

Global immunization vision and strategy

Report by the Secretariat

1. 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 vaccine. In spite of this unprecedented achievement, about 1.5 million children continue to die from vaccine-preventable diseases, nearly 20% of the current annual figure of about 8 million deaths in children under five years.

2. In 2005, the Fifty-eighth World Health Assembly in resolution WHA58.15 welcomed the Global Immunization Vision and Strategy. In 2008, having reviewed progress in implementing the resolution, the Sixty-first World Health Assembly in resolution WHA61.15 urged Member States to take further steps to put the global immunization strategy into practice and requested the Director-General to report on progress. This report responds to that request.

ROUTINE IMMUNIZATION

3. Between 2000 and 2009, global immunization coverage increased from 74% to 82%, with improvements in the African (+16%), Eastern Mediterranean (+12%), and Western Pacific (+10%) regions, while rates have remained high in the Region of the Americas and the European Region.

4. One goal of the Global Immunization Vision and Strategy 2006–2015 is for countries to reach at least 90% coverage nationally and 80% in every district or equivalent administrative unit by 2010. In 2009, 122 Member States had reached national-level coverage of 90%. The slow progress, or even lack thereof, in some countries with large birth cohorts affects global coverage. For 2009 it was estimated that more than 23 million infants failed to receive three doses of diphtheria-tetanus-pertussis vaccine by their first birthday; nearly two thirds (62%) of those children live in six countries (Democratic Republic of the Congo, Ethiopia, India, Indonesia, Nigeria and Pakistan). In addition, coverage was estimated to be less than 80% in 36 countries, and six countries (Chad, Equatorial Guinea, Gabon, Nigeria, Palau and Somalia) failed to achieve 50% coverage. As not all countries report coverage rates at the sub-national level, the second component of the goal is difficult to measure. Only 48 of the 143 Member States that reported district-level rates had reached the goal of 80% coverage.

5. A review in 2009 found that parental attitudes and knowledge as well as family characteristics were the primary influences on whether a child is fully vaccinated or remains incompletely vaccinated or unvaccinated; in addition, the rate of 44% for incomplete childhood vaccination was attributable to failures in the immunization system itself. These findings underline the need to further strengthen the health-care delivery system and to address parental concerns about, and lack of awareness of the benefits of, vaccination.

6. Increasingly, vaccination of other target groups than infants (e.g. pre-school children, adolescents, health-care workers) has become important for expanding the benefits of vaccination. Reaching those groups has necessitated the design of new strategies (e.g. school-based programmes) and the expansion of existing services (e.g. hepatitis B vaccination of neonates).

ACCELERATED DISEASE CONTROL INITIATIVES

Poliomyelitis eradication – cautious optimism

7. As also requested by the Sixty-first World Health Assembly in resolution WHA61.1, a new strategy for completing eradication of poliomyelitis was developed. This text draws on the findings of an independent evaluation, the results of clinical trials of new vaccine formulations and in-country assessments of novel operational tactics. As of October 2010, implementation of the new plan had resulted in declines of, respectively, 98% and 90% in reported cases in Nigeria and India compared with 2009, and large outbreaks in West Africa and the Horn of Africa had been largely interrupted. Challenges remain, however, particularly in Pakistan where the devastating floods have complicated implementation of the strategy and facilitated the spread of poliovirus, and in Afghanistan, Angola and the Democratic Republic of the Congo.

Reduction in measles mortality – a major achievement at risk

8. Global mortality attributed to measles declined by 78% from an estimated 733 000 deaths in 2000 to 164 000 in 2008. Apart from the South-East Asia Region, all the other regions have achieved the 2010 global goal of reducing measles mortality by 90% compared with 2000. Moreover, measles elimination has been sustained in the Region of the Americas since 2002 and great steps are being taken to achieve measles elimination goals in the European, Eastern Mediterranean and Western Pacific regions by 2015. This progress motivated the Sixty-third World Health Assembly to take note of the 2015 measles control goals¹ as milestones towards the eradication of measles.

9. Recent large outbreaks of measles in southern Africa as well as continued high numbers of deaths in India, however, highlight the urgency for securing the crucial political support and dedicated funding needed to improve routine immunization coverage with two doses of measles vaccine, implement supplementary immunization activities, and maintain high-quality laboratory-supported surveillance in the 50 countries with a high burden of disease due to measles.²

10. These accelerated control and elimination activities present an unprecedented developmental opportunity to strengthen and sustain the overall contribution of immunization programmes towards the achievement of Millennium Development Goal 4 (Reduce child mortality).

¹ Exceed 90% coverage with the first dose of measles-containing vaccine nationally and exceed 80% vaccination coverage in every district; 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.

² Afghanistan, Angola, Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, India, Indonesia, Kenya, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Timor-Leste, Togo, Uganda, United Republic of Tanzania, Viet Nam, Yemen, Zambia, and Zimbabwe.

FURTHER REDUCING CHILD MORTALITY WITH NEW VACCINES

Insufficient progress

11. The introduction of *Haemophilus influenzae* type b vaccine in developing countries has been accelerated in the past years with the support of the GAVI Alliance. In 2009, however, global coverage with three doses of the vaccine stood at 38%. Some 35 Member States, including four countries with large birth cohorts (China, India, Indonesia, and Nigeria), have not yet introduced this vaccine in their routine immunization schedule.

12. Progress with the introduction of pneumococcal conjugate and rotavirus vaccines has been slow with, respectively, 42 and 23 countries having introduced them; moreover, only 11% of the 2009 global birth cohort live in a country with nationwide availability of either of these vaccines. The recent launch of the advance market commitment to encourage the development and production of pneumococcal conjugate vaccines will contribute to accelerating their uptake in countries eligible for support from the GAVI Alliance. The advance market commitment has secured up to 60 million doses of pneumococcal conjugate vaccine per year for a 10-year period at an initial price of US\$ 7.00 per dose, which will drop to a maximum of US\$ 3.50 once the advance market commitment funds are exhausted.

Some developments

13. Two recently licensed human papillomavirus vaccines have now been introduced in 26 countries. The first meningococcal A conjugate vaccine is being produced in India and was prequalified by WHO in 2010. This vaccine was developed through a public-private partnership and costs US\$ 0.50 per dose; in September 2010 Burkina Faso, Mali and Niger initiated its use on a large scale.

Many remaining challenges

14. The slow uptake of these new vaccines results from a combination of constraints and issues, principally the following:

(i) Prices continue to be a major obstacle. In spite of some progress (namely, a small reduction in the price of combination vaccines containing *H. influenzae* type b antigen and the impact of the advance market commitment on the price of 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 having established a national immunization technical advisory group, which should enable Member States to make evidence-based decisions on prioritizing the use of available new vaccines.

(iii) The capacity of the logistics infrastructure currently in place in most developing countries, its management and the skills of the staff in charge are not suited to deal adequately 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.

SYNERGIES WITH OTHER HEALTH PROGRAMMES IN THE CONTEXT OF HEALTH SYSTEMS

15. Outreach and routine immunization activities are increasingly delivering integrated primary health-care services, even in remote locations. Altogether 101 Member States report having conducted child health days and immunization weeks during which nutritional supplementation (e.g. vitamin A), bednets and anthelmintic medicines are provided, growth is monitored and breastfeeding promoted.

16. Given the efficacy of new vaccines, comprehensive prevention and control strategies are being developed, for example the Global Action Plan for the Prevention and Control of Pneumonia,¹ which aims to protect, prevent and treat. This action plan is being expanded to include similar strategies to counter diarrhoea. Similarly, the introduction of human papillomavirus vaccine offers opportunities for immunization and reproductive health programmes to collaborate and extend prevention of human papillomavirus infection through vaccination as well as screening and treatment programmes.

17. The underlying weakness of the health systems in many countries is a fundamental obstacle to progress. The ability of health systems to function satisfactorily is often constrained by a lack of political and financial commitment, poor management skills, and weak monitoring and information systems. These failings are compounded by a severe shortage of health workers, due to high rates of sickness and death, and the loss of health workers to higher-paid jobs overseas.

18. In a poorly functioning health system it is difficult to ensure equity in access to vaccination, and, as a result, there often is large variability in coverage.

19. Extending the benefits of immunization equitably within countries would require implementation of strategies, such as that for reaching every district, which takes the district as its primary focus and aims to improve equity in access to vaccination by targeting difficult-to-reach populations.

SURVEILLANCE AND MONITORING

20. From the inception of the Expanded Programme on Immunization, disease surveillance has been stressed as a core component. However, it should be further strengthened and expanded to keep up with increased coverage and the introduction of new vaccines.

21. Building on the successful networks for surveillance of poliomyelitis and measles, WHO is now coordinating a network of sentinel sites that is conducting surveillance of invasive bacterial diseases and rotaviral diarrhoea. This network covers 46 low-income countries.

RESEARCH, DEVELOPMENT AND VACCINE PRODUCTION IN DEVELOPING COUNTRIES

22. The current levels of production of vaccines of assured quality are insufficient to meet public health needs, and WHO continues to advise other organizations in the United Nations system on the

¹ Document WHO/FCH/CAH/NCH/09.04.

acceptability of vaccines considered for purchase. This prequalification provides assurance that candidate vaccines meet WHO's recommendations on quality, safety and efficacy, including compliance with WHO's recommended Good Manufacturing Practice and Good Clinical Practice standards, and the operational specifications of the United Nations organization concerned. In 2009, 10 vaccines from 26 manufacturers were prequalified, including products from seven countries with emerging economies (Brazil, Bulgaria, Cuba, India, Indonesia, Russian Federation and Senegal).

23. In order to ensure access to technologies essential for vaccine development, two centres of excellence have been established. One, at the Netherlands Vaccine Institute, provides technologies for influenza vaccine production, and the other, at the University of Lausanne, Switzerland, provides access to know-how on adjuvants and formulation.

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

FINANCIAL SUSTAINABILITY OF IMMUNIZATION PROGRAMMES

25. Ownership by countries is crucial to the long-term sustainability of immunization programmes. The overall proportion of government funding allocated to 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 total cost for immunization with traditional vaccines of the Expanded Programme on Immunization and with hepatitis B and *H. influenzae* type b vaccines is likely to reach US\$ 18.00 per live birth. Further expansion of vaccine coverage with newer vaccines to the level needed to meet Millennium Development Goal 4 and the goals of the global immunization strategy is likely to increase the cost to more than US\$ 30.00 per live birth.

2011– 2020: THE DECADE OF VACCINES

26. Recognizing that existing interventions could avert more deaths and disabilities, WHO, UNICEF, the Bill & Melinda Gates Foundation and other partners have committed themselves to use the decade 2011–2020 to achieve immunization goals and to reach milestones in research and development. Preliminary discussions have focused on a collaborative process for the development of a global action plan comprising four essential components:

- (i) strengthening public support for vaccine use and financing – to do this will require increased public awareness of the cost–effectiveness of immunization, strong arguments to counter the misleading views disseminated by sceptics of vaccination, and the mobilization of broad constituencies in order to gain significant and sustained increases in funding in donor and recipient countries;
- (ii) expanding the reach of delivery programmes in order to ensure that all persons at risk, particularly children, benefit from the protection of vaccines, no matter where they live;
- (iii) maintaining strong research and development programmes on new vaccines and associated technologies and for accelerating the availability of second-generation vaccines;

(iv) exploring potential strategies for ensuring global access to affordable vaccines in order to meet the growing demand generated through better delivery systems and emerging markets. This work will need collaboration with the private sector including producers in countries with emerging economies and the biotechnology industry as well as innovative financing and incentive programmes.

27. The delivery component of the action plan (section (ii) above) will in essence prolong and expand the global immunization strategy beyond 2015 and its agreed goals, ensuring that the lessons learned since 2005 are applied and the basic weaknesses identified are corrected in order to reap fully the benefit of immunization. The delivery component will be finalized over the next months and submitted to the Sixty-fourth World Health Assembly for consideration.

ACTION BY THE EXECUTIVE BOARD

28. The Board is invited to note the report.

= = =