



NO MORE MISSED MDG4 OPPORTUNITIES: OPTIMIZING EXISTING HEALTH PLATFORMS FOR CHILD SURVIVAL

Polio Campaigns

With fewer than 600 days remaining to the Millennium Development Goal (MDG) deadline, new strategies are needed to accelerate progress to MDG4, which requires a two-thirds reduction in the 1990 child mortality rate by 2015. Despite a halving of child deaths since 1990 and taking into account the impact of the child survival investments in the pipeline, the current rate of decline in child mortality will still not be fast enough to achieve MDG4. As presented in our “Overview of a Proposed Roadmap to Reach MDG4” document¹, estimates suggest that in 2015, an additional one million child deaths will still need to be prevented over and above the current trajectory to achieve MDG4. While current child survival activities should be sustained in order to ensure that the current trajectory stays on course, there is also a need for new strategies to close the MDG4 achievement gap. This document outlines a “bend the curve” strategy to save the lives of an additional estimated 162,000 child lives in 2015 through integration of additional child health interventions into existing polio campaigns in three countries: India, Pakistan and Afghanistan.

The Global Polio Eradication Initiative began in 1988 and has since achieved a 99 percent drop in the number of polio cases worldwide. In just 25 years, over 2.5 billion children have received immunizations against polio and the disease has been eliminated in most parts of the world. Large-scale immunization campaigns in more than 200 countries, where governments, donors, local and international institutions have cooperated to fight polio and communities have been actively engaged and mobilized to spread awareness about the disease and encourage vaccination, have brought us to the brink of eradicating the disease. Important recent progress has been made in India, Pakistan and Afghanistan and the polio delivery infrastructure may be available to deliver additional interventions without compromising polio eradication.

With a force of 22,000 dedicated WHO and UNICEF funded staff around the world, who are trained to go door-to-door to reach the world’s most vulnerable children, the polio campaign infrastructure is well placed to make a major contribution to closing the MDG4 achievement gap if it can be mobilized for broader child survival efforts without detracting from the core polio mission. There are already many efforts to do this including programs like “Reaching Every District”, “Sustainable Outreach Services”, and “Polio Plus”. As the Polio Eradication and Endgame Strategic Plan recommends that, “by the end of 2014, at least 50 percent of polio-funded field personnel’s time will be devoted to specific, measurable activities to help national authorities strengthen immunization systems and services,” identifying those additional immunization and related services with the greatest lifesaving potential is an urgent priority, particularly in those countries that have extensive polio infrastructure and have eradicated the disease but which still struggle with massive burdens of under-five deaths (e.g. India).

Integration of additional interventions into polio campaigns should take into consideration the stage of the program. For those areas which have recently eliminated polio and where the delivery infrastructure remains, integration may provide a means of supporting continued acceptance of the program. For those few areas which are pre-elimination, the program may have unique implementation challenges that prevent it from meeting its polio goals while integrating additional services. For those programs, such as in northern Nigeria, it may be possible to have hybrid delivery structure such as “health camps” which take advantage of the campaign social mobilization but which do not burden the delivery structure. After careful consideration of the interventions with the greatest impact on child survival and Millennium Development Goal 4 achievement, and in discussion with the polio and broader vaccine communities, this analysis recommends that the following interventions should be considered for distribution via polio campaigns:

- Vitamin A supplements
- Oral rehydration salts (ORS) and zinc to treat diarrhea
- Rotavirus vaccine to prevent the leading cause of severe diarrhea

These three interventions were selected for: (a) their impact on child mortality - at high levels of coverage vitamin A can reduce all cause child mortality by 20 percent, ORS and zinc can prevent 90 percent of all diarrhea deaths and rotavirus vaccine can prevent 40 percent of all severe diarrhea episodes and up to 30 percent of child diarrhea deaths, (b) their ease of delivery – vitamin A drops are already being administered with polio vaccine in several

¹ Document available here: <http://www.mdghealthenvoy.org/wp-content/uploads/2014/01/Overview-of-a-Proposed-Roadmap-to-Reach-MDG4-Jan2014.pdf>



campaigns, ORS and zinc packets can be delivered door to door or through polio health camps and rotavirus vaccine is an oral vaccine as is polio vaccine, and (c) their support in communities where children are averaging four to five episodes of diarrhea every year and families and communities are welcoming of vaccines and medicines that can lift this burden.

Interventions

Vitamin A

In 1998, the World Health Organization (WHO) released an addendum to their polio eradication field guide, stating that adding vitamin A to national immunization days is “one of the quickest and least expensive ways of reaching a large number of children in high-risk age groups.”² In 2000, a WHO Bulletin outlined the benefits of using polio as a vitamin A supplement delivery platform, and made the case for increased integration beyond vitamin A. Despite this, vitamin A has not been consistently incorporated into every polio campaign. All children 6-59 months of age should receive at two doses of Vitamin A every year. Despite more than a decade of vitamin A campaigns, many countries still struggle with very low rates of coverage among their most vulnerable child populations including Afghanistan, India and Nigeria where coverage rates for children in the poorest communities can be as low as 10 to 20 percent. Vitamin A is a relatively low-cost intervention, as doses are usually about \$0.02 each.

ORS and zinc

Globally, 9 percent of child deaths are due to diarrhea, which amounted to 585,000 children’s deaths in 2012. One of the easiest and most cost-effective methods of treating diarrhea is with ORS and zinc. ORS enables a child with diarrhea to absorb more water, reducing the risk of excessive fluid loss and dehydration, while the 10 day course of zinc reduces both the severity and duration of each episode of diarrhea and offers the child some protection against future infection in the following months. ORS and zinc packets can be easily distributed through polio “health camps” that can be set up in polio campaign areas. This practice has worked in Nigeria, where the establishment of polio health camps during recent polio campaigns helped to provide primary care and contribute to the country’s progress towards elimination of the disease. The expansion of these health camps into other countries could be a valuable delivery method if door-to-door distribution of commodities alongside polio vaccinations is not possible. Polio campaign countries are among those with the lowest rates of ORS coverage including India (26 percent), Nigeria (26 percent), Pakistan (41 percent) and Afghanistan (53 percent). An annual supply of ORS and zinc (containing 10 500ml ORS sachets and 4 blister packets of 10 20mg zinc tablets) costs about \$3.00.

Rotavirus vaccine

Rotavirus is the leading cause of severe childhood diarrhea in developing countries – as well as developed countries – and is responsible for an estimated 40 percent of all episodes of severe diarrhea and 40 percent of the 600,000 child deaths from diarrhea each year. Rotavirus vaccination is highly effective and where the vaccine has been introduced both hospital admissions for children with diarrhea and child diarrhea deaths have fallen dramatically (e.g. by 40 percent and 30 percent respectively in Mexico). Despite the powerful and fast impact of this vaccine on child diarrhea mortality and morbidity, coverage remains low and of the fifteen countries with the largest numbers of under five deaths, only Ethiopia, Tanzania and Burkina Faso have introduced the rotavirus vaccine in the last eighteen months. The rotavirus vaccine that is currently most available – RotaTeq - costs about \$10.50 for the full three dose course.

Because the rotavirus vaccine is an oral vaccine, like polio, it could be distributed alongside the polio vaccine with minimal additional training of workers. However, careful attention would need to be paid to the minimum and maximum ages of the recipients and the intervals between doses. Specific attention will need to be paid to the additional cold chain requirements.

² WHO. Distribution of vitamin A during national immunization days: A “generic” addendum to the *Field guide for supplementary activities aimed at achieving polio eradication, 1996 revision*. Geneva: 1998.



Country Focus

The global lifesaving potential of distributing these three diarrhea-related interventions alongside polio vaccines is clear when one sees the large amount of countries with existing polio infrastructure and planned polio campaigns in the coming years, as shown in Figure 1.



Figure 1: Under-5 Populations in Countries with Planned Polio Campaigns in 2014

The lifesaving potential of this integration can be maximized when the regions with the largest concentrations of children unreached by routine health systems are prioritized. For example, if polio campaigns were able to reach the children of India, Pakistan and Afghanistan as detailed in the figure below, we estimate an additional 162,000 child deaths could be prevented in 2015. These estimates will need to be adjusted for actual coverage achieved by the delivery platforms, as we assume that the platforms will reach 80% of the population.



Table 1: Estimated Under-5 Lives Saved in Three Priority Countries by Intervention, Assuming 80% Coverage of Each in 2015

Country	Vitamin A	ORS/zinc	Rotavirus Vaccine	Total Deaths Prevented at 80% Coverage
Afghanistan	NA	11,000	1,600	12,600
India	4,400	111,000	8,100	123,500
Pakistan	NA	23,000	3,300	26,300
Total	4,400	145,000	13,000	162,400

The commodity costs are the primary cost driver of additional cost, and the incremental overhead cost is small if not negligible, given the same infrastructure and personnel can be used.

Table 2: Commodity Quantification and Cost for Priority Countries

Country	Population 0-5 Years x 80%	Projected 2015 live births in target area x 80%	Doses of rotavirus vaccine (3 per live birth)	Cost of Rotavirus (\$3.50 per dose x 3= \$10.50/child)	Cost of ORS/zinc (\$3.00/child) ^{*3}	Cost of vitamin A (\$0.04/child for 2 doses)	Total cost by country
Afghanistan	2 million	0.45 million	1.4 million	\$4.7 million	\$4.8 million	\$0.1 million	\$10 million
India	37 million	8 million	24 million	\$84.0 million	\$110.4 million	\$1.5 million	\$196 million
Pakistan	12 million	2.6 million	7.8 million	\$27.3 million	\$37.2	\$0.5 million	\$65 million
Total	51 million	11 million	33 million	\$116 million	\$152 million	\$2 million	\$270 million

In addition to funds that that may be available from national governments and partners, new financing commitments have been made for accelerated efforts to reach the child survival goals. These include new resources from UNICEF, the Canadian government, the RMNCH Trust Fund, and NORAD. GAVI funding for rotavirus vaccine is available through its application process.

Global Policy Context

There is a growing call for health service delivery models that better integrate the delivery of essential health services to families and communities. Recent reports including, the UN Commission on Life-Saving Commodities for Women and Children (UNCoLSC), the Global Vaccine Action Plan, A Promise Renewed: Committing to Child Survival Roadmap, the Integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhea (GAPPD), and the soon to be released Every Newborn Action Plan (ENAP) all call for more coordination and integrated delivery of the prevention and treatment interventions that target the leading causes of death and sickness for children. Recent statements including by the President of the World Bank who wrote in the Lancet that "the current, fragmented approach is costing us dearly in terms of duplication, inefficiency, poor use of human resources, and high procurement costs", but is costing patients even more as they die of preventable diseases without access to therapies that are readily available elsewhere (Lancet, 2013).

The leadership of UNICEF and the Global Fund for AIDS, TB and Malaria recently endorsed the integration of financing for pneumonia, diarrhea and malaria to improve the integrated community case management of these three leading killers of children under five. The growing recognition in the global health community that current approaches are too often failing to reach the most vulnerable children and are not as cost-effective as they could be is inspiring the development of new models and strategies including the mobilization of existing health outreach platforms to deliver a broader basket of interventions.

Specific Considerations

To prevent the deaths of the 162,000 children under 5 outlined in this analysis, several challenges will need to be met. These are briefly summarized below:

- (1) National ownership of scale-up with partner support.

³ (10 500ml ORS sachets and 4 blister packets of 10, 20mg zinc tablets = \$3.00/child)

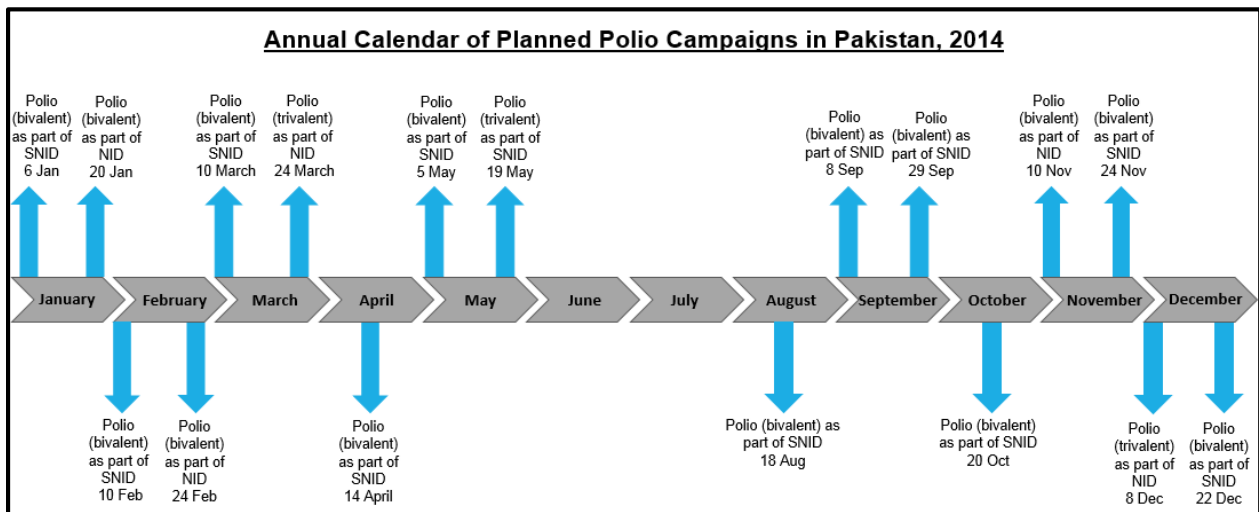
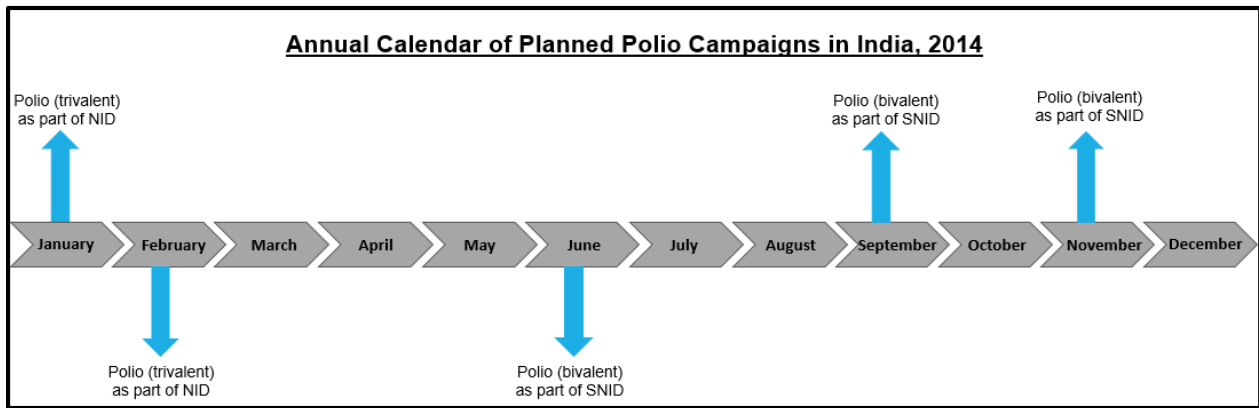
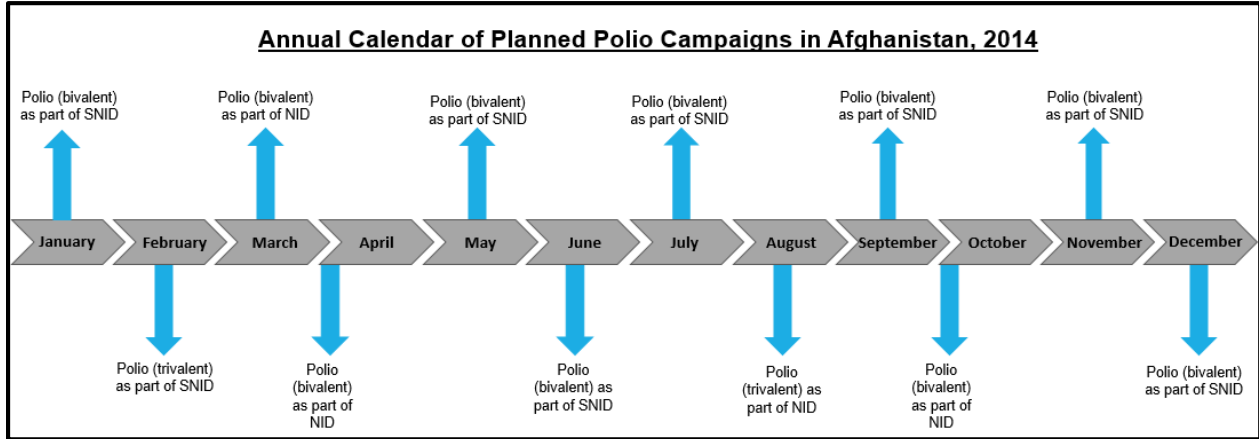


- (2) GAVI Rotavirus Applications. Currently, rotavirus vaccine has been approved by GAVI for only 14 countries in Europe and the Americas, and it is important that countries put in applications for rotavirus as soon as possible to ensure funding for rollouts by 2015 (the next GAVI application is due May 1).
- (3) Rotavirus Vaccine Supply: There are three approved manufacturers including the Rotavac vaccine manufactured in India. While the GSK Rotarix vaccine requires only two doses, it may be in short supply. The Merck RotaTeq product may be more widely available but requires three doses (and substantially higher cold chain demands).
- (4) Rotavirus Vaccine Timing: Either two or three does will be required depending on which manufacturer product is used. The minimum age (6 weeks, maximum age (one year) and minimum intervals (4 weeks) will need to be taken into consideration for integration into polio campaigns.
- (5) Global Coordination: The approach to mobilize existing outreach platforms to deliver a greater number of high impact child survival interventions with low levels of coverage in the areas where child deaths are concentrated responds to a growing concern in the global health community that existing platforms are not delivering value for the most vulnerable families and communities.



Annex I

Timelines of Scheduled Polio Campaigns in 2014, by Target Country⁴



⁴ Data collected on April 23, 2014. Schedules may be subject to change.