include:

- Pneumococcal disease
- Rotavirus
- *Haemophilus influenzae* type b (Hib)
- Pertussis
- Tetanus
- Measles

Distribution of the estimated deaths among children <5yo, from vaccine-preventable diseases in 2008



Source: Black RE et al, Global, regional, and national causes of child mortality in 2008: a systematic analysis, Lancet. 2010 Jun 5;375(9730):1969-87. Epub 2010 May 11.
* WHO/IVB estimates

Image & Source: World Health Organization, Immunization surveillance, assessment and monitoring

The Problem

Case Study: Measles
What is Measles?

- Highly infectious virus causing severe disease, disability, and death
- Worst outcomes occur in children, malnourished individuals, and individuals with weakened immune systems
- Often leads to pneumonia, diarrhea, blindness, encephalitis, and severe respiratory infections

Photos: Centers for Disease Control and Prevention; Source: World Health Organization, Measles Fact Sheets

The Problem

Global Measles Burden

- A leading cause of vaccine-preventable deaths among children worldwide
  - 158,000 measles-related deaths in 2011
  - Majority of deaths among children <5 years of age
- 10.4 million annual disability-adjusted life years (DALYs)

Percentage of Districts with ≥80% Measles Containing Vaccine Coverage, 2010.

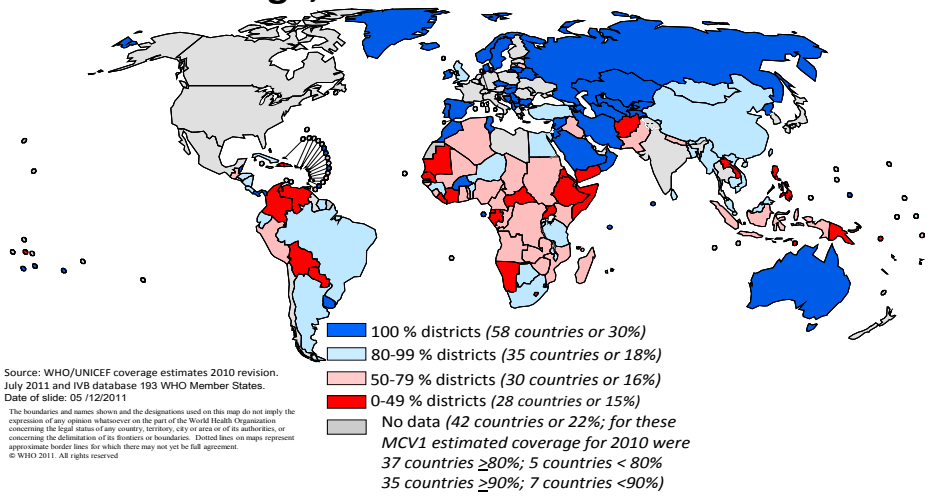


Image: The Measles and Rubella Initiative, 2012 Annual Report; Source: World Health Organization, 2012 & Global Burden of Disease Study, 2012

The Problem

The Measles Vaccine

- Safe & effective vaccine
- Developed in the mid-1960s
- Cost-effective
  - Carries highest health returns for money spent
  - Saves more lives per unit cost than any other health intervention
- In 1980, prior to widespread vaccination:
  - Estimated 2.6 million deaths worldwide each year
- Today, great progress, but measles cases/deaths are still on the rise

Tragically, in 2011, more than 20 million infants went unvaccinated worldwide.

Source: Journal of Infectious Disease (2011) 204 (suppl):S14-S17; Centers for Disease Control and Prevention (2013) Global Control and Regional Elimination of Measles, 2000-2011

The Problem

How Do We Bridge the Gap?

- Main barriers to immunization
  - Families lack access to routine immunization services and as a result children are often missed
  - Poor social mobilization, communication of vaccine benefit and risk, and awareness of vaccine services
  - Critical gaps in funding for essential vaccine services
  - Poor health systems in measles-endemic countries

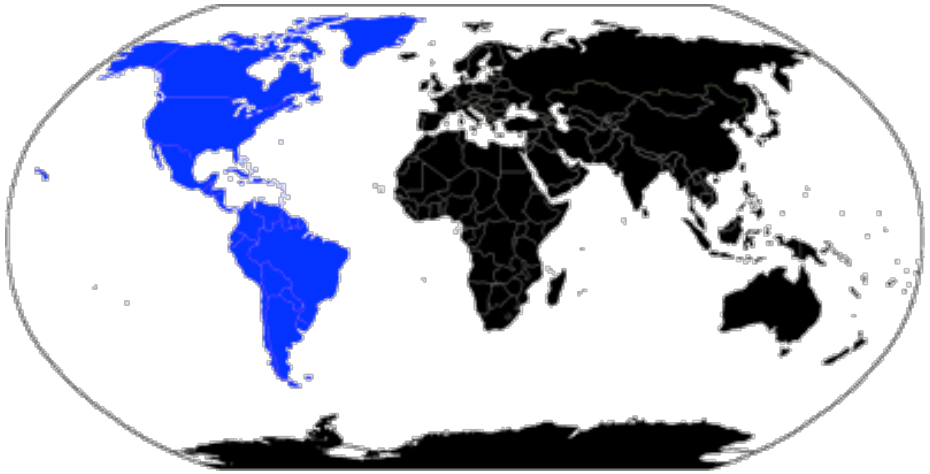
- "Know-Do" gap
  - Despite having a vaccine and past success there is still a gap between what is known and what gets done
  - Gap from research to policy and practice

Source: World Health Organization, 2005

The Solution

Evidence-Based Practice

- Successful elimination of measles in the Americas region
  - Last measles outbreak – Venezuela in 2002
  - Measles virus transmission has been effectively interrupted and maintained for more than 10 years (excluding imported disease).



The Measles Initiative, the leading measles control program, utilizes the strategy that the Pan American Health Organization used in its successful eradication campaign.

The Solution

The Measles & Rubella Initiative

- The Measles Initiative is a partnership led by:
  - World Health Organization
  - UNICEF
  - US Centers for Disease Control and Prevention
  - UN Foundation
  - American Red Cross

MEASLES & RUBELLA INITIATIVE

The Solution

The Measles Initiative

- Founded in 2001
  - Vaccinated over 1.1 billion children
  - Increased the global measles coverage level from 72% to 85% from 2000-2010
- These efforts have led to a **74% reduction in global measles mortality**

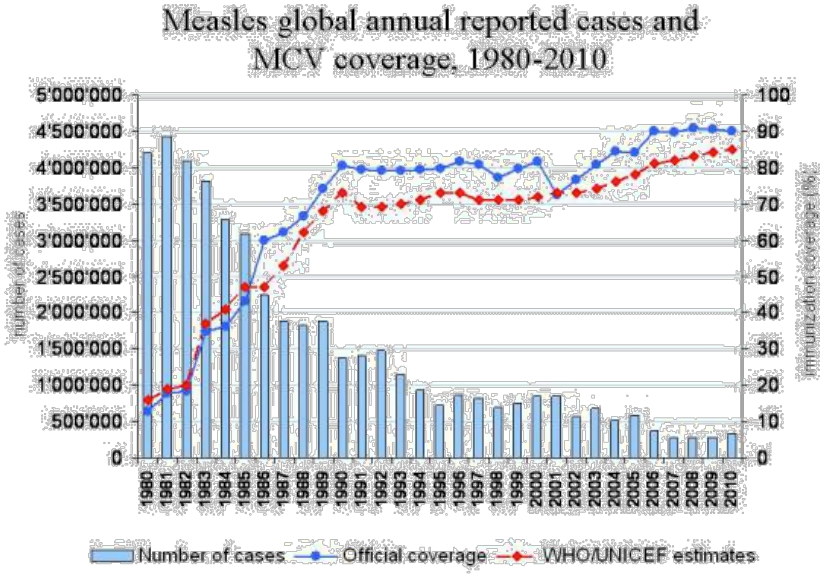


Image & Source: The Measles and Rubella Initiative, 2012 Annual Report

How It Works

The Measles & Rubella Initiative: Three Main Components

1. **Provides two doses of measles vaccine**
   - First dose through routine service and second opportunity through either mass campaign or routine service
   - Campaigns vaccinate millions of children in a designated area in only a few days/weeks

Photo: The Measles & Rubella Initiative

How It Works

The Measles & Rubella Initiative: Three Main Components

2. Mobilizes community

- Local community health workers and volunteers educate families and communicate the importance of vaccination
- Parents are educated and the demand for vaccination increases
- The Initiative travels to regions where children are often missed by routine immunization services

Photo: The Measles & Rubella Initiative

How It Works

The Measles & Rubella Initiative: Three Main Components

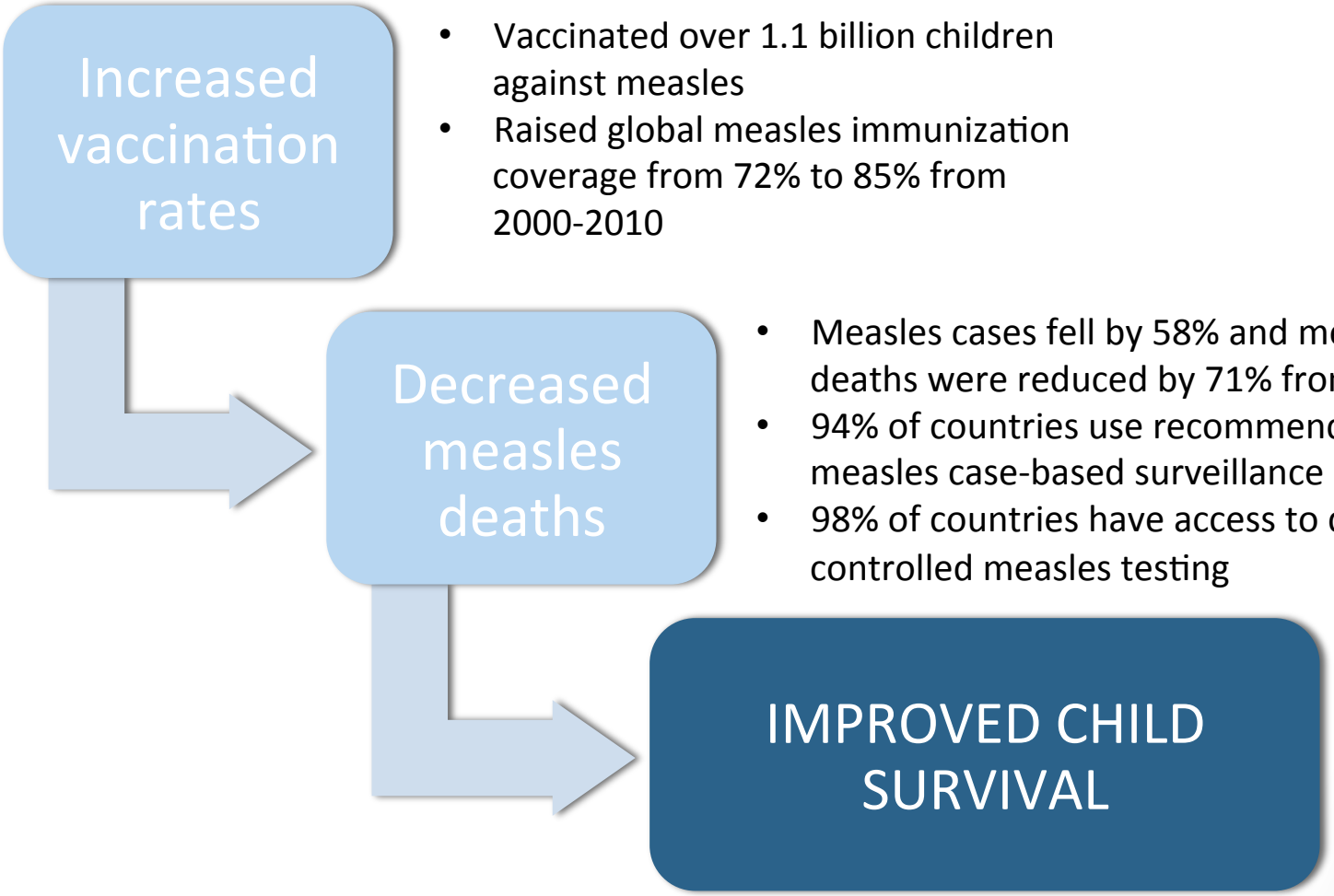
3. Detecting measles cases & outbreaks (Surveillance)

- All suspected measles cases are sent to a regional lab for confirmation
- Allows for rapid detection of outbreaks

Photo: The Measles & Rubella Initiative

Cost-Effective Strategy

The Measles & Rubella Initiative: Representative Impacts



Source: Simons E et al. (2010) Assessment of the 2010 global measles mortality reduction goal: results from a model of surveillance data. Lancet 2012; published online April 24, 2012. DOI:10.1016/ S0140-6736(12)60522-4; The Measles and Rubella Initiative, 2012 Annual Report

Cost-Effective Strategy

Cost Impact Profile

Cost Per Impact

- Cost per child life saved: ~$150-200
- Cost per life year saved: ~$7

Average Cost

- $1 per dose of measles vaccine (includes cost of vaccine and syringe, vaccine delivery, awareness-raising, etc.)
- 2 doses needed for full immunization

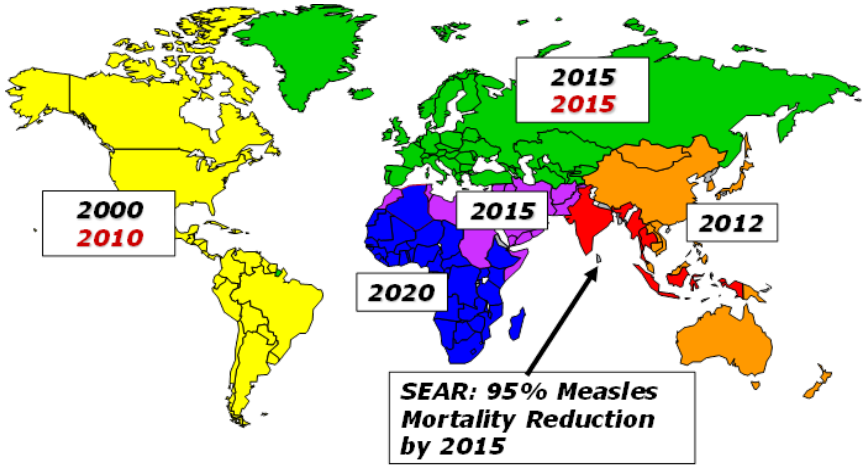
Photo: The Measles and Rubella Initiative

See the Center for High Impact Philanthropy website for details.

For Donors

Strategic Opportunities for Donors

- **Keep it up:** Continue to save millions of children by maintaining current rates of childhood measles vaccination.
- **Expand coverage:** Reach the millions currently not vaccinated against measles.
- **Go for gold: Eliminate measles.** Help intensify vaccination efforts so that no child will ever have to suffer from this deadly disease again.



Dates of measles (in black) and rubella (in red) elimination goals by WHO Region.

Image & Source: World Health Organization and UNICEF. WHO/UNICEF Joint Annual Measles and Rubella Report 2011.

For Donors

Additional Opportunities to Leverage Philanthropic Investment

- Combine measles vaccine with the rubella vaccine (minimal additional cost of $0.25)
- Simultaneous distribution of other important health interventions such as bed nets and vitamin A
- Build health system capacity by implementing innovative solutions and technologies such as improved supply chain logistics and cold chain technologies

Photo: The Measles & Rubella Initiative

For Donors

Childhood Vaccine Programs: Major Takeaways

1. Childhood vaccines are cost-effective interventions that can save lives, improve well-being, and potentially eliminate highly infectious diseases.

2. There is a great need for philanthropic investment in childhood vaccination programs. These programs must maintain their high levels of vaccination and reach the children that have not yet been vaccinated.

3. Childhood vaccine programs enhance vaccine delivery, community mobilization, and surveillance to prevent future outbreaks. In addition, they create platforms for integrated health campaigns and support health systems as a whole.

References

- Castillo-Solotanzo C. et al. (2011) Measles and rubella elimination in the Americas: lessons learned and best practices. Journal of Infectious Disease. 2011 Jul;204 Suppl 1:S279-83. doi: 10.1093/infdis/jir216.

- Centers for Disease Control and Prevention. (2013) Global Control and Regional Elimination of Measles, 2000-2011. Retrieved March 5, 2013, from http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6202a3.htm

- Simons E et al. (2010) Assessment of the 2010 global measles mortality reduction goal: results from a model of surveillance data. Lancet 2012; published online April 24, 2012. DOI:10.1016/S0140-6736(12)60522-4.

- World Health Organization. Health statistics and health information systems. Projections of mortality and burden of disease 2004-2030. Retrieved on March 2, 2013, from http://www.who.int/healthinfo/global_burden_disease/projections/en/index.html

- World Health Organization. Measles Fact Sheets. Retrieved Feb 28, 2013, from http://www.who.int/mediacentre/factsheets/fs286/en/index.html

- World Health Organization and UNICEF. WHO/UNICEF Joint Annual Measles and Rubella Report 2011. Retrieved on Feb 28, from http://www.measlesrubellainitiative.org/mi-files/Reports/Measles%20Initiative/Annual%20Reports/AnnualReport2011.pdf