Global immunization vision and strategy - Report by the secretariat

Immunization averts an estimated 2.5 million deaths annually across all age groups. In 2009, an estimated 107 million infants were vaccinated with three doses of diphtheria-tetanus-pertussis (DTP3) containing vaccine. In spite of this unprecedented achievement, almost 1.7 million children continue to die from vaccine preventable diseases, nearly 20% of the 8.8 million deaths in children under 5.

The sixty-first Health Assembly reviewed progress towards the implementation of the Global Immunization Vision and Strategy (GIVS) endorsed by the fifty-eighth Health Assembly and urged for its full implementation. This report describes progress since 2008.

1. Routine immunization

Between 2000 and 2009, global immunization coverage increased from 74% to 82%, primarily because of improvements in the African (+16%), Eastern Mediterranean (+12%), and Western Pacific (+10%) regions, while coverage has remained high in the Americas and in Europe.

One GIVS goals is for countries to reach at least 90% coverage nationally and 80% in every district by 2010. In 2009, 122 of the 193 Member States had reached national level DTP3 coverage of 90%. There is slow or lack of progress in some countries with large birth cohorts which affects global coverage. For 2009 it was estimated that over 23 million infants failed to receive DTP3 by their first birthday; nearly two-thirds (62%) of these children live in six countries (India, Nigeria, Pakistan, Indonesia, Ethiopia and DR Congo). In addition, coverage was estimated at less than 80% in 36 countries, and 6 countries (Chad, Equatorial Guinea, Gabon, Nigeria, Palau and Somalia) failed to achieve 50% coverage.

Since not all countries report sub-national coverage, the second component of the above goal is difficult to measure. Only 48 of the 143 members states that reported 2009 district level coverage had reached the goal.

A 2009 review found that parental attitudes and knowledge as well as family characteristics were the primary influences on whether a child receives some vaccination or remains unvaccinated; in addition, 44% incomplete childhood vaccination was attributable to gaps in the immunization system itself. This highlights the need to further strengthen the health care delivery system and to address parental concerns and lack of awareness of the benefits of vaccination.

Increasingly, vaccinations of other target groups (pre-school children, adolescents, health workers) have become important for expanding the benefits of vaccination. This has necessitated the design of new strategies (e.g. school-based programmes) and the expansion of existing services (e.g. hepatitis B vaccination of newborns).

Accelerated Disease Control goals

Polio eradication - cautious optimism

Following an independent evaluation of major barriers to interrupting poliovirus transmission, the 61st Health Assembly called for a new strategy to eradicate polio from remaining affected areas. By the end of 2009, important programmatic and epidemiological progress had been
made, particularly in the key reservoir areas of northern Nigeria and northern India. In both Asia and Africa, transmission is persistent in a very limited number of districts where levels of population immunity is low due to weak routine immunization systems.

**Measles mortality reduction - a major achievement at risk:**

Global mortality attributed to measles has declined by an impressive 78% from an estimated 733,000 deaths in 2000 to 164,000 in 2008. All WHO regions have achieved the 2010 global goal of reducing measles mortality by 90% ahead of the 2010 target year, with the exception of the South East Asia Region. Moreover, measles elimination has been sustained in the Americas since 2002 and important steps are being taken to achieve the goal of measles elimination in the European, Eastern Mediterranean and West Pacific regions by 2015. This progress motivated the 63rd Health Assembly to adopt the 2015 measles control goals1, as milestones towards the ultimate eradication of measles.

However, recent large outbreaks of measles in southern Africa as well as continued high numbers of measles deaths occurring in India highlight the urgency for securing the critical political support and dedicated funding to improve routine immunization coverage with 2 doses of measles vaccine, implement Supplementary Immunization Activities, and maintain high quality laboratory-supported surveillance in the 50 countries with the highest burden of measles.2

Supporting these accelerated measles control and regional elimination activities presents an unprecedented developmental opportunity to strengthen and sustain the overall contribution of immunization program towards the achievement of MDG4.

2. **Further reducing child mortality with new vaccines :**

**Insufficient progress …**

The introduction of Haemophilus Influenzae type b (Hib) vaccine in developing countries has been accelerated in the past years with the support of the GAVI Alliance. In 2009 however, global coverage with 3 doses of Hib vaccine stood at 38%. 35 member states including four countries with large birth cohorts (China, India, Nigeria and Indonesia) have yet to introduce this vaccine in their routine schedule.

Progress with the introduction of pneumococcal conjugate and rotavirus vaccines has been slow with respectively 42 and 23 countries having introduced them and only 11% of the 2009 global birth cohort living in a country with nationwide availability of either of these vaccines. The recent launch of the Advance Market Commitment (AMC) to encourage the development and production of pneumococcal conjugate vaccines will contribute to accelerated uptake in GAVI-eligible countries. The AMC has secured up to 60 million doses of PCV per year for a 10 year period at an initial price of US $7 per dose dropping to a maximum of US$ 3.50 once the AMC funds are used up.

...some developments...

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1 Exceed 90% coverage with the first dose of measles-containing vaccine nationally and exceed 80% vaccination coverage in every district or equivalent administrative unit; reduce annual measles incidence to less than five cases per million and maintain that level; and reduce measles mortality by 95% or more in comparison with 2000 estimates.

Two HPV vaccines were licensed in 2006 and 2007 and have now been introduced in 26 countries. The first meningococcal A conjugate vaccine that will help prevent deadly recurrent outbreaks of group A meningitis, in the 25 countries of the "African meningitis belt", is produced in India and was prequalified by WHO in 2010. It was developed through a public-private partnership and costs US$ 0.5 per dose. Large scale use was initiated by Burkina Faso, Mali and Niger in September 2010.

**…many remaining challenges**

The slow uptake of these live saving technologies is the result of a combination of constraints and issues:

i) Prices continue to be a major hurdle. In spite of progress observed (i.e. a small reduction in the price of combination vaccines containing Hib and the impact of the AMC on pneumococcal conjugate vaccine), more efforts are needed to improve the affordability of these vaccines for low and middle income countries;

ii) Only 89 Member States report to have established a National Immunization Technical Advisory Group, which could enable member states to make evidence-based decisions on prioritizing the use of available new vaccines;

iii) The capacity and efficiency of the supply and logistics infrastructure currently in place in most developing countries, its management and the skills of the staff in charge are not suited to adequately deal with the introduction of additional antigens and to reach new target groups.

iv) Media reports, misinterpretation of data and misinformation related to adverse events following vaccination have led to delayed introduction or even suspension of the use of new vaccines in several countries.

3. **Synergies with other health programmes**

Outreach activities are increasingly used to regularly deliver integrated primary health care services to remote locations. 101 member states report having conducted additional routine immunization activities, through "Child Health Days/Weeks", Immunization Weeks and other acceleration efforts. These activities also deliver nutritional supplementation (e.g. Vitamin A), growth monitoring, the promotion of breastfeeding, bednets and anti-helminthic drugs. Beyond campaigns, routine immunization, with more than 500 million yearly contacts with children under 1, offers an opportunity for the continuous distribution of vitamin A supplements to postpartum mothers and children, of bednets, and of intermittent preventive treatment to pregnant women.

Recognizing that new vaccines are partially efficacious, more comprehensive disease prevention and control strategies are being developed such as the "Global Action Plan for Pneumonia", which aims to "Protect, Prevent, and Treat". This plan is being further expanded to include strategies to protect, prevent and treat diarrhoea. Similarly, the introduction of HPV vaccine offers opportunities for immunization and reproductive health programmes to work together and aims to scale up prevention of HPV infection through vaccination as well as cervical cancer screening and treatment programmes.

4. **Surveillance & monitoring**

From the inception of EPI, disease surveillance has been stressed as a key component of the programme. However, this area should be further strengthened and expanded to keep up with increased coverage and the introduction of new vaccines.

Building on the successful polio and measles surveillance networks, WHO is now coordinating networks of sentinel sites that are conducting surveillance for invasive bacterial diseases and rotavirus diarrhea. This network covers 46 low income countries.

5. **Research, development and vaccine production in developing countries**
While the current levels of production capacity for vaccines of assured quality is insufficient to meet national, regional or global public health needs, WHO continues to advise United Nations agencies on the acceptability, in principle, of vaccines considered for purchase. This "prequalification" provides assurance that candidate vaccines: (a) meet WHO recommendations on quality, safety and efficacy, including compliance with WHO recommended Good Manufacturing Practice and Good Clinical Practice standards; and (b) meet the operational specifications of the relevant UN agency. In 2009, 10 additional vaccines from 26 manufacturers were prequalified, including products from 7 emerging economy countries (Brazil, Bulgaria, Cuba, India, Indonesia, Russia and Senegal).

To ensure access to technologies critical for vaccine development, two centres of excellence have been established at the Netherlands Vaccine Institute to provide influenza vaccine production technologies and at the University of Lausanne to provide access to adjuvants and formulation know-how.

Over the past few years, the African AIDS Vaccine Programme has facilitated the development of National HIV Vaccine Plans in several African countries to strengthen the capacity of African researchers in the area of biomedical research and ethical standards. The programme has also raised awareness for the support of HIV vaccine research and development on the continent.

6. Financial sustainability of immunization programmes

Country ownership is critical to the long term sustainability of immunization programme. The overall proportion of government funding vaccines and immunization programmes moderately increased in the period 2000-2008 with a growing number of countries having a budget line item for vaccines. In 2000 total annual expenditure on immunization for low income countries averaged US$ 6.00 per live birth. By 2010 the cost for immunization with traditional vaccines, as well as hepatitis B and Hib vaccines is likely to reach US$ 18.00 per live birth. Further scaling up vaccine coverage with newer vaccines to the level needed to meet the MDG and GIVS goals is likely to exceed US$ 30.00 per live birth.

7. The 2011-2020 Decade of Vaccines

Having acknowledged the impressive achievements by members states and recognizing that existing interventions could avert more deaths and disabilities, WHO, UNICEF, the Bill and Melinda Gates Foundation and other partners are committing to using the next decade to achieve immunization goals and key milestones in the discovery and development of lifesaving vaccines.

Preliminary discussions of this "Decade of Vaccines" (DoV) focus on a collaborative process for the development of a global action plan covering four essential components:

i) Strengthening public support for vaccine use and financing. This requires increased public awareness of the cost-effectiveness of immunization programs, effective evidence-based counterpoint for vaccine skeptics, and the mobilization of broad constituencies of support for significant and sustained increases in funding in donor and recipient countries.

ii) Expanding the reach of delivery programs to ensure that all persons at risk, particularly children, benefit from the protection of vaccines no matter where they live, addressing coverage inequities both between and within countries.

iii) Maintaining a strong R&D pipeline to produce new vaccine solutions and associated technologies and accelerate the development and approval of more affordable and more effective “second-generation” vaccines.

iv) Exploring strategies to ensure global access to affordable vaccines to meet the growing demand of enhanced delivery systems and emerging markets. These strategies will require intensified collaboration with the private sector including emerging producers and the
biotechnology industry. They will also require the exploration and evaluation of innovative financing and incentive programs and new business models.

The Delivery component of the DoV action plan will in essence prolong and expand GIVS, beyond currently agreed 2015 goals ensuring that lessons learned since 2005 and the critical gaps identified are addressed to fully reap the benefit of immunization solutions. It will be developed over the next months and presented to the 64th Health Assembly.