

## Addendum to the Measles Investment Case

### Submitted to the GAVI Board by WHO (on behalf of the Africa Measles Partnership) and the GAVI Secretariat

During its 6 May 2004 teleconference, the GAVI Board gave conditional approval to a proposal by the Africa Measles Partnership to use \$50 million in Vaccine Fund resources over 5 years for accelerated and sustained measles mortality reduction activities in Africa. There was consensus that the case for GAVI to invest in measles was compelling.

However, some concerns were raised about how to ensure that the investment would:

- (a) be **aligned with GAVI/Vaccine Fund's strategic vision**. Indeed, the Vaccine Fund should not be considered as 'just another donor';
- (b) capitalize on **front-loading** and be **time-limited**. This implies that the activities proposed for funding make sense as a one time investment, comparable to new antigen introduction or one-time system strengthening;
- (c) **provide a "step-change" in immunization** through **innovative processes** that will be sustained by non-Vaccine Fund resources at this new level of performance; and
- (d) build on **country-owned** processes that will be amenable to review and accountability mechanisms that characterizes GAVI.

Further, some Board members felt that additional clarification was needed to propose specifically how Vaccine Fund resources would be used and to assure that routine immunization services would be enhanced and not harmed in countries implementing the proposed program.

The Board therefore requested the Director of the WHO Department of Immunization, Vaccines & Biologicals (IVB) and the GAVI Executive Secretary to prepare the present addendum to the Measles Investment Case for circulation to Board members to address Board concerns and to provide options for moving forward. This response was prepared with input from the Measles Partnership as the originators of the proposal submitted to, and approved by, the GAVI Board.

#### 1. Measles mortality reduction and the GAVI/Vaccine Fund strategic vision

Given that measles is the leading cause of vaccine-preventable mortality of children, an investment in accelerated and sustained measles mortality reduction is fully aligned with GAVI's mission "*to protect children of all nations and of all socioeconomic levels against vaccine-preventable diseases*". As outlined in the Statement on an Immunization System Strengthening Approach to Measles Mortality Reduction issued during its 9<sup>th</sup> Board Meeting, GAVI supports the full implementation of the WHO-UNICEF recommended strategy for measles mortality reduction, including the strengthening of immunization systems and conducting periodic measles supplementary immunization activities. Moreover, measles mortality reduction represents a major step towards the achievement of four of GAVI's six strategic objectives:

- Improve access to sustainable immunization services;

- Expand the use of all existing safe and cost-effective vaccines, and promote delivery of other appropriate interventions at immunization contacts;
- Support the national and international accelerated disease control targets for vaccine-preventable diseases;
- Make immunization coverage a centerpiece in international development efforts.

In addition, supporting measles mortality reduction activities is completely in line with the Vaccine Fund's mission *"to ensure that every child, everywhere has equal access to life-saving vaccines"*.

## **2. Front-loaded, time-limited, one-time funding**

As stated in the IFF proposal, the ultimate case for an early investment (frontloading) is the positive yields in global public goods. The strongest argument for frontloading investment in any immunization activity is the significant humanitarian benefit of a reduction in mortality and morbidity in a manner that reduces overall long term costs.

In countries with low vaccination coverage for diseases such as measles, it is essential to protect the susceptible population as quickly as possible. This is most effectively done through campaigns. Large "catch-up" campaigns result in protection of the individuals vaccinated directly but also help to protect the unvaccinated by limiting the chances that they will be exposed to the virus. In the case of measles, once the routine system for delivering vaccine is sufficiently robust, the need for and cost of campaigns can largely be replaced by routinely providing a routine "second dose" of vaccine. Early investment in campaigns is therefore particularly effective in saving lives in countries with limited routine delivery systems while the health system can be geared up to do this as part of its routine primary health care service delivery. Further, early investment in building systems if well targeted will limit the need for future campaigns.

There are a number of economic benefits to frontloading investments in measles immunization, including: a) cost savings to the health system of preventing rather than treating measles, especially in epidemic settings; b) improved productivity of households as a result of better health; and, c) general economic gains or returns to investment on immunization. Analyses have demonstrated the cost savings argument, most particularly for measles; numerous reports in the literature support the notion that families/households with healthier children have higher incomes, allocate their resources in healthier ways, and have other benefits. The savings generated for the health system could potentially be reallocated into other cost-effective priority health interventions. Early findings from ongoing studies of the broader economic impact show that investment in the vaccine preventable disease mortality reduction can be expected to yield an economic rate of return of 10-20 percent or more, similar to that of primary education.

The Africa Measles Partnership fully understands that the Vaccine Fund investment is time-limited for the period 2005-2009 and that no further funding should be expected from this source for this purpose beyond this period. The overall purpose of this "front-loaded" investment is to help high burden countries in Africa rapidly decrease measles morbidity and mortality by facilitating the implementation of a comprehensive, long-term strategy for accelerated and sustained measles mortality reduction.

The Vaccine Fund support would be used primarily to implement "catch-up" campaigns in the 10 African countries that have not yet conducted them. This support will complement ongoing Vaccine Fund efforts to strengthen immunization systems through Immunization Services Support (ISS) funding. As presented in the Measles Investment Case, during the project period

efforts will be made to assure financial sustainability of measles mortality reduction activities through national funding and bilateral aid.

**3. Provide a "step-change" in immunization through innovative processes: *Maximizing benefits, minimizing potential negative impact of measles campaigns on routine immunization***

At the GAVI Executive Committee Retreat (June 2-3, 2004) a list of five principles for the use of Vaccine Fund resources were recommended including "catalytic step function" as follows:

*"Catalytic step function.* The activities lead to a step-up functional change in a current situation through innovative processes by fulfilling at least one of the following:

- i. Add substantial impact beyond the specific activities that are funded
- ii. Have an impact that lasts longer than the funding
- iii. Develop innovative models that could be applied more broadly
- iv. Are capital investments or one-time expenses that lead to a new level of performance."

With reference to the Measles Investment Case the following can be highlighted:

- i) The impact of the proposed activities extend beyond those being funded in several ways including: herd immunity which protects those who remain unimmunized; and the economic savings that result from better health and lower treatment spending.
- ii) These activities particularly the campaigns can result in long term declines in the rate of measles transmission further extending the benefits described above, both due to immediate reductions in the numbers of susceptibles and longer-term because of the greater efficacy of the vaccine when given to older age groups.
- iii) Providing support to higher performing countries to introduce a routine 2<sup>nd</sup> dose of measles is a model for longer term sustainability. Moreover, establishing immunization contacts beyond the 1<sup>st</sup> year of life provides additional benefits in strengthening the ability of health systems to deliver "immunization plus" services (e.g. vitamin A supplementation, anti-helminthics, bednets, etc).
- iv) The text below describes in detail how the one time capital investment requested will lead to new levels of performance both for measles mortality reduction and the overall immunization system.

An investment in measles will result in a rapid and sustained reduction in measles deaths in Africa. With GAVI/Vaccine Fund's additional support and that of other partners, measles mortality in the 35 target countries<sup>1</sup> can be reduced by 85% from current estimates of 332,000 annual deaths, to 52,000 annual deaths by 2009. Since large measles outbreaks will no longer be

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<sup>1</sup> Angola, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Cote d'Ivoire, Democratic Republic of the Congo, Djibouti, Eritrea, Ethiopia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, The Republic of the Congo, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe.

a regular event, health care workers' time will no longer be diverted to responding to measles outbreaks.

Although measles vaccine has been available for over 40 years, appropriate strategies for its use have only recently become apparent. Experience from many countries has shown that achieving and maintaining reductions in measles deaths will require providing all children with a **second opportunity for measles immunization**.

The need for a second opportunity for measles immunization arises from the highly infectious nature of measles, the fact that 10-20% of nine-month olds receiving vaccine will not be protected (as a result of persisting maternally-derived antibody and other factors), and the fact that only 57% of nine-month olds in target countries currently receive measles vaccine. The WHO/UNICEF comprehensive immunization strategy for sustainable measles mortality reduction was endorsed by the 2003 World Health Assembly.

Almost all industrialized countries and many middle income countries provide children with a second opportunity for measles immunization. Worldwide, more than 150 countries provide children with such a second opportunity, 105 of them through a routine two-dose schedule. The second opportunity for measles immunization can be provided through periodic supplementary immunization activities (in most developing countries) or through a routine two-dose schedule (in countries with well-developed immunization infrastructures). Importantly, supplementary immunization activities have the advantage of reaching children who never received a first dose of measles vaccine. However, many poor countries are not yet implementing this strategy. Not coincidentally, these countries continue to have the highest disease burden and death toll. Thus, measles vaccine can be clearly considered as an underutilized vaccine in the poorest countries.

In addition to the significant decrease in measles deaths expected from the implementation of periodic immunization activities, the project will introduce an additional "step-change" in immunization which will facilitate the sustainability of measles mortality reduction through the initiation of the transition of countries with well-functioning national EPI programmes from periodic follow-up campaigns to a routine two-dose measles vaccination schedule, with the benefit of progressively reducing the need for campaigns. This has the advantage of eventual suspension of the resource intensive implementation of measles supplemental immunization activities in favour of stable budgeting for a universal two-dose schedule.

With careful planning, positive spin-off benefits from measles campaigns will accrue to national EPI programmes in the form of better trained staff (especially in micro-planning, injection safety and monitoring), upgraded cold chain equipment and improved measles surveillance. Additional human resources will be mobilized, including those from the private sector and health care training institutions, to avoid the interruption of routine services during measles campaigns. Further benefits can be realized at no additional cost to national health programs. These potential benefits are outlined below:

- During measles campaigns, key community leaders will place emphasis on the critical importance of achieving and maintaining high routine immunization coverage to sustain the impact of the campaign.
- Partners who support the planning and implementation of campaigns will be encouraged to participate in national Interagency Coordinating Committees for strengthening routine immunization services.

- Information obtained from monitoring and evaluation of campaign activities will be used to identify previously un-reached populations that can be targeted for improved service delivery.

Further potential benefits can be obtained at marginal cost to the immunization program. These benefits include:

- Community agents used for social mobilization activities during the campaign will be recruited to assure ongoing high demand for routine immunization services.
- Measles campaigns will be used as opportunities to periodically reinforce the immunization infrastructure by increasing human resource capacity, strengthening the cold chain and assuring immunization safety and appropriate waste management.

As the WHO/UNICEF guidelines for accelerated measles mortality reduction are developed and revised, efforts will be made to assure that benefits to routine immunization are addressed. These efforts will include advising National Interagency Coordinating Committees (ICCs) to develop review criteria for measles control plans which include such potential benefits.

These additional benefits will undoubtedly contribute towards the achievement of the GAVI global goal of achieving 90% national routine vaccination coverage, with at least 80% coverage in every district.

#### **4. Assuring country ownership of measles mortality reduction activities**

Measles remains the leading vaccine-preventable cause of child deaths. Moreover, the disease is highly visible and its burden is well known to mothers, health care workers and policy makers throughout the developing world. There is a very high demand for measles vaccine at the community level throughout Africa. Indeed, greater response to public demand for measles immunization is expected to stimulate trust by the community on health care providers and demand for other vaccines and priority public health interventions.

To assure a sustained reduction in measles deaths, countries need to have a long-term vision and full ownership of the goals, strategies and plans for measles mortality reduction. Efforts will continue to ensure that countries develop comprehensive multi/year national immunization plans which include plans of action for accelerated and sustained measles mortality reduction. These plans will be integrated into strategic plans and budgets of ministries of health and translated into national annual plans to ensure implementation and country ownership.

#### **In summary:**

The proposal submitted by the Measles Partnership for accelerated and sustained measles mortality reduction fully meets the strategic objectives of the Global Alliance for Vaccines and Immunization, and the Africa Measles Partnership is confident that the present addendum will satisfy the concerns expressed by several members of the GAVI Board:

- Supporting accelerated and sustained measles mortality reduction activities in high burden countries is fully **aligned with GAVI/Vaccine Fund's strategic vision;**

- Providing funding for one-time-only "catch-up" campaigns and transitioning to a routine two-dose immunization schedule is **front-loaded** and **time-limited**;
- Implementing measles supplementary immunization activities will result in a major reduction in measles mortality, and will strengthen immunization services to facilitate a **step-change in immunization through innovative processes**, such as supporting the transition to a routine 2<sup>nd</sup> dose for measles, that will be sustainable by non-Vaccine Fund resources; and
- Establishing national goals, policies, strategies and plans that are endorsed by Interagency Coordinating Committees will **assure country ownership** and sustainability of measles mortality reduction activities.

GAVI/Vaccine Fund support will result in a massive impact on measles mortality; approximately 1.84 million children's lives will be saved by the project over the period 2005 through 2009. It fully supports GAVI's interest in developing impact and outcome objectives and will be a major asset to achieve the Millennium Development Goal of reducing child mortality. GAVI/Vaccine Fund support will be catalytic by accelerating the pace of progress towards measles mortality reduction through supplemental immunization activities, and increasing the sustainability of those achievements by introducing routine two-dose measles vaccination into a continent where, for all practical purposes, it has not yet been implemented.

Investing in accelerated and sustained measles mortality reduction activities will clearly demonstrate to countries and partners that GAVI and the Vaccine Fund are responding to a public health priority in Africa and are committed to achieving international child mortality reduction goals. Finally, it will demonstrate GAVI's affirmation that "infants and children born in developing countries have the human right to be protected against measles".

## **Options for channelling Vaccine Fund support for measles mortality reduction:**

### **Option A:**

As per the Measles Investment Case, the Vaccine Fund contributes \$50 million to the UN Foundation (\$10 million per year for 5 years). Countries will access these resources through the Africa Measles Partnership. All activities will be fully consistent with current WHO/UNICEF measles mortality reduction strategies. This contribution would leverage an additional \$12.5 million matching grant by the UN Foundation for measles mortality reduction activities.

Specifically the Vaccine Fund would contribute to:

- Supporting "catch-up" campaigns in the 10 African countries that to date have not yet conducted them (Central African Republic, Chad, Democratic Republic of Congo, Djibouti, Mozambique, Nigeria, Niger, Sudan, Somalia and Republic of Congo);
- Providing support for periodic "follow-up" campaigns in low-performing countries; and
- Providing support for other appropriate measles mortality control strategies, including transition to a routine two-dose schedule in selected countries which have the capacity of maintaining high levels of routine measles vaccination coverage.

As outlined in the Measles Investment Case, the approximate allocation of these funds would be \$30 million for bundled measles vaccine purchase and \$20 million for selected operational costs, including health care worker training, transport, monitoring and evaluation.

### **Review Process and Reporting:**

WHO/AFRO provides guidelines to countries and countries prepare plans of action for accelerated and sustained measles mortality reduction. These plans are reviewed and approved by the national Interagency Coordinating Committees (ICCs) and are forwarded to the Measles Partnership through WHO. The Measles Partnership is a coordination mechanism for partners to provide support for national plans. These country plans are reviewed by all partners, including WHO, UNICEF, CDC, UNF and the Red Cross. Feedback is provided to countries, usually focusing on increasing operational efficiencies, identifying funding gaps, and inclusion of additional partners. Based on this feedback, countries, in collaboration with ICC partners, are able to revise their applications, accordingly.

The ICC is responsible for providing oversight for the planning, implementation, monitoring and evaluation of measles mortality reduction activities.

As described in the "Monitoring of process and evaluation of impact" section of the Measles Investment Case document (page 34) WHO and UNICEF are required to submit to UNF one annual progress report based, in part, on country reports to them. UNF then distributes the report to partner donors (which would include GAVI/VF). Semi-annual financial reports to UNF are required from WHO and UNICEF. UNF then distributes the reports to partners; if GAVI/VF awards the funds requested through the UNF, GAVI/VF would receive copies of the same reports.**Strengths:**

- Leverage an additional \$12.5 million in matching funds for accelerated and sustained measles mortality reduction;

- Take full advantage of existing and well functioning Africa Measles Partnership; and
- Adding value to GAVI by encouraging other immunization partnerships.

**Weaknesses:**

- To date, focus of Africa Measles Partnership has been on planning and implementing measles campaigns to provide children with a second opportunity for measles immunization;
- Expands existing GAVI/Vaccine Fund channelling mechanisms; and
- May be perceived as setting a precedent of GAVI/Vaccine Fund providing support for a single disease reduction initiative.

**Option B:**

Per the recommendation of the World Bank Board member, the Vaccine Fund contributes \$37 million to UN Foundation for "catch-up" campaigns, and makes available using existing GAVI processes \$13 million to support implementation of a routine second dose of measles vaccine in selected countries. The UN Foundation contribution would leverage an additional \$9.25 million matching grant. Countries access resources for catch-up campaigns through the Measles Partnership; countries access resources for routine second measles dose through GAVI/Vaccine Fund country application mechanism.

Ten countries in Africa with low coverage have not yet conducted "catch-up" campaigns (Central African Republic, Chad, Democratic Republic of Congo, Djibouti, Mozambique, Nigeria, Niger, Sudan, Somalia and Republic of Congo). These countries would access the Vaccine Fund resources through the Partnership's own process, i.e. the Vaccine Fund contribution would be combined with other donors' contributions. The Measles Investment Case estimated that the total cost for the needed "catch-up" campaigns is approximately \$125 million; the Vaccine Fund is asked to contribute approximately one-third of this, or \$37 million (\$18 million for bundled vaccine supplies; \$19 million for operational costs). By prioritizing and frontloading support for the "catch-up" campaigns, Vaccine Fund resources would thus not be available to for follow-up campaigns in these countries<sup>2</sup>.

Higher performing countries would access routine measles second dose Vaccine Fund support through the current GAVI/Vaccine Fund process. This will help ensure national ownership and inclusion of these long term activities in national plans. The Measles Investment Case estimated that five countries fall into this category and that the total multi-year commitment to meet the objectives for this group of countries would be \$13m (\$12 million for vaccine/supplies and \$1 million for operational "start-up" costs).

**Review Process and Reporting:**

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<sup>2</sup> The Measles Investment Case estimated \$136 million for measles "follow-up" campaigns of which the Africa Measles Partnership has confirmed commitments of \$55 million, leaving a funding short fall of \$81 million to be filled.

For countries requesting support for "catch-up" campaigns, the processes outlined under Option A above will be followed.

For countries requesting support for strengthening routine measles immunization, current GAVI guidelines for application and monitoring processes will be followed, with the usual approval and reporting to the Board.

**Strengths:**

- Leverage an additional \$9.25 million in matching funds for accelerated and sustained measles mortality reduction;
- Take full advantage of strengths of both GAVI/Vaccine Fund and Africa Measles Partnership;
- Innovative approach for assuring sustainability of measles mortality reduction efforts; and
- Promotes country ownership by providing additional funds for immunization system strengthening.

**Weaknesses:**

- Lose \$3.25 million in matching funds from UN Foundation.

**Summary: Options for channelling Vaccine Fund support for measles mortality reduction**

<b>Options</b>	<b>Strengths</b>	<b>Weaknesses</b>
<p><b><u>Option A:</u></b></p> <ul style="list-style-type: none"> <li>• <b>As per the Measles Investment Case, Vaccine Fund contributes \$50 million to the UN Foundation (\$10 million per year for five years)</b></li> <li>• <b>Countries will access these resources through the Africa Measles Partnership</b></li> </ul>	<ul style="list-style-type: none"> <li>• Leverages an additional \$12.5 million in matching funds</li> <li>• Takes full advantage of Africa Measles Partnership</li> <li>• Adds value to GAVI by encouraging other immunization partnerships</li> </ul>	<ul style="list-style-type: none"> <li>• To date, focus of Africa Measles Partnership has been on measles campaigns rather than on routine strengthening</li> <li>• Expands existing GAVI/Vaccine Fund channels</li> <li>• May be perceived as setting a precedent for GAVI/Vaccine Fund by providing support for a single disease reduction initiative</li> </ul>
<p><b><u>Option B:</u></b></p> <ul style="list-style-type: none"> <li>• <b>Vaccine Fund contributes \$37 million to UN Foundation for "catch-up" campaigns, and \$13 million earmarked to support routine second dose in selected countries via GAVI/Vaccine Fund application processes</b></li> <li>• <b>The UN Foundation leverages an additional \$9.25 million</b></li> <li>• <b>Countries access resources for catch-up campaigns through the Measles Partnership and for support for the routine second measles dose through a GAVI/Vaccine Fund country application mechanism</b></li> </ul>	<ul style="list-style-type: none"> <li>• Leverages an additional \$9.25 million in matching funds</li> <li>• Takes full advantage of strengths of both GAVI/Vaccine Fund and Africa Measles Partnership</li> <li>• Innovatively assures sustainability of measles mortality reduction</li> <li>• Promotes country ownership through immunization system strengthening</li> </ul>	<ul style="list-style-type: none"> <li>• Loses \$3.25 million in matching funds from UN Foundation</li> <li>• Requires countries to submit an additional application to GAVI</li> </ul>