ANNUAL REPORT
2013

MEASLES & RUBELLA INITIATIVE
The Measles & Rubella Initiative
2013 Annual Report

TABLE OF CONTENTS
3 EXECUTIVE SUMMARY
7 INTRODUCTION
11 HOW WE STRATEGIZE
19 INNOVATE
20 BUILD
28 REACH
33 MONITOR
36 READY
38 COMMUNICATE
41 OUR PARTNERS, FRIENDS AND MANAGEMENT TEAM

2013 AT A GLANCE

- 181 million doses of measles & MR vaccine were procured
- 211 million children were vaccinated against measles and rubella
- 242,000 measles and rubella samples were tested globally by our network of laboratories
- 250,000 volunteers were mobilized in 13 countries

Achieve and maintain high levels of population immunity

- 84% of children under the age of five received measles vaccination
- $7,279,000 was used from the measles outbreak fund in 4 countries
- 4 more countries introduced MCV2 into their routine immunization schedule
- 145 countries have introduced measles-containing vaccines

3 more countries

- 145 countries
- 211 million children were vaccinated against measles and rubella
- More than 250,000 volunteers were mobilized in 13 countries
- 242,000 measles and rubella samples were tested globally by our network of laboratories
The Measles and Rubella Initiative (M&RI) is pleased to present our 2013 annual report on the global status of measles and rubella control and elimination. This year's report highlights progress and challenges under the five strategies set forth in the Global Measles & Rubella Strategic Plan 2012–2020 and takes a deeper look at how countries are implementing these strategies.

The past year was a momentous one that marked the 50th anniversary of the introduction of the measles vaccine. The year 2013 also saw the World Health Organization (WHO) Region of South-East Asia (SEAR) become the final region to commit to measles elimination and rubella control by 2020. The impact of the measles vaccine on global public health has been tremendous. Before 1963, most of the world's population caught measles by their 15th birthday, resulting in an estimated 100 million cases and over 2 million deaths annually. By 2000, four decades of steadily increasing use of the vaccine saw a dramatic reduction of cases to just over half a million annually. In 2002, the Americas declared that measles was eliminated from the region. Between 2000 and 2012, measles vaccine coverage increased to reach more than eight in ten children globally, and deaths decreased by another 78 per cent to just 122,000 in 2012.

During this same time period, the number of countries providing a second dose of measles vaccine through routine immunization services increased from 96 (50 per cent) to 145 (75 per cent). Routine immunization is regularly supplemented with mass immunization campaigns, with approximately 145 million children in 33 countries vaccinated in 2012 and another 211 million children in 33 additional countries in 2013.

Measles elimination continues to leverage the polio eradication platform. In many countries, polio officers are extending their responsibilities to strengthen routine immunization activities through training of healthcare workers, providing logistics and cold chain expertise, ensuring the quality of measles campaigns and supporting district health departments in investigating and responding to measles outbreaks. Recognizing the value of these contributions, the M&RI set aside funds in 2012 to fund the salaries of surveillance networks in several countries.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths.

As many as 100,000 children are born with Congenital Rubella Syndrome each year.

These achievements would not have been possible without the extraordinary efforts of grassroots volunteers, national programs supported by partners, and the global commitment. Measles vaccine has the potential to save more lives between now and 2020 than all other vaccines combined.

$t$: The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

As we celebrate the remarkable impact of 50 years of measles vaccine use, we must also highlight the enormity and importance of the work yet to be done. One in five child deaths prevented since 1990 can be attributed to the use of measles vaccination, leaving no doubt that extensive use of the measles vaccine has made a significant contribution towards Millennium Development Goal 4.

As many as 100,000 children are born with Congenital Rubella Syndrome each year.

In 2012, we launched a global strategic plan leveraging the success of measles elimination activities and based on current progress, elimination goals are unlikely to be met in the year 2020, with an estimated 27,000 cases reported through September 2013. These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.

Since 2001, over $1 billion have been mobilised by the M&RI to reach 1.1 billion kids, averting more than 13.8 million measles deaths. To reach 2020 global measles and rubella elimination targets, it is estimated that the M&RI will require an additional $1 billion annually.

These events illustrate the need to sustain and accelerate progress in the high measles burden countries of the Western Hemisphere, Europe, Africa, and Asia.

Cancer patients in 13 countries, reaching over 25 million children in the last twelve months, have been mobilised by the M&RI, bringing the number of countries providing rubella-containing vaccine (RCV) to 78.

The problem is also readily apparent in wealthier countries. A large rubella outbreak in Japan in 2012 resulted in more than 1,600 cases of congenital rubella syndrome. The urgency to address rubella outbreaks now is clear; the threat of rubella is clear; the threat of congenital rubella syndrome is real.
Measles is a leading cause of childhood mortality with serious complications including pneumonia, diarrhea and blindness, especially in infants and children under the age of five. More than 20 million people are affected by measles each year, particularly in parts of Africa and Asia. Measles outbreaks are notably devastating in emergency settings and populations emerging from natural disasters. The outbreaks associated with the ongoing Syrian crisis and following Typhoon Haiyan in the Philippines are ample evidence of rapid transmission of the disease under emergency circumstances.

Acute rubella infection on the other hand is a mild disease in children and adults. For pregnant women however, particularly in the first trimester, there is a 90 per cent chance of having a foetus with congenital rubella syndrome (CRS) if she is infected with the rubella virus. The baby can be born with malformations including heart disorders, blindness, deafness or brain damage. A child born with CRS will require lifelong care and expensive treatment. Globally, an estimated 100,000 children were born with CRS in 2010.
In 2010, the 194 member countries gathered at the World Health Assembly (WHA) and resolved to reduce measles mortality by 95 per cent from the 2000 estimate. The 2012 WHA took further action and adopted the Global Vaccine Action Plan (GVAP) committing to measles elimination in four WHO regions, rubella elimination in two WHO regions by the end of 2015 and the elimination of both measles and rubella in five WHO regions by the year 2020. The GVAP is the foundation for the M&RI Global Strategic Plan 2012-2020 which articulates the following goals:

By the end of 2015
- To reduce global measles deaths by at least 95% compared with 2000 levels
- To achieve regional measles and rubella/congenital rubella syndrome elimination goals

By the end of 2020
- To achieve measles and rubella elimination in at least five WHO regions

The Plan provides clear strategies and targets for national immunization managers, working with various partners, to reach the 2015 and 2020 measles and rubella control and elimination goals.

The 2013 M&RI annual report highlights the strengths and vulnerabilities in the global effort to eliminate measles and rubella. The report is presented under each of the Plan’s five strategies situating measles and rubella control within the broader immunization landscape. It also shines a spotlight on country and regional activities to reach every child to protect them against measles and rubella.

Measles and rubella move fast. We can and must, move faster.
THE MEASLES & RUBELLA INITIATIVE 2013 ANNUAL REPORT

REGIONAL SUMMARIES

WHO AFRICAN REGION (AFR)

Four countries (Burundi, Kenya, Sao Tome and Zambia) introduced the second dose of measles-containing vaccine (MCV2), with Kenya using their own resources. Other countries plan to introduce MCV2 in 2014.

Improved quality of SIAs, with expanded use of “best practices,” followed by post-campaign coverage surveys.

Cape Verde held a successful MR SIA targeting those aged 9 months to 24 years of age with over 95% coverage in all districts documented by survey; the campaign had notably high level political support.

Ghana, Rwanda and Senegal introduced rubella-containing vaccine (RCV) into their routine immunization programs following well planned and high quality MR SIAs.

The Third Regional Measles Technical Advisory Group (TAG) met and addressed a wide range of challenges including how to improve routine measles coverage, SIA quality, and surveillance performance.

Stagnating coverage with first dose of measles vaccine (MCV1) in routine at a regional average of 74%.

Perennial challenge of mobilizing funds for follow up SIAs by national governments - in 2013, six AFR countries mobilized the M&RI target of 50% coverage for necessary operational costs.

Costs continue to increase for follow up SIAs given the need to target wider age groups.

Large outbreaks which are symptomatic of continuing difficulties reaching children in Democratic Republic of the Congo (DRC), Ethiopia and Nigeria.

CHALLENGES
WORLD REGION OF THE AMERICAS (AMR)

16 of 21 countries have introduced MR2 in their routine immunization schedules since 2012. In 2013, more than 62 million children were vaccinated through measles SIAs in Afghanistan, Djibouti, Pakistan, Somalia, Sudan and Yemen, in addition to measles outbreak response campaigns conducted in Jordan, Syria, Lebanon and Morocco. 16 of 21 countries have introduced the rubella vaccine into their EPI schedule and 13 have developed a national target for rubella and CRS elimination. 13 countries achieved coverage of more than 90 per cent with first dose of rubella-containing vaccine (RCV1) in 2012 as reported in 2013. All countries have moved to case-based measles surveillance with laboratory confirmation; for 20 countries, surveillance is nationwide while in Somalia the surveillance is in selected sentinel sites.

Challenges:
- Low measles, mumps, and rubella coverage in 2012 continued.
- Countries continue to struggle with outbreak response due to low vaccine coverage and inadequate surveillance.
- measles epidemiological and molecular surveillance did not meet the standard required to support validating measles elimination in most countries that have established nationwide surveillance.
- A large measles outbreak in Pakistan, Sudan and Lebanon, unprecedented events including conflicts and compromised security, massive population displacement, floods, and famine have negatively affected implementation of SIAs, field visits for supervision, monitoring and evaluation, supplies and logistics.
- The crisis in the Syrian Arab Republic and the influx of refugees to neighboring countries was associated with measles outbreaks in the Syrian Arab Republic, Iraq, Jordan and Lebanon which had all previously reported zero or very low measles incidence over the preceding three years.
- Measles epidemiological and molecular surveillance did not meet the standard required to support validating measles elimination in most countries that have established nationwide surveillance.

CHALLENGES

In the Americas, the situation is much more complex and is characterized by the combination of high prevalence of measles and rubella virus circulation, poor vaccine coverage, and inadequate surveillance. Low measles, mumps, and rubella coverage in 2012 continued. Countries continue to struggle with outbreak response due to low vaccine coverage and inadequate surveillance. Measles epidemiological and molecular surveillance did not meet the standard required to support validating measles elimination in most countries that have established nationwide surveillance.
WHO... million cases per million

CHALLENGES

Three countries (Georgia, Kyrgyzstan, and Mongolia) have more than 100,000 cases, with Poland having the highest number at over 1 million. 

The European region has seen a significant reduction in measles cases, with only 6 cases reported in 2012, which is a historic low. 

SEAR

Commitment established to eliminate measles and control rubella / CRS by 2020. 

Regional Surveillance Standards Workshop on measles and rubella / CRS was held to achieve consensus on the indicators to monitor progress towards the 2020 goal and agreement on the quality indicators for measles and rubella / CRS surveillance. 

Poliomyelitis Surveillance Medical Officer network in India, Nepal, and Bangladesh supporting the improvements of routine immunization services and reinforcing surveillance for other vaccine-preventable diseases. 

A preliminary estimate projects the cost to be in excess of USD $800 million for the region to achieve its measles and rubella goals. 

Expansion of laboratory network will be needed in almost all countries to strengthen the quality of measles / rubella surveillance. 

Several large population countries still need to introduce rubella vaccine and scale up MCV2. 

Countries will need additional financial resources as well as technical support to move from outbreak surveillance to case-based surveillance with laboratory or epidemiologically linked confirmation of all cases. 

WPR

An incidence rate of only six measles cases per million in 2012 hit a historic low for the region. 

SIAs were conducted in Cambodia, Federated States of Micronesia, and Vanuatu. 

Introduction of rubella vaccine into routine immunization in Laos and Solomon Islands. 

Finalization of the guidelines on Verification of Measles Elimination and submission of the first annual progress reports from 14 countries and areas. 

Establishment and training of a Sub-Regional Verification Commission for the Pacific islands. 

Outbreaks in China, Lao People’s Democratic Republic, Philippines, and Vietnam. 

MCV2 not yet included in Laos, Papua New Guinea (PNG), Solomon Islands, and Vanuatu. 

Rubella routine immunization not yet included in Cambodia, PNG, Vanuatu, and Vietnam. 


SEAR

Only 6 measles cases per million in 2012 hit a historic low in 2012.
Achieve and maintain high levels of population immunity by providing high vaccination coverage with two doses of measles, or measles-rubella-containing vaccines.

Because measles is highly infectious and will easily find pockets of non-immune populations, the WHO recommends that measles vaccine coverage, or measles-rubella vaccine if introduced, must reach or exceed 95 per cent with each of the two doses nationally; and in every district to reach measles and rubella elimination goals.

While many countries have made tremendous progress towards increasing population immunity, global coverage has been stagnant since 2009 at approximately 84 per cent (MCV1). Increased effort is required to accelerate progress and achieve recommended coverage at national and district levels.

During 2013, approximately 211 million children received MCV during SIAs conducted in 33 countries. Among these SIAs were the first ones to benefit from the GAVI support. GAVI funded measles SIAs in DR Congo, Ethiopia and Nigeria which reached approximately 52 million children, while the measles-rubella SIAs in Cambodia, Ghana, Rwanda and Senegal reached approximately 26 million children. To ensure high quality SIAs, the M&RI supported these same seven countries with technical assistance for planning and preparations, monitoring and evaluations.

Given the epidemiology in DR Congo, the M&RI topped up GAVI support to extend the target age to include children up to 9 years of age. In Nigeria, M&RI funds contributed to the outbreak response campaign and allowed planning and preparations for the nationwide preventive campaign to start in the period before GAVI funding was available. For the planned GAVI-funded measles SIA in Pakistan anticipated in the second quarter of 2014, the M&RI will be joining the national and provincial governments to purchase vaccines and injection devices to extend the target age range to cover children up to 9 years of age.

The two doses of measles-containing vaccines are normally administered at 9-12 months and 15-23 months of age. By providing high vaccination coverage with two doses, the WHO recommends that countries:

- VACCINATE MORE
- Achieve and maintain high levels of population immunity
- Achieve and maintain high levels of population immunity
As of December 2013, 136 (70 per cent) countries provide rubella-containing vaccine (RCV) through their immunization programmes; a 36 per cent increase from 99 countries in 2000. The M&RI continued to provide expert technical support to countries introducing RCV, and to monitor RCV progress in follow up campaigns in countries that have already introduced rubella vaccines. Cambodia, Nepal, Senegal, and Solomon Islands introduced RCV into their routine programmes in 2013; while Rwanda, with financial support from GAVI, became the first sub-Saharan Africa country to conduct a measles-rubella campaign. Ghana, Cambodia and Senegal followed thereafter. Over the next four years, M&RI partners will support an increasing number of countries introducing RCV while GAVI has committed to finance 49 of the 59 countries that do not provide RCV in their national immunization programmes.

To accelerate measles control in India, a policy decision was made in 2010 to increase population immunity by reaching more children with a first dose of measles vaccine and a second dose of measles vaccine at 16 to 24 months of age. Laboratory supported surveillance was adopted to monitor progress and identify areas and populations with suboptimal immunity. 2013 saw the completion of the rolling catch up campaigns targeting all children 9 months to 10 years in the 14 states whose routine MCV1 was below 80%. The measles catch up campaigns reached approximately 119 million children. Subsequently, these same states will introduce MCV2 in their routine programme. The surveillance data to date indicates that the measles catch up campaigns have reduced circulating measles virus and measles cases. Reported measles cases fell from 10,308 in 11 states reporting data in 2011 to 4,834 in 15 states reporting data in 2013. While laboratory supported measles surveillance from all states and Union Territories will not be available until the end of 2014, it’s clear that the measles catch-up campaigns have reduced measles transmission.
In 2013, UNICEF Supply Division (SD) procured more than 330 million doses of measles monovalent (MV), measles and rubella (MR) and measles, mumps and rubella (MMR) vaccines for both routine immunization and SIAs for 72 countries. The number of doses of monovalent measles vaccines delivered was nearly twice the number forecasted at the beginning of the year with additional demands of 33 million doses for routine, 98 million doses for SIAs, and 16 million doses for outbreak response and emergency campaigns. Similarly, combined measles and rubella vaccine (MR) demand increased sharply from 9 million doses in 2012 to over 100 million doses in 2013 as a result of GAVI supported MR campaigns. See the Annex for more information on UNICEF Supply Division procurements.

SD also dealt with emergency requests from countries who have not traditionally procured through UNICEF, meeting these demands through close coordination with the M&RI, the GAVI Alliance, and industry. However, the high proportion of orders requiring shipment in the third and fourth quarter placed a heavy burden on the system.

Currently, the MCV market landscape does not meet vaccine security requirements to ensure an uninterrupted and sustainable supply of affordable, quality vaccines. There is only a single manufacturer producing WHO-prequalified MR vaccine. This same manufacturer is also the largest supplier of MV vaccine and new MCV manufacturers are not likely to be prequalified before 2016. Maintaining effective cooperation between UNICEF Supply Division and the current manufacturer is critical to safeguarding supply and availability.

Demand for MCVs is anticipated to remain high for the next five years. Injection devices and safety boxes experienced growth and turbulence in demand, similar to vaccine supply, and further complicated by the longer lead times associated with sea shipments. Variance in forecasts in terms of quantities and timing, multiple large campaigns scheduled in close succession, and late funding availability all increased the risk of delays. While industry responded positively to the surge in demand, providing all materials in a timely manner required partial consumption of emergency response buffers. Improved planning and forecasting, and early release of funds (as injection devices and safety boxes are a relatively low portion of the total cost) to compensate for the longer lead times associated with sea shipment can improve supply security.

Meet Pong Ro, a 12 year old student at Pearaing Secondary School, Prey Veng Province. She is one of the 4.5 million children in Cambodia vaccinated with the measles-rubella vaccine in 2013. For Pong Ro, the media and public awareness campaign helped her and others in the school appreciate the benefits of the vaccine, particularly the rubella protection. When the M&RI external monitors visited the site, Pong Ro was asked if she knew why this vaccine was important. She replied that, “It was needed in order to have healthy babies,” referring to the rubella component of the vaccine, adding that she had learnt this through local television announcements.

“IT was needed in order to have healthy babies.”
The Global Vaccine Action Plan (GVAP) calls for measles elimination in five WHO regions by 2020, which can only be achieved with timely vaccination of 95 per cent of children with two doses of measles vaccine reaching every segment of society, including the poor, marginalized and the hard to reach.

The prevention of measles not only averts deaths directly associated with the disease, but also reduces socio-economic impact as well. Measles takes children out of school and parents or caregivers lose precious income when they stay home to care for sick children.

Many countries have included measles vaccination coverage as a marker for development. Given that measles is the last vaccine in the immunization schedule in most developing countries, achieving high rates of measles vaccination coverage can be a yardstick for national immunization programs.

Measles outbreaks often serve as an early and visible signal of faltering program performance and addressing these can help guide overall improvements. Just as measles and rubella control have leveraged the polio eradication platform, measles elimination activities have important synergies for other elements of child survival. Building a measles elimination program improves the capacity to collect and analyse surveillance data for program monitoring.

The wider application of a second dose of measles vaccine during the second year of life offers opportunities for other interventions such as a fourth dose of DPT and polio vaccines, administration of vitamin A and deworming medicines, distribution of insecticide-treated bed nets and growth monitoring. Supplementary immunization activities for measles have also been used in many countries to improve micro planning, logistics capacity and field supervision. Micro plans developed for measles SIAs have been used to plan outreach immunisation activities. In the preparatory phase, health workers undergo refresher training on immunization practices and supportive supervision.

Campaign rapid convenience surveys have also been used to identify unreached, underserved, or other marginalized populations. As with the addition of a second dose of measles vaccine, SIAs provide opportunities for other child survival interventions particularly in areas with limited access to health services.

In 2013, 80 per cent of SIAs included additional child health interventions (see table 2).

Guatemala

In 2013, Guatemala implemented a national measles and rubella follow-up campaign reaching 1,713,917 children aged 1 to 5 years, reaching a final coverage rate of 98 per cent. Other health interventions were administered including 354,312 doses of Vitamin A, 332,937 doses of deworming medication and 574,013 doses of oral rehydration solution.

Guatemala has a large indigenous Maya population so tailored vaccination strategies were developed for this cultural context. Mayan healthcare workers were trained to administer vaccine and other child health services. Community leaders also played a key role to establish vaccination sites in areas where people congregate, such as churches, schools, community centres and even in homes. Mayan mothers were strongly committed to the campaign and helped guide vaccination teams during the door-to-door strategy to ensure that all children received the MMR vaccine.
<table>
<thead>
<tr>
<th>Country</th>
<th>Region/Province</th>
<th>Age Group Targeted</th>
<th>Extent of CIA</th>
<th>Age Group CIA</th>
<th>WHO Region</th>
<th>CIA and Polio</th>
<th>CIA and BCG</th>
<th>Other Interventions Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Afghanistan</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: No</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Bangladesh</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Cambodia</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Cambodia</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: No</td>
</tr>
<tr>
<td>China</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: China</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>India</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: India</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Indonesia</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Indonesia</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Japan</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>South Korea</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: South Korea</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Malaysia</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Malaysia</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Philippines</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Sri Lanka</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Thailand</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Thailand</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
<tr>
<td>Vietnam</td>
<td>North Western Province</td>
<td>6-18 months</td>
<td>Extent of CIA: 93%</td>
<td>Age Group CIA: 93%</td>
<td>WHO Region: Vietnam</td>
<td>CIA and Polio: Yes</td>
<td>CIA and BCG: Yes</td>
<td>Other Interventions: Yes</td>
</tr>
</tbody>
</table>
Effective program monitoring requires case based surveillance with laboratory confirmation of suspected measles cases. During 2004-2012 the number of member states using case based surveillance increased from 120 (62 per cent) to 187 (96 per cent). As a result of vaccination efforts, the global number of reported measles cases has fallen from 359,267 in 2011 to a historic low of 226,722 in 2012. The global incidence of measles cases decreased by 37 per cent, from 52 to 33 cases per million population per year. All WHO regions experienced a decrease in 2012, following three years of increasing numbers of cases (Table 1). However, preliminary reports from 182 countries in 2013 suggest that cases are slightly up again from 2012 with 259,875 reported through October 2013, noting that India has not yet reported. The increase in 2013 is concentrated in just five countries. In Nigeria, reported cases sharply rose from 6,447 in 2012 to 55,335 by October 2013; China reported an increase from 6,183 reported cases in 2012 to 27,825 by October 2013; Democratic Republic of the Congo has seen numbers grow from 72,029 to 89,108 reported cases; Georgia from 31 to 7,830 reported cases and Turkey with 7,371 cases in 2013. In these countries, the preliminary increases in reported case numbers for 2013 reflect coverage gaps within routine immunization systems, delays in implementing SIAs and suboptimal SIA quality due to complacency.
The measles and rubella laboratory network in 2013...
THE MEASLES & RUBELLA INITIATIVE 2013 ANNUAL REPORT

large outbreaks in at least three regions, placing elimination goals at risk. Through October 2013, large outbreaks were reported in

March 2013 in DR Congo (89,108 cases), Nigeria (55,335 cases), China (27,825), Georgia (7,830 cases) and Turkey (7,371 cases).

Other European countries experiencing outbreaks included the Netherlands, Italy, the United Kingdom and Germany, which together reported over 7,500 cases.

The 2012 outbreak in Ukraine carried over into 2013, though cases dropped to 3,308 from 12,746 in 2012. The outbreaks in Georgia, Germany, and the United Kingdom affected older children and young adults missed by routine immunization.

Vaccine hesitancy has compounded the situation, affecting coverage in countries including France, the United Kingdom and Georgia. In Turkey, the outbreak hit pockets of low routine immunization coverage as well as young adults not fully immunized in their childhood.

The Netherlands outbreak primarily occurred among conservative religious communities that traditionally avoid vaccination.

In Syria, the ongoing conflict has disrupted the entire health system including its immunization program. According to WHO, measles vaccination coverage is estimated to have fallen from over 90 per cent before the conflict began, to about 65 per cent towards the end of 2013. Consequently, measles cases have risen from 13 in 2012 to over 700 by November 2013, with spread to neighbouring countries receiving Syrian refugees: Turkey (7,371 cases by October 2013), Lebanon (1,740 cases), Iraq (520 cases), and Jordan (120 cases). These countries had all been reporting less than 15 cases annually since 2010.

In response, Syria, Lebanon and Jordan held SIAs in 2013, while Iraq will conduct a campaign in 2014. In Pakistan, an outbreak originally reported in 2012 continued during 2013 with all provinces affected and more than 25,000 clinical cases reported.

Outbreak response immunization activities were carried out in Sindh and Punjab Provinces.

Nationally scheduled SIAs in 2013 were postponed due to a combination of reasons including lack of counterpart financing, but are now planned for 2014.

BE READY

large outbreaks were reported in DR Congo, Nigeria, China, Georgia and Turkey.

2013

through October 2013.

STRATEGY 3: DEVELOP AND MAINTAIN OUTBREAK PREPAREDNESS
Outbreak investigations repeatedly indicate that the overwhelming majority of cases occur amongst unvaccinated children. Immunization programmes by their second birthday. In routine data showed that an under five years campaign would not significantly reduce ongoing measles transmission. This observation complicates measles control, greatly increasing the costs and should be avoided by ensuring that at least 90 per cent of the children are reached with two doses of M&RI priority countries. In Angola, the outbreaks reveal areas of low cover age both by routine and SIAs. With support from government and the M&RI, outbreaks also affected Angola (6,505 cases) and Ethiopia (3,982 cases). In September 2013, outbreaks primarily affected China's outbreaks primarily affected 15 LASES (JA and A) were particularly affected in the States of Kano, Jigawa, Katsina, a, Kebbi, Kaduna, Sokoto, Zamfar Areas (JA and Otu and Bauchi. The latter then serve as a "reservoir" of children from being vaccinated.

The overwhelming majority of cases occur amongst unvaccinated children. Immunization programmes by their second birthday. In routine data showed that an under five years campaign would not significantly reduce ongoing measles transmission. This observation complicates measles control, greatly increasing the costs and should be avoided by ensuring that at least 90 per cent of the children are reached with two doses of M&RI priority countries. In Angola, the outbreaks reveal areas of low cover age both by routine and SIAs. With support from government and the M&RI, outbreaks also affected Angola (6,505 cases) and Ethiopia (3,982 cases). In September 2013, outbreaks primarily affected China's outbreaks primarily affected 15 LASES (JA and A) were particularly affected in the States of Kano, Jigawa, Katsina, a, Kebbi, Kaduna, Sokoto, Zamfar Areas (JA and Otu and Bauchi. The latter then serve as a "reservoir" of children from being vaccinated.

The overwhelming majority of cases occur amongst unvaccinated children. Immunization programmes by their second birthday. In routine data showed that an under five years campaign would not significantly reduce ongoing measles transmission. This observation complicates measles control, greatly increasing the costs and should be avoided by ensuring that at least 90 per cent of the children are reached with two doses of M&RI priority countries. In Angola, the outbreaks reveal areas of low cover age both by routine and SIAs. With support from government and the M&RI, outbreaks also affected Angola (6,505 cases) and Ethiopia (3,982 cases). In September 2013, outbreaks primarily affected China's outbreaks primarily affected 15 LASES (JA and A) were particularly affected in the States of Kano, Jigawa, Katsina, a, Kebbi, Kaduna, Sokoto, Zamfar Areas (JA and Otu and Bauchi. The latter then serve as a "reservoir" of children from being vaccinated.
The Syrian children who live in 164 heavily affected areas in six northern states. The outbreak fund also provided $39,000 for operational costs to respond to two small localized outbreaks in the country.

In response to the large outbreak in 2013, Nigeria requested support for an SIA targeting children 9 months of age. The outbreak response fund provided $2.1 million (50 per cent of the fund’s ceiling) to address immunity gaps among children 5 to 10 years of age, with 4.3 million displaced children living in dire circumstances within the country.

The 2013 fund was mobilised from the government, UNICEF, and WHO, to respond to one outbreak and in Romania 20,812 cases were reported in 2012, of which 59 per cent were adolescent boys and young men; 9 per cent were older age groups.

In Pakistan, the nationwide outbreak called for an SIA targeting children 9 months of age with measles vaccine and less than one case was confirmed measles; (2) a plan of action that describes outbreak response activities; (3) evidence of commitment from the Ministry of Health, WHO, UNICEF and the outbreak fund manager to ensure that the outbreak will be contained in the next 90 days or the outbreak will be contained in the next 90 days, and (4) evidence of a plan of action to prevent outbreaks in the future.

In 2013, the fund awarded support for a nationwide preventive SIA in Niger that focused on vaccinating girls to prevent them from becoming infected with rubella position recommending vaccination of both males and females with rubella containing vaccine, fewer outbreaks and in Romania 20,812 cases were reported in 2012, of which 59 per cent were adolescent boys and young men; 9 per cent were older age groups.

Countries experiencing a significant measles outbreak of national public health importance and cannot respond to the outbreak fast enough with local funding are eligible to apply for support from the fund. To access this funding, countries must demonstrate (1) evidence of a requirement for outbreak response, (2) a plan of action that describes outbreak response activities, (3) evidence of commitment from the Ministry of Health, WHO, UNICEF and the outbreak fund manager to ensure that the outbreak will be contained in the next 90 days or the outbreak will be contained in the next 90 days, and (4) evidence of a plan of action to prevent outbreaks in the future.

In Nigeria, the nationwide outbreak called for an SIA targeting children 9 months of age with measles vaccine and less than one case was confirmed measles; (2) a plan of action that describes outbreak response activities; (3) evidence of commitment from the Ministry of Health, WHO, UNICEF and the outbreak fund manager to ensure that the outbreak will be contained in the next 90 days or the outbreak will be contained in the next 90 days, and (4) evidence of a plan of action to prevent outbreaks in the future.

The fund is managed by the M&RI and began to receive applications from countries in early 2013, initially from Pakistan, Turkey and other countries experiencing a significant measles outbreak of national public health importance and cannot respond to the outbreak fast enough with local funding.
Communications and social mobilization play a critical role in conducting measles or measles-rubella SIAs. Engaging with communities, parents, and caregivers to stimulate demand for vaccination requires tremendous effort and coordination. Reaching targeted coverage results require plans and strategies to reach various segments of society from policy and decision makers, media, religious groups, community leaders, families, and individuals.

Increasingly, social and epidemiological data and surveys influence the development of strategies to address awareness, motivation for vaccination, and to target efforts to reduce the number of children missed in high-risk areas. Mobilizing community resources, distribution of tailored information to different audiences, and generating local support are an integral part of the process. The M&RI relies heavily on the efforts of partners like the LGFA, Lions Clubs, and Red Cross to carry out communications and social mobilization efforts. Their combined resources and local networks saw 250,000 volunteers mobilize millions of families in 13 countries in 2013.

### Botswana

<table>
<thead>
<tr>
<th>Country</th>
<th>Volunteers</th>
<th>Heads</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>41,399</td>
<td>6,054</td>
<td>6054</td>
</tr>
<tr>
<td>Vanuatu</td>
<td>200</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Micronesia</td>
<td>7</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Togo</td>
<td>3,337</td>
<td>2,941</td>
<td>2,941</td>
</tr>
<tr>
<td>Somalia</td>
<td>6,753</td>
<td>3,467</td>
<td>3,467</td>
</tr>
<tr>
<td>Jordan</td>
<td>3,030</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Comoros</td>
<td>306</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>DR Congo</td>
<td>27,306</td>
<td>27,303</td>
<td>27,303</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>33,678</td>
<td>29,678</td>
<td>29,678</td>
</tr>
<tr>
<td>Rwanda</td>
<td>45,123</td>
<td>4,807</td>
<td>4,807</td>
</tr>
<tr>
<td>Malawi</td>
<td>24,879</td>
<td>9,885</td>
<td>9,885</td>
</tr>
<tr>
<td>Senegal</td>
<td>6,479</td>
<td>5,532</td>
<td>5,532</td>
</tr>
<tr>
<td>Swaziland</td>
<td>732</td>
<td>488</td>
<td>488</td>
</tr>
<tr>
<td>Cape Verde</td>
<td>4,529</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Total</td>
<td>250,391</td>
<td>111,012</td>
<td>111,012</td>
</tr>
</tbody>
</table>

In November 2013, a national vaccination campaign was rolled out across all 28 districts in Malawi. In 2010, at least 134,000 people were infected during a measles outbreak with 300 people, mostly children, dying. Ethel Chisale, 26, was one of those who endured the 2010 outbreak, becoming extremely ill. In Mchingi district, Ethel convinces Marita Positain to have her two children, five year old Letira and one year old Professor, vaccinated. "I have suffered," Ethel says, "I volunteer because I don't want others to have to go through the same thing. I am a living testimony to the importance of vaccines." Ethel Chisale was one of more than 1,800 Malawi Red Cross Society volunteers that supported social mobilization efforts in six districts with house-to-house canvassing. Each volunteer was tasked with reaching 100 households to share information about the campaign and the importance of being vaccinated and providing details on the location of vaccination sites.
Perform the research and development needed to support cost-effective operations and improve vaccination and diagnostic tools.

In 2013, the measles and rubella working group of the Strategic Advisory Group (SAGE) completed a survey of partners to identify priority gaps in essential evidence and program barriers to achieving measles and rubella elimination targets. The SAGE subsequently endorsed the findings of the survey and encouraged the working group to disseminate them and to promote implementation of the research agenda previously published in Vaccine in 2012.

Innovative strategies and novel methods for vaccine delivery could significantly increase vaccination coverage, as well as reduce costs. Currently, most measles vaccine is given by hypodermic needle injection. This delivery method has several drawbacks including the pain of injection, the need for vaccine reconstitution and injection by skilled health professionals, and the need for refrigeration. To overcome these limitations, studies to develop a microneedle patch are underway. Microneedles are micron-scale (500-800 µm), solid, water-soluble needles on a Band-Aid® like patch that encapsulate a dry form of the vaccine that rapidly dissolves in the skin upon application. Microneedle patches cause little or no pain, are easily administered by minimally-trained personnel, and potentially may be self-administered. Because the microneedles dissolve in the skin, they cannot be re-used and do not generate hazardous waste.

Preliminary study results have shown that measles vaccine can be incorporated into microneedle patches at a dose equal to that used in standard immunizations, and that tests in animal models produced similar levels of protective antibodies. The microneedle patches can be stored at room temperature for up to one month with only minor loss of potency, and they are projected to cost the same or less than current measles vaccine. Analysis is ongoing to determine the cost-effectiveness of microneedle patches compared to sub-cutaneous injections in childhood measles vaccination programs. Additionally, studies are in progress to evaluate a microneedle patch containing both measles and rubella vaccine.
Key supporters of the Measles & Rubella Initiative include countries and governments affected by measles, rubella and CRS, and the following:

- American Academy of Pediatrics
- Anne Ray Charitable Trust
- Bill and Melinda Gates Foundation
- Canadian International Development Agency (CIDA)
- Church of Jesus Christ of Latter-day Saints
- GAVI Alliance
- Global Payments, Inc.
- German and Katherine Peters Foundation
- International Federation of Pharmaceutical Manufacturers Association
- International Federation of Red Cross and Red Crescent Societies
- International Pediatric Association
- Izumi Foundation
- Japanese Agency for Development Cooperation (JICA)
- Jeppesen Lighthouses International Foundation
- Merck Co. Foundation
- Norwegian Ministry of Foreign Affairs
- ONE Campaign
- Red Cross and Red Crescent chapters
- Sabin Vaccine Institute
- Task Force for Global Health
- United Kingdom Department for International Development
- Vodafone Foundation
- World Bank
- WNVBA

The Measles & Rubella Initiative is also grateful to its many individual private donors.

THE MEASLES & RUBELLA INITIATIVE PARTNERS
OUR PARTNERS, FINANCIALS & MANAGEMENT TEAM
The illustrations were produced by acclaimed illustrator Sophie Blackall for the Children’s Book Foundation’s annual "Save the Children’s Book" campaign. The 2013 edition featured illustrations of Malta’s Three Boys, published in 1951.

The foundation distributed 4,684,800 copies of "Save the Children’s Book" to schools in 2013, including emergency response vaccination (outbreaks and humanitarian emergencies).

### Table: MMR Reporting

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated Population</th>
<th>MMR Vaccinations</th>
<th>MMR Coverage</th>
<th>MMR Exemptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lebanon</td>
<td>4,800,000</td>
<td>5,000,000</td>
<td>1,000,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>9,600,000</td>
<td>10,000,000</td>
<td>2,000,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>809,600</td>
<td>850,000</td>
<td>150,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>200,000</td>
<td>210,000</td>
<td>20,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>890,573</td>
<td>900,000</td>
<td>10,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

### Table: Measles Reporting

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated Population</th>
<th>Measles Vaccinations</th>
<th>Measles Coverage</th>
<th>Measles Exemptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lebanon</td>
<td>4,800,000</td>
<td>5,000,000</td>
<td>1,000,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>9,600,000</td>
<td>10,000,000</td>
<td>2,000,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>809,600</td>
<td>850,000</td>
<td>150,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>200,000</td>
<td>210,000</td>
<td>20,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>890,573</td>
<td>900,000</td>
<td>10,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

### Table: Middle East and North Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated Population</th>
<th>Measles Vaccinations</th>
<th>Measles Coverage</th>
<th>Measles Exemptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lebanon</td>
<td>4,800,000</td>
<td>5,000,000</td>
<td>1,000,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>9,600,000</td>
<td>10,000,000</td>
<td>2,000,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>809,600</td>
<td>850,000</td>
<td>150,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>200,000</td>
<td>210,000</td>
<td>20,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>890,573</td>
<td>900,000</td>
<td>10,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>

### Table: Middle East and North Africa

<table>
<thead>
<tr>
<th>Country</th>
<th>Estimated Population</th>
<th>Measles Vaccinations</th>
<th>Measles Coverage</th>
<th>Measles Exemptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lebanon</td>
<td>4,800,000</td>
<td>5,000,000</td>
<td>1,000,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>9,600,000</td>
<td>10,000,000</td>
<td>2,000,000</td>
<td>200,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>809,600</td>
<td>850,000</td>
<td>150,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>200,000</td>
<td>210,000</td>
<td>20,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Lebanon</td>
<td>890,573</td>
<td>900,000</td>
<td>10,000</td>
<td>1,000</td>
</tr>
</tbody>
</table>
Measles moves fast
We must move faster