



## ACCELERATING ACHIEVEMENT OF MILLENNIUM DEVELOPMENT GOAL 4 BY MOBILIZING EXISTING HEALTH OUTREACH PLATFORMS TO DELIVER ADDITIONAL LIFE-SAVING INTERVENTIONS TO CHILDREN

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### MEASLES & RUBELLA CAMPAIGNS

With fewer than 610 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. Our estimates<sup>1</sup> suggest that in 2015 one million child deaths will still need to be prevented to achieve MDG4 and that as a result, new strategies are needed to close the MDG4 achievement gap. This document outlines a strategy to save the lives of **44,000 additional children in 2015**, through integration of pneumococcal vaccine provision onto existing measles campaigns in eight target countries.

Integrating additional, high impact child survival interventions into existing health outreach platforms is one of the best tools for rapidly reaching the high and equitable coverage necessary to achieve MDG4. Since 2001, the **Measles & Rubella Initiative** (MRI), led by the American Red Cross, the United Nations Foundation, the U.S. Centers for Disease Control and Prevention, UNICEF, and the World Health Organization, has supported measles vaccination campaigns in 80 countries. In less than 15 years, the Measles Initiative has vaccinated 1.1 billion children and raised global measles vaccine coverage to 84 percent. These activities have resulted in the reduction of child deaths by 71 percent and have averted the deaths of 10 million people, the vast majority children under five. Measles deaths are now less than one percent of all under five child deaths. Measles vaccination campaigns have been able to reach more than 90 percent of the target population, reducing virus transmission and essentially eliminating measles deaths for up to three years.

Integration is a cornerstone of the measles framework. In 2012, 105 million children were reached with measles or measles-rubella vaccines, and 22 of the 80 countries bundled additional interventions onto these campaigns: including insecticide-treated bed nets, vitamin A supplements, deworming medication, and/or oral polio vaccines. In the years between 2001 and 2012, MRI and its partners have distributed over 41 million insecticide-treated bed nets, 289 million doses of vitamin A, 207 million polio vaccines, and 144 deworming tablets. Integration of other health interventions with measles campaigns has proven benefits – such as improvements in equity and cost-effectiveness.

Pneumococcal disease is the leading vaccine-preventable cause of death in under-fives causing an estimated 800,000 child deaths, the vast majority from pneumonia with most of this mortality concentrated in sub-Saharan Africa and South Asia. Despite the existence of a cost-effective pneumococcal conjugate vaccine, the majority of the world's most vulnerable children do not yet routinely receive the vaccine and even in many of the 25 GAVI-eligible countries that have rolled out the vaccine since 2010, coverage remains low.<sup>2</sup> For those countries who have recently introduced the vaccine or who are planning to, it is vital that the populations of children where the risk of death from pneumococcal infection is highest receive the vaccine as a priority, and for those countries with the greatest concentrations of child deaths from pneumococcal infection (e.g. India and Nigeria) plans to introduce the vaccine must be accelerated.

The high coverage of existing measles campaigns provides an ideal opportunity and infrastructure to increase coverage of the pneumococcal vaccine where rollout has already started and to provide a platform for the targeted introduction of the vaccine in countries like Nigeria and India. Two dozen countries have campaigns for measles (M) and measles rubella (MR) already scheduled for 2015. Of these countries, ten have already begun to introduce pneumococcal vaccine, and another nine have been approved by GAVI to introduce the vaccines. Large numbers of children unreached by routine health systems are concentrated in many of these countries, **Afghanistan, Nepal, Niger, Nigeria, Pakistan, Sudan, Uganda, and Zambia** among others, many of whom will die this year from

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<sup>1</sup> See the UN Office of the Special Envoy for Malaria and Financing the Health Millennium Development Goals and Millennium Development Goal Health Alliance "Overview of Proposed Approaches to Reach MDG4" document

<sup>2</sup> See <http://www.jhsph.edu/research/centers-and-institutes/ivac/resources/IVAC-2013-Pneumonia-Diarrhea-Progress-Report.pdf>, Table 1



pneumonia.<sup>3</sup> A catch-up pneumococcal campaign would provide children living in these regions between the ages of 12-59 months with a single dose of the pneumococcal vaccine at the same time the measles or measles rubella vaccine is given, with only a small incremental cost above the cost of the vaccine itself.<sup>4</sup> The table that follows details the countries that will conduct an M or MR campaign in 2015.

**Table 1: Planned Measles and Measles/Rubella Campaigns in 2015**

Country	Type	Fund Source	Target (age range)	UN Population	Forecast Population	Current measles coverage	Pneumo-coccal vaccine rolled out?	Current pneumo-coccal vaccine coverage <sup>5</sup>
Afghanistan	MR catch-up <sup>6</sup>	GAVI	9m-14y	16,348,412	6,348,412	81%	APPROVED	0%
Bolivia	MR follow-up	MRI	9-59 m	1,267,019	1,200,000	84%	APPROVED	0%
Burundi	MR catch-up	GAVI	9m-14y	3,407,806	3,400,000	93%	Sep-11	99%
Cameroon	MR catch-up	GAVI	9m-14y	8,704,057	8,700,000	82%	Jul-11	84%
Eritrea	MR catch-up	GAVI	9m-14y	2,501,575	2,500,000	99%	NOT APPROVED	0%
Gambia	MR catch-up	GAVI	9m-14y	836,819	800,000	95%	Jun-11	98%
Guinea	M follow-up	MRI	9-59m	1,798,493	2,200,000	58%	NOT APPROVED	0%
Guinea-Bissau	M follow-up	MRI	9-59m	257,429	260,000	69%	APPROVED	0%
Haiti	MR follow-up	MRI	9-59m	1,239,635	1,200,000	58%	APPROVED	0%
Kenya	MR catch-up	GAVI	9m-14y	19,561,466	19,500,000	93%	Jan-11	82%
Myanmar	MR catch-up	GAVI	9m-14y	11,763,307	11,700,000	84%	NOT APPROVED	0%
Namibia	MR catch-up	SELF	9m-14y	290,742	290,000	76%	NOT GAVI	0%
Nepal	MR follow-up	MRI	9-59m	3,497,733	3,500,000	86%	APPROVED	0%
Niger	M follow-up	MRI	9-59m	3,601,901	3,600,000	73%	APPROVED	0%
Nigeria	M follow-up	GAVI	9-59m	29,668,736	36,000,000	78%	APPROVED	0%
Pakistan	MR catch-up	GAVI	9m-14y	31,224,653	31,200,000	88%	Oct-12	0%
Papua New Guinea	MR catch-up	GAVI	6m-14y	2,841,033	2,800,000	67%	APPROVED	0%
Sao Tome and Principe	MR catch-up	GAVI	9m-14y	69,443	70,000	92%	Nov-12	0%
Sierra Leone	M follow-up	MRI	9-59m	986,278	986,000	80%	APPROVED	80%
Sudan	MR catch-up	GAVI	9m-14y	14,203,403	15,000,000	85%	Aug-13	0%
Tuvalu	MR follow-up	MRI	9-59 m	999	999	98%	NOT GAVI	0%
Uganda	M follow-up	MRI	9-59m	7,244,030	6,800,000	82%	Apr-13	0%
Zambia	MR catch-up	GAVI	9m-14y	7,184,264	7,000,000	83%	Jul-13	0%
Zimbabwe	M follow-up	MRI	9-59m	1,807,569	1,700,000	90%	Jul-12	95%

<sup>3</sup> These countries were chosen because pneumococcal vaccine has been approved or is rolling out slowly, current pneumococcal vaccine coverage is 0%, and over 20,000 under-five deaths occurred in these countries in 2012.

<sup>4</sup>According to the WHO Pneumococcal Vaccines Position Paper, 2012: "For PCV10, unvaccinated children 12 months to 5 years of age should receive 2 doses, with an interval between the first and second dose of at least 2 months. For PCV13, unvaccinated children aged 12-24 months should receive 2 doses, children aged 2-5 years should receive a single dose."

<sup>5</sup> Coverage of three doses of pneumococcal vaccine obtained from the latest data on 2012 coverage (collected on 16 October, 2013) from the [WHO Monitoring System](#)

<sup>6</sup> MR catch-up campaigns target children up to the age of 14 with measles rubella vaccine, whereas M follow-up campaigns target children 9-59 months of age.



As pneumococcal vaccine is approved for rollout by GAVI, and is bundled with measles campaign coverage, it is important that the most high-burden child mortality countries are focused on, in order to prevent as many child deaths due to pneumonia as possible in 2015. These high mortality burden countries, such as Afghanistan, Nepal, Niger, Nigeria, Pakistan, Sudan, Uganda, and Zambia all currently have zero coverage of pneumococcal vaccine, thus would be ideal settings for integration and accelerated pneumococcal vaccine rollout.

If countries fully integrate pneumococcal vaccine into existing measles infrastructure, and countries are able to achieve the same level of coverage for a single dose of pneumococcal vaccine as the current national measles vaccination coverage levels, in all children aged 9-59 months, 44,000 additional lives could be saved in a single year in eight high-burden countries.

**Table 2: Estimated Children’s Lives Saved in 2015 if Pneumococcal Vaccine Reaches Measles Coverage Levels in Target Countries<sup>7</sup>**

Country	Lives saved in 2015
Afghanistan	3,700
Nepal	700
Niger	3,000
Nigeria	21,000
Pakistan	8,200
Sudan	2,600
Uganda	3,000
Zambia	1,600
<b>Total</b>	<b>43,800</b>

### **Pneumococcal Vaccine Supply**

Currently, the availability of pneumococcal vaccine in the next two years is uncertain, thus, we recommend that vaccine rollout be focused on these four priority countries where the majority of child deaths are occurring, and where measles campaigns are already scheduled for 2015. Some of these countries, such as Pakistan and Uganda, have already begun vaccine rollout using existing funding and supply, however this rollout has been slow.

If vaccine supply is indeed too low to allow for national rollouts by 2015, this integrated strategy recommends that pneumococcal vaccine is prioritized in the target areas of each of these four countries, which have the highest rates of child mortality. The targeted rollout of this vaccine will ensure that as many deaths are prevented as possible with this limited supply. As more supply becomes available across 2014 and 2015, national vaccine rollouts beyond these target areas can be managed.

### **Incremental Costs**

Each dose of pneumococcal vaccine is \$3.50, and each child will need at least one dose, but children could receive two doses provided there is available supply. The incremental commodity costs for the catchup campaign are in the table below.

<sup>7</sup> Assumes one dose of pneumococcal vaccine is provided per supplementation year.



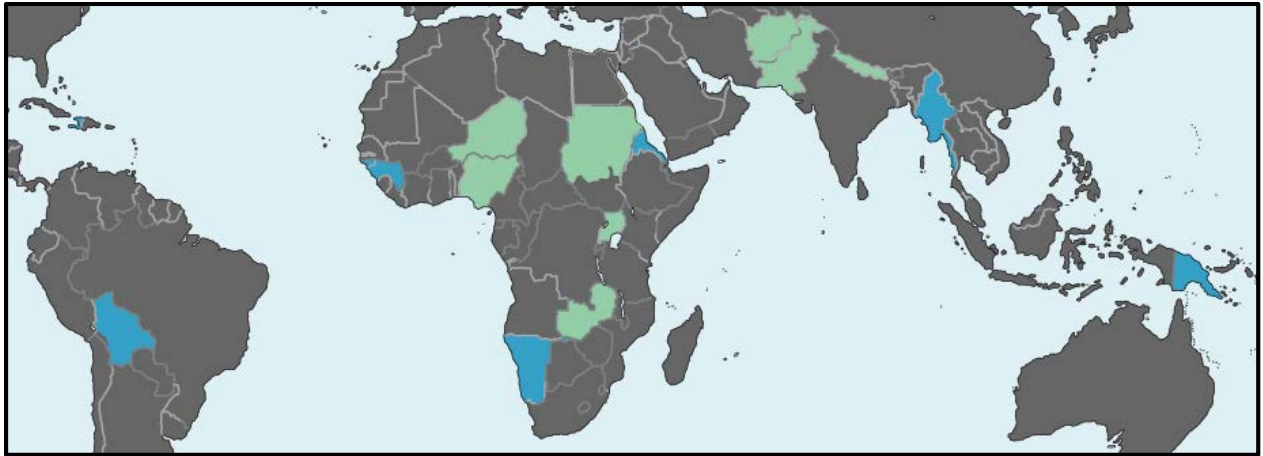
**Table 3: Commodity Quantification and Cost**

Country	Population 12-59 Months (~80% of Under-5 Population <sup>8</sup> )	Cost (First Dose)	Cost (Second Dose)
Afghanistan	4 million	\$14 million	\$14 million
Bolivia	1 million	\$3.5 million	\$3.5 million
Eritrea	.8 million	\$3 million	\$3 million
Guinea	1.5 million	\$5 million	\$5 million
Guinea-Bissau	.2 million	\$1 million	\$1 million
Haiti	1 million	\$3.5 million	\$3.5 million
Myanmar	3.5 million	\$12.5 million	\$12.5 million
Namibia	.2 million	\$1 million	\$1 million
Nepal	2.4 million	\$8.5 million	\$8.5 million
Niger	2.8 million	\$10 million	\$10 million
Nigeria	24 million	\$83 million	\$83 million
Pakistan	18 million	\$62 million	\$62 million
Papua New Guinea	800 thousand	\$3 million	\$3 million
Sao Tome and Principe	30 thousand	\$100 thousand	\$100 thousand
Sudan	4.6 million	\$16 million	\$16 million
Tuvalu	800	\$3 thousand	\$3 thousand
Uganda	5.6 million	\$19.5 million	\$19.5 million
Zambia	2 million	\$7 million	\$7 million
<b>Sub-total (target countries)</b>	<b>47 million</b>	<b>\$220 million</b>	<b>\$220 million</b>
<b>Total</b>	<b>55 million</b>	<b>\$253 million</b>	<b>\$253 million</b>

<sup>8</sup> Under-5 population estimates from the State of the World's Children Report, 2014



**Annex I**



**Figure 1: All Countries with Planned Measles Campaigns in 2015 and Zero Percent Pneumococcal Vaccine Coverage (Target Countries in Green)**