

Yale School of Management D-Prize Competition

2015-2016 Academic Year

Solve Vaccine Supply Chain Issues

1.5 million deaths could be prevented by giving \$20 childhood vaccinations, and though many vaccination programs are adequately funded as many as half of vaccines are currently wasted. Pilot a scalable tracking system both to identify cold chain and stocking problems as well as to implement solutions to the most serious known issues in a single vaccine supply chain.

The Problem: Many infectious diseases have theoretically been eradicated decades ago. Yet polio, measles, mumps, whooping cough, diphtheria, and others continue to cause severe global health burdens in many developing countries. The WHO estimates that 1.5 million childhood deaths, or 17 percent of all childhood deaths around the globe, could be averted with simple childhood vaccinations.¹

The Proven Solution: Childhood vaccines remains one of the most cost-effective health intervention in the world.² Nearly-adequate funding exists for widespread vaccination of large numbers of children. For roughly \$20, a child can be immunized against a broad variety of deadly diseases for life. Distribution strategies include routine vaccination and one-time campaigns. Often strategies will combine the two. Routine facility-based strategies cost \$14 per fully immunized child (FIC), and campaigns are \$27 per FIC.³

Unfortunately, childhood immunization rates are not yet universal. The WHO has found that up to 50 percent of vaccines produced for sub-Saharan Africa are wasted. More effective supply chain and inventory management systems have the potential to impact enormous numbers of children.⁴

Your Challenge: We will award up to \$20,000 to a social entrepreneur who can create a simple management system that tracks vaccine supplies in central stocks and in primary-through-tertiary health facilities. The system should be piloted with one supply chain, and be highly scalable within two years.

It is not enough to collect data on problem areas. The management system should identify supply chain issues *and* implement a broad variety of interventions (e.g. propane-powered refrigerator for a rural clinic⁵, marketing campaign in dubious communities) to correct the most serious problems.

Additional Information:

¹ http://www.who.int/immunization_monitoring/diseases/en/

² <http://www.gavialliance.org/about/value/cost-effective/>

³ Brenzel, Logan; Wolfson, Lara; Fox-Rushby, Julia; Miller, Mark; Halsey, Neal A. Chapter 20: Vaccine Preventable Diseases. *Disease Control Priorities in Developing Countries*. Pp. 389.

⁴ http://whqlibdoc.who.int/hq/2005/WHO_V_percentB_03.18.Rev.1_eng.pdf

⁵ <http://ligtt.org/programs/health-water-sanitation>

- Geographically, more than 70% of children in need of DPT vaccinations, a standard vaccine, live in 10 countries: Afghanistan, Chad, DRC, Ethiopia, India, Indonesia, Nigeria, Pakistan, Philippines, South Africa. GAVI Alliance, a large and established NGO, publishes country level data and maps.⁶
- Nearly every African country with data had higher DTP3 vaccine coverage in urban areas, with urban/rural disparities as high as 33 percent.⁷ However, gaps in urban areas are often masked, since capital cities are better covered than other urban areas. Coverage in the poorest slum and peri-urban areas within cities can be even worse than in rural areas.⁸
- Past winners of this challenge include [Miti Health](#) (Kenya), and [Blueprint International](#) (South Africa).

Ready To Apply?

Download a First Round Application Packet and start creating your proposal.

<http://www.yalesomdi.com/#!dprize/x01pc>

Questions? Email Sam Haddaway at samuel.haddaway@yale.edu.

⁶ <http://www.gavialliance.org/country/>

⁷ <http://www.action.org/resources/item/undervaccination-by-the-numbers>

⁸ <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2486544/>