THIS IS AN HISTORIC VICTORY FOR GLOBAL PUBLIC HEALTH

WHO immunization work: 2006 highlights

NOTE FOR LAYOUT: WHO in capital letters (no lower case)
Inside front cover

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Front cover: These words are from Dr Margaret Chan, Director-General, World Health Organization as she announced the achievement of the measles mortality reduction goal on 18 January 2007.

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Flap

Note for layout: Our mission is to vaccinate all people at risk against vaccine-preventable diseases.
Director's message

It is my pleasure to present herein the World Health Organization's work on immunization and vaccines during 2006. This was a great year for global immunization with major progress achieved on several counts. New vaccines to protect against cervical cancer and rotavirus diarrhoea were licensed and are being put into use. Unprecedented new funding through the International Finance Facility has become available. More and more countries are delivering an integrated package of life-saving child health interventions along with vaccination, also contributing to stronger health systems. Outstanding results in terms of lives saved were announced.

"This is an historic victory for public health," said Dr Margaret Chan, WHO Director-General, as she declared in January 2007 that measles deaths had fallen by 60% worldwide from 1999 to 2005. This monumental success was achieved in only six years of accelerated activities carried out by committed countries and a highly effective global partnership called the Measles Initiative, of which WHO is a founding member. Not only had a goal set by the United Nations been achieved, it had been surpassed. Astounding progress was made in some of the poorest and most underserved places on the planet: Africa achieved a 75% reduction in measles deaths.

Vaccination against measles and other high burden vaccine-preventable diseases such as Haemophilus influenzae type b (Hib) and pneumococcal diseases is essential to reaching the Millennium Development Goal on reducing child mortality. Immunization currently averts more than 2.5 million deaths every year in all age groups. With all immunization partners we are working to save millions more lives.

With its committees of experts, WHO plays a leading, essential role in shaping the research and development agenda; setting global immunization policy; establishing norms and standards; and strengthening vaccine regulatory processes, which are the backbone of safe and effective immunization.

I would like to sincerely thank donors, other partners in the public and private sectors, civil society and staff for their support, dedication and solid work at all levels. This has certainly energized immunization and opened the way to a bright future where more people are protected against more diseases, as stated in the Global Immunization Vision and Strategy.

New signature

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Dr Jean-Marie Okwo-Bele
Director
Department of Immunization, Vaccines and Biologicals
World Health Organization, Geneva
I. Global trends in immunization

**Immunization: a major life-saver**
The widespread establishment and implementation of immunization programmes over the past 30 years has led to remarkable achievements:

- Smallpox was eradicated in 1977.
- The worldwide incidence of poliomyelitis has dropped by 99% since 1988.
- Measles has been eliminated in the Western Hemisphere and measles mortality decreased by an estimated 60% globally from 1999 to 2005.
- Neonatal tetanus mortality has been reduced by about three quarters. The estimated number of deaths has decreased from 800 000 in the 1980s to under 200 000 in recent years.
- Seventy-nine per cent of children under one year of age are estimated to have received three doses of diphtheria-tetanus-pertussis vaccine* in 2006.
- Overall, more than 2.5 million children's deaths from diphtheria, tetanus, pertussis (whooping cough), and measles are estimated to be prevented annually as a result of immunization. Hepatitis B vaccination prevents an additional 600 000 future deaths (from liver cirrhosis and liver cancer) annually.

**Preventable deaths**
In 2002, an estimated 1.4 million children under the age of five — nearly 14% of the 10.5 million children who die each year — died of diseases that are preventable with widely available vaccines: diphtheria, *Haemophilus influenzae* type b (Hib), measles, pertussis, poliomyelitis, tetanus and yellow fever.

Immunization can substantially contribute to achieving Millennium Development Goal Four on reducing under-five mortality by two thirds by 2015.

Improving services to deliver traditional vaccines will reduce the percentage of vaccine-preventable child deaths mentioned above.

Introducing new vaccines will help to prevent some of the 1.1 million under-five child deaths attributed to pneumococcal disease, meningococcal disease and rotavirus diarrhoea.

**Immunization coverage progress**
Trends related to global vaccination coverage (as measured by estimates of delivery of three doses of DTP vaccine or DTP3) continued to be positive in 2006, as shown in the bar graph. Most regions sustained high levels of coverage (more than 80%). Sub-Saharan Africa reached a record high vaccination coverage level of 72%, while estimates for South-East Asia indicate stalling coverage at 63%.

Immunization coverage estimates are produced annually by WHO and UNICEF and are based on official data reported by Member States and other published data.

* Coverage with DTP3 vaccine is generally used as an indicator for a fully immunized child. DTP coverage is also an indicator of health system performance.
Global immunization 1980-2006, DTP3 coverage

Global coverage of infants with DTP3 vaccine: 79%.*

Note for layout: please remove slide date, WHO logo, on the above graphic.
Note for layout: spell out CIS: Commonwealth of Independent States; North Africa; Middle-East.

Title should be Global immunization (DTP3) coverage, 1980-2006
Second line should read: Coverage estimated at 79% in 2006.

More than 100 million infants vaccinated: a first

In 2006, out of the estimated 128 million annual surviving infants, the number of children under age one vaccinated with DTP3 vaccine exceeded 100 million for the first time ever, reaching 102 million (compared with 99 million in 2005). The children who benefited from vaccination are protected against a number of infectious diseases, which can have serious consequences in terms of illness and disability, or which can be fatal.

More countries achieve high levels of vaccination coverage

Number of countries reaching 90% or more DTP3 coverage in 2006: 114 (compared to 113 in 2005).

Number of countries that have reached DTP3 coverage of 80% or more in 2006: 154 (compared to 150 in 2005).

The unprotected children

Number of children under one year of age who did not receive DTP3: 26.3 million (compared to 28.1 million in 2005).

Seventy-five per cent of these unimmunized children live in just 10 countries in Asia and Africa. These countries are Angola, Bangladesh, China, Democratic Republic of the Congo, Ethiopia, India, Indonesia, Niger, Nigeria and Pakistan.
Increasing uptake of underused vaccines

Hepatitis B vaccine

Hepatitis B vaccine for infants had been introduced in 163 WHO Member States by the end of 2006, compared to 31 Member States in 1992, the year of the World Health Assembly resolution recommending global vaccination against hepatitis B. Global hepatitis B vaccine coverage is estimated at 60% and is as high as 89% in the Americas, in contrast to 28% in the South-East Asian Region and 49% in the African Region.


* Children under one year of age, vaccinated with DTP3, 2006.


Top ten countries with the most unvaccinated infants*

Globally, 26.3 million unvaccinated infants (DTP3)


* Excluding 4 countries where HepB administered for adolescence and 4 countries having introduced partially
Note for layout: Title should read Number of countries having introduced hepatitis B vaccine into routine infant immunization system, 1982-2006.

Note for layout: Source text should read "Source: WHO/IVB database, 2007 - 193 WHO Member States, including 72 GAVI-eligible countries". "Non-GAVI eligible" should read "Non GAVI-eligible"; GAVI Eligible should read "GAVI-eligible"

Within graph: hepatitis B vaccine licensed in the United States of America; WHO recommendation for global use of hepatitis B vaccine

Excluding four countries where hepatitis B vaccine was administered to adolescents only and one country having partially introduced the vaccine.

Hib vaccine
By the end of 2006, the Hib vaccine had been introduced in 104 countries, compared to 15 countries in 1994. Global Hib vaccine coverage is estimated at 22% for 2006. In countries of the Americas Region, vaccine uptake is high (92%), thanks to the support of the Pan-American Health Organization (WHO Regional Office for the Americas) Revolving Fund, which, for 30 years, has helped supply nearly 40 countries with a range of quality vaccines and syringes through bulk purchasing arrangements, resulting in more affordable prices. Bangladesh is the first South-East Asian country that has decided to introduce Hib vaccine.

WHO recommended, during the year, that in view of their demonstrated safety and efficacy, conjugate Hib vaccines should be included in all routine infant immunization programmes.

Global and regional Hib3 coverage estimates, 2006

![Global and regional Hib3 coverage estimates, 2006](image)

Note for layout: Regional bars should read as follows: AFR should be WHO African Region; AMR should be WHO Region of the Americas; EMR should be WHO Eastern Mediterranean Region; EUR should be WHO European Region; SEAR should be WHO South-East Asia Region; WPR should be WHO Western Pacific Region. May be better to use different colours with a legend at the bottom.

Rubella vaccine
The number of countries using rubella vaccine in their routine childhood immunization programmes increased from 65 countries in 1996, representing 12% of the children born that year, to 123 countries in 2006 (26% of the children born that year). There has been remarkable progress towards the elimination of rubella and congenital rubella syndrome in the Americas Region with a reduction of 98% of confirmed cases between 1998 and 2006.
Yellow fever vaccine
Yellow fever vaccine has been introduced in routine infant immunization programmes in 33 countries and territories out of the 44 at risk for yellow fever in Africa and the Americas. Yellow fever vaccination coverage in countries that have introduced the vaccine increased to 76% in 2006 from 60% in 2004. In the African region, more than 12 million people have been vaccinated against yellow fever through mass vaccination campaigns in the period 2004-2006, thus decreasing the risk of yellow fever outbreaks.

Maternal and neonatal tetanus vaccine
By the end of 2006, the immunization of pregnant women with tetanus toxoid-containing vaccine was part of the routine immunization programmes in 104 countries. In 2006, coverage with at least two doses of tetanus toxoid vaccine or tetanus-diphtheria toxoid vaccine was estimated at 69% and an estimated 81% of births were protected against tetanus through immunization. However, maternal and neonatal tetanus persist as public health problems in 49 countries, mainly in Africa and Asia.

Progress in introducing new vaccines
Rotavirus vaccines
Eight countries introduced rotavirus in their routine national immunization schedules during 2006: Andorra, Brazil, El Salvador, Luxembourg, Nicaragua, Panama, the United States of America and Venezuela. Mexico introduced the vaccine in parts of the country.

This marks the first time that the introduction of a vaccine has occurred simultaneously in both developed and developing countries.

Pneumococcal vaccine
Fifteen countries had introduced pneumococcal conjugate vaccine in their routine national immunization schedules by the end of 2006: Australia, Canada, France, Germany, Greece, Ireland, Italy, Luxembourg, Monaco, Netherlands, Norway, Qatar, Switzerland, the United Kingdom of Great Britain and Northern Ireland and the United States of America. Four more countries—Belgium, Micronesia (Federated States of), Palau and United Arab Emirates—were planning to introduce this vaccine in 2007.

"Pneumococcal disease is a major global health issue. [ ] The WHO considers pneumococcal vaccines to be a priority and recognizes the urgency to make these vaccines available for children in developing countries."— Dr Thomas Cherian, Coordinator, Expanded Programme on Immunization, WHO Department of Immunization, Vaccines and Biologicals, Canada NewsWire, 18 May 2006.

Human papillomavirus (HPV) vaccines
Over half a million women develop cervical cancer each year, with nearly half of those dying as a result. Over 99% of cervical cancer cases result from genital infection with human papillomavirus. The disease represents a major health inequity, as 80% of women with cervical cancer live in developing countries. Currently, the best way to prevent cervical cancer is through regular gynaecological screening and treatment of precancerous lesions. In low and middle-income countries, however, this strategy has had virtually no impact for the majority of women because screening programmes are absent or ineffective.
Two new vaccines against HPV infections have great potential to reduce the incidence of cervical cancer. WHO’s Global Advisory Committee on Vaccine Safety recently indicated that available safety data are reassuring.

*Note for layout: Map of worldwide incidence of cervical cancer (2005) to be included (see p7 of http://whqlibdoc.who.int/hq/2007/WHO_IVB_07.05_eng.pdf)*

“There are challenges for countries in terms of cost and so on, but this vaccine is unique and offers tremendous possibilities.” — Dr Teresa Aguado, *Bulletin of the World Health Organization*, Volume 85, Number 2, February 2007, 85-160.

II. WHO’s core competencies in immunization

**Headquarters**

Through its Department of Immunization, Vaccines and Biologicals, WHO’s core immunization work includes:

- development of global policy, strategy and guidelines, taking into consideration knowledge and experience from regions, countries and other immunization partners and from basic research;
- shaping the research and development agenda for novel vaccines and immunization strategies;
- development of standards for vaccines and other biological products, especially in the field of vaccine formulation, and evaluating them;
- provision of technical advice and support for national immunization systems, vaccine-preventable disease surveillance and control, immunization programme sustainability; and
- advocacy for the implementation of technically sound interventions in the immunization area.

As of January 2006, the Immunization, Vaccines and Biologicals Department began operating with a streamlined organizational structure. The Department is now comprised of three (rather than five) technical units staffed by approximately 100 people.

- **Initiative for Vaccine Research** guides, facilitates and provides a vision for worldwide vaccine and immunization technology research and development efforts. It focuses on current and emerging diseases of global public health importance, including pandemic influenza. Its main activities cover: i) research and development of key candidate vaccines; ii) implementation research to promote evidence-based decision-making on the early introduction of new vaccines; and iii) promotion of the development, evaluation and future availability of HIV, tuberculosis and malaria vaccines.

- The **Quality, Safety and Standards** team concentrates on the development of vaccine norms and standards, national regulatory authority strengthening, pre-qualification of vaccines and global vaccine safety issues.

- The **Expanded Programme on Immunization** develops strategies aiming to vaccinate more people with a greater number of vaccines through the strengthening of immunization systems, the use of surveillance data and other information and the establishment of links between immunization and other life-saving health interventions.

The Director's Office is in charge of immunization programme policy, planning and global coordination, in addition to overall management of the Department. It also carries out communication, advocacy and media-related work, resource mobilization and management of funds.
The Department is located within the WHO Family and Community Health cluster.

Key work in immunization also takes place in the context of polio eradication. At WHO headquarters, this work is undertaken by a separate department and a Representative of the Director-General.

**Regions and countries**

Immunization strategies for each region reflect the status of disease incidence and vaccination coverage in the countries they support and cover a vast range of immunization priorities. WHO has been instrumental in assisting countries to develop their national immunization plans; conduct disease surveillance; make decisions and implement them regarding the introduction of new vaccines; undertake efforts to ensure that vaccines used are of high quality and are administered safely; and carry out effective monitoring and management of adverse events following immunization.

A technical advisory group for each region provides recommendations on immunization priorities and strategies, taking account of particular regional epidemiological and social issues.

Approximately 550 immunization staff are based in the six WHO regional offices (Brazzaville, Cairo, Copenhagen, Manila, New Delhi, Washington, D.C.) and 67 country offices. In addition, about 2000 staff work on eradicating polio.

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WHO's immunization work throughout the world is guided by the WHO/UNICEF Global Immunization Vision and Strategy 2006-2015. Its overarching goal is the achievement of a two thirds mortality reduction due to vaccine-preventable diseases by 2015, compared to 2000 levels. The Global Immunization Vision and Strategy provides a comprehensive list of immunization strategies for national programmes and global interdependence action items. Progress towards these goals is monitored through periodic reports to the World Health Assembly.
III. WHO’s achievements in immunization

A. Global immunization policy

Evidence-based immunization policy recommendations are formulated through the regular consultation of immunization experts from around the world. There are four key advisory bodies on immunization issues that meet in Geneva:

- The Strategic Advisory Group of Experts (SAGE) meets twice a year.
- The Expert Committee on Biological Standardization (ECBS) meets once a year.
- The Global Advisory Committee on Vaccine Safety (GACVS) meets twice a year.
- The Initiative for Vaccine Research Vaccine Advisory Committee (IVAC) meets once a year.

Note for layout: please include photo of SAGE (sent to MeO).

Vaccine and immunization policy-making
The Strategic Advisory Group of Experts (SAGE) was established in 1999 by the WHO Director-General. SAGE is the principal advisory group to WHO for vaccines and immunization. It is charged with advising WHO on overall global policies and strategies, ranging from vaccine technology, research and development, to delivery of immunization and its linkages with other health interventions. SAGE is concerned with vaccines and immunization for all age groups. The conclusions and recommendations from WHO’s technical committees, both at the global and regional levels, form part of the evidence base on which SAGE bases its recommendations.

WHO position papers on vaccines
In accordance with its mandate to provide guidance to its 193 Member States on health policy matters, WHO issues a series of regularly updated position papers on vaccines and vaccine combinations against diseases that have an international public health impact.

WHO position papers on vaccines are concerned primarily with the use of vaccines in large-scale immunization programmes. They summarize essential background information on the respective diseases and vaccines, and conclude with the current WHO position concerning their use in the global context. SAGE’s oversight of these position papers extends from helping to set priorities for their drafting and updating to reviewing their content prior to publication. Key SAGE recommendations are reflected in the papers.

WHO position papers on vaccines are designed for use mainly by national public health officials and immunization programme managers. They may also be of interest to international funding agencies, the vaccine manufacturing industry, the medical community, and the scientific media.

WHO position papers are published in English and French in the WHO Weekly Epidemiological Record. They are posted on the web site of the Department of Immunization, Vaccines and Biologicals in these languages, as well as in Arabic, Chinese, Russian and Spanish.
### WHO position papers published in 2006:

- **Diphtheria**
  - [http://www.who.int/wer/2006/wer8103.pdf](http://www.who.int/wer/2006/wer8103.pdf)

- **Haemophilus influenzae type b**
  - [http://www.who.int/wer/2006/wer8147.pdf](http://www.who.int/wer/2006/wer8147.pdf)

- Inactivated poliovirus vaccine: supplement to the WHO position paper
  - [http://www.who.int/wer/2006/wer8115.pdf](http://www.who.int/wer/2006/wer8115.pdf)

- **Japanese encephalitis**
  - [http://www.who.int/wer/2006/wer8134_35.pdf](http://www.who.int/wer/2006/wer8134_35.pdf)

- **Tetanus**
  - [http://www.who.int/wer/2006/wer8120.pdf](http://www.who.int/wer/2006/wer8120.pdf)

### B. Research and development: vaccines and technologies

**Protecting hundreds of millions from meningitis**

The Meningitis Vaccine Project, a partnership between WHO and the non-profit organization PATH, successfully completed a Phase 1 clinical trial of its new conjugate meningococcal A vaccine. The double-blind, randomized trial took place at three sites in India. The trial results — which showed that the vaccine is as safe and immunogenic as an existing polysaccharide (un-conjugated) vaccine — opened the way to pivotal Phase II clinical studies in The Gambia and Mali, starting in October and September. If all goes well in testing, the new vaccine, produced by the Serum Institute of India, could be introduced in Africa in the next three to four years. The vaccine is expected to be priced at about US$ 0.40 per dose.

#### Deadly meningitis epidemics

Serogroup A meningococcus is a bacterium that causes periodic deadly meningitis epidemics and much human suffering in sub-Saharan Africa in the "meningitis belt" stretching from Senegal to Ethiopia. 430 million people are at risk. Even with antibiotic treatment, at least 10% of patients die and up to 20% have serious permanent health problems as a result of the disease.

### NOTE FOR LAYOUT: ONE OF PIERRE VIROT'S RECENT ETHIOPIA PHOTOS COULD GO HERE.

**Developing pandemic influenza vaccines**

WHO held consultations of experts to determine the status of the development of pandemic influenza vaccines. About seventeen companies had undertaken or were planning to conduct clinical vaccine trials in humans using recently circulating H5N1 virus, with various adjuvants, doses, applications (intradermal, as opposed to intramuscular or subcutaneous), production technologies (e.g. cell culture, as opposed to growth in eggs) and virus particles. Nine H5N1 clinical trials were completed in 2006. Four areas of research were identified to continue working towards an effective, low dose pandemic influenza vaccine.
"We are presently several billion doses short of the amount of pandemic influenza vaccine we would need to protect the global population. This situation could lead to a public health crisis."

Needle-free vaccination
The potential for disposable-cartridge jet injectors to permit safe, needle-free delivery of all injectable vaccines, particularly in developing countries, was reviewed by the Steering Committee on New Vaccine Delivery Systems. For the first time, numerous jet-injector developers, syringe and vaccine manufacturers and regulatory agencies met to discuss this technology.

Several devices are under development and could contribute significantly to cost-effective improvements in immunization safety if introduced in developing countries. However, a number of significant barriers to development and introduction exist. These include the regulatory pathway, vaccine manufacturers’ lack of interest in undertaking the required clinical studies and inadequate resources of device developers, justifying the involvement of the public sector. Recommendations were made on which studies with which vaccines would generate the most important data.

The jet injector is ‘a low-hanging fruit’. We just need to make it cheaper and convince people to use it.” — Dr Martin Friede, The Chronicle of Higher Education, 12 May 2006.

Effective malaria vaccine by 2025
Scientists have recently reaffirmed that it is possible to develop a malaria vaccine. Currently, there are more than 30 potential vaccine candidates under development. The Malaria Vaccine Technology Roadmap (http://www.malariavaccineroadmap.net), a new global strategy, was launched at the Global Vaccine Research Forum. The plan calls for the malaria vaccine community — scientists, funding organizations, policy experts and national and global decision-makers — to work together to develop an effective vaccine that prevents severe disease and death caused by Plasmodium falciparum, the most deadly form of the malaria parasite. The Roadmap aims to develop a malaria vaccine by 2025 that would have a protective efficacy of more than 80% against clinical disease and would provide protection for longer than four years. More than 230 experts representing 100 organizations from 35 countries collaborated to develop and publish the Roadmap over a two-year period.

NOTE FOR LAYOUT: THE TWO LINES BELOW TO BE IN A SEPARATE SHAPE
Every year, there are more than 500 million cases of malaria and the disease kills more than one million people, mainly African children.
Global Vaccine Research Forum

Movers and shapers of the global vaccine research agenda
The vaccine industry has recently undergone a renaissance. Many new vaccines that have the potential to save millions of lives are at different stages in the research pipeline and will become available within the next decade. The WHO Global Vaccine Research Forum brings together every year and a half 100 to 200 top researchers, scientists, public health experts, regulators and manufacturers from all over the world. The Forum's ultimate goal is to stimulate and accelerate research and development efforts on new vaccines, especially those targeting infectious diseases in developing countries. At the Forum, vaccine research and development issues are presented and discussed. Research agendas are updated. The meeting also provides an opportunity for discussion of broader issues of vaccine policy and implementation.

Some of the issues covered at the latest edition of the Forum, held in Bangkok in December 2006, were:

- Prospects for pandemic influenza vaccines
- Vaccines against cervical cancer
- Development of vaccines against HIV, malaria and tuberculosis
- Innovation, intellectual property rights and new vaccine production in the South-East Asia Region
- Rabies, an unrecognized health priority in Asia

The Forum will next convene in late June 2008 in Paris.

Strong support for malaria vaccine
The development of the Roadmap was sponsored by the Bill & Melinda Gates Foundation and the Wellcome Trust. These two foundations, as well as others from the "malaria vaccine funders' group", are investing resources into priority Roadmap activities. They have been joined in this endeavour by the Fondazione Monte dei Paschi di Siena.

Additional resources will be needed to support research on vaccine candidates and to advance promising candidates through clinical development. New and existing donors are urged to support priorities identified in the Roadmap.

Malaria vaccine funders' group
WHO, PATH Malaria Vaccine Initiative, the Bill & Melinda Gates Foundation and the Wellcome Trust, together with representatives of the European and Developing Countries Clinical Trials Partnership, the European Malaria Vaccine Initiative, the European Commission (Directorate General for Research), the United States National Institute for Allergy and Infectious Diseases, and the United States Agency for International Development form part of a malaria vaccine funders' group, with the WHO Initiative for Vaccine Research as its focal point. The group's participation and support was critical to the Roadmap process.

Measles aerosol vaccine shown to be safe
The current measles vaccine, which has been available for more than 40 years, is safe, effective and inexpensive. This vaccine is administered via injection. In some countries the availability of trained personnel to safely administer injections is limited and there is concern over injection practices when syringes are reused, collected in an unsafe manner and not disposed of safely. These problems are more critical during mass measles immunization
campaigns when millions of doses of vaccine are administered. A measles vaccine which could be inhaled would avoid potential problems related to the use of needles, their costs, disposal and waste management.

**NOTE FOR LAYOUT: WHAT IS IN ORANGE BELOW CAN BE IN A SEPARATE SHAPE.**
The Measles Aerosol Project is carried out by a partnership: WHO, the American Red Cross and the United States Centers for Disease Control and Prevention. Its goal is to develop and license at least one method (vaccine and delivery device) for respiratory delivery of currently licensed measles vaccines.

Within the Measles Aerosol Project, an aerosol, attenuated measles vaccine provided by the Serum Institute of India was shown to be safe in a Phase I clinical trial which took place starting in April 2006 at three sites in India. A Phase II clinical trial to test this vaccine in a larger group of infants for both safety and stimulation of immune response against measles was initiated in Mexico in September 2006. Preliminary results have further contributed to the evidence regarding both safety and immunogenicity of this route of administration. To complete the critical path to licensure, a pivotal trial among children in India and a phase I clinical trial among children with wheezing disorders was planned for initiation in the first half of 2007.

**Advocating for AIDS vaccines**
Based on previous experience with immunization programmes, it is well recognized by WHO and its Member States that an effective vaccine for HIV/AIDS would be a highly valuable tool for controlling the AIDS pandemic. The annual AIDS vaccines conference was convened in Amsterdam, attended by approximately 700 people. WHO, together with the African AIDS Vaccine Programme (AAVP), organized a series of advocacy activities, including the meeting of the AAVP Steering Committee, an AAVP satellite session and a lunch with global partners.

**Promoting HIV vaccine research in Asia**
A regional consultation was organized by the WHO-UNAIDS HIV Vaccine Initiative in collaboration with the International AIDS Vaccine Initiative and Hokkaido University of Japan. Forty participants representing most of the countries in the region reviewed the ongoing HIV vaccine programmes, discussed global and regional molecular epidemiology of HIV and their relevance for HIV vaccines, examined the need for the development of multiple sites capable of conducting simultaneous, multi-centre, phase III efficacy trials, and adopted a strategy for the development of a regional collaborative network in support of HIV vaccine research and development in Asia.

**C. Quality, safety and standards for vaccines and immunization**

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<th>Ensuring uniform and quality vaccines</th>
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<td>WHO's Expert Committee on Biological Standardization (ECBS), established in 1947, has overall responsibility for setting norms and standards for vaccines. Standards developed through the Committee, at its annual meetings, relate to the production and quality control of safe and effective products. The standards also serve as the benchmark for acceptability of vaccines for supply to countries through international agencies (termed prequalification). Biological standards are also established by the Committee and provide the basis for the laboratory comparison of vaccines worldwide. Full reports of Committee meetings are published in the WHO Technical Report Series, accessible from the ECBS web site: <a href="http://www.who.int/biologicals/expert_committee/en/">http://www.who.int/biologicals/expert_committee/en/</a></td>
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Dr David Wood, Coordinator of the Quality, Safety and Standards Team

New global standards adopted for vaccines against cervical cancer and meningitis
The WHO Expert Committee on Biological Standardization adopted new standards for two vaccines. One such standard is for human papillomavirus vaccine, a promising new vaccine with considerable potential to prevent the illness and death caused by cervical cancer. The new WHO standard paves the way for the prequalification (and thus purchase by United Nations agencies) of this vaccine and, therefore, its future availability.

Another standard adopted by the Expert Committee is for a new meningococcal type A conjugate vaccine. Meningococcal disease is responsible for recurrent epidemics in the "meningitis belt" countries in sub-Saharan Africa where a major outbreak is anticipated in the near future. The availability of this new WHO guidance will assist Member States in the evaluation and licensure of candidate vaccines that are currently under development.

Strengthening collaboration with major partner
WHO met with the senior management team of the National Institute for Biological Standards and Control, United Kingdom of Great Britain and Northern Ireland. The objective was to strengthen links between WHO and the major WHO Collaborating Centre for biological standards, and to preview proposals for new or replacement biological reference materials that will be submitted by the laboratory to the Expert Committee on Biological Standardization. A total of 108 projects were reviewed of which around 20 projects were selected for submission to the Expert Committee.

Vaccine stability
The stability of vaccines has a major impact on the success of immunization programmes worldwide and national regulatory authorities play an important role in assessing the stability of vaccines. Work on developing general guidelines in this area began in 2000 and a consultation on the stability evaluation of vaccines was held with 25 experts from regulatory agencies and the vaccine industry. As recommended by the Expert Committee on Biological Standardization, this consultation reviewed the current approach in stability testing for different purposes such as clinical trial approval, licensing and post-licensing monitoring. It was concluded that the current approach, based on general principles for drugs, does not reflect vaccine-specific issues. A vaccine-tailored approach is needed for both regulators and manufacturers, in particular in developing countries. Therefore, new guidelines will be produced.

Vaccine safety: continued scientific oversight
WHO's Global Advisory Committee on Vaccine Safety (GACVS) considers vaccine safety issues of potential global importance. Created in 1999, the Committee reviews, at its biannual meetings, the latest knowledge on vaccines, in close collaboration with experts from national governments, academia, and industry. It assesses the evidence for purported relationships between vaccines and/or their components, and adverse events attributed to them. Among topics considered by the Committee are the safety of human papillomavirus and rotavirus vaccines, and the safety of the vaccine preservative thiomersal. The Committee publishes its conclusions in several languages on its web site http://www.who.int/vaccine_safety/en/
"Immune overload" is unfounded fear
At its June meeting, GACVS discussed the issue of immune overload. It acknowledged the fact that supposed "immune overload" as a result of infant immunization is a parental and societal concern that may limit confidence in and thus affect immunization programmes. The available evidence reviewed by the Committee does not support the idea that vaccines, as currently used, weaken or harm the immune system. Surveillance should continue and changes in vaccine schedules or introduction of new vaccines may provide opportunities to perform randomized studies to strengthen the evidence indicating a lack of harm or to identify any possible harm posed by infant vaccines. This is of crucial importance to help national authorities respond to public concerns. On another issue, the Committee strongly recommended that introduction of rotavirus vaccines should be associated with careful consideration of post-marketing surveillance at country level and securing its funding as an essential element of immunization programmes.

Rotavirus vaccines safe
Two rotavirus vaccines developed by the pharmaceutical industry were demonstrated to be safe and efficacious in infant populations in the United States of America, Latin America and Europe. RotaTeq®, manufactured by Merck & Co., Inc., was approved for licensure by the United States Food and Drug Administration. Rotarix®, manufactured by GSK Biologicals, was approved by the European Medicines Agency.

One of the vaccines has been prequalified by WHO and the other submitted for prequalification. The public health value and the safety of rotavirus vaccines have been reviewed by SAGE and GACVS and recommendations made for introduction in the national immunization programmes of regions where efficacy data suggest a significant public health impact and where appropriate infrastructure and financing mechanisms are available. Efficacy trials are ongoing in Africa and Asia and will provide evidence for their potential usefulness in these regions by 2009. The GACVS also strongly recommended that introduction of rotavirus vaccines should be associated with careful consideration of post-marketing surveillance at country level and securing its funding is an essential element of immunization programmes.

In 2006, the GAVI Alliance Board agreed to fund the procurement of rotavirus vaccine for countries in the Americas and Europe, where the vaccines had been evaluated.

Tuberculosis vaccine not for use in infants known to be infected with HIV
The Global Advisory Committee on Vaccine Safety reviewed the policy on the use of bacille Calmette-Guérin (BCG) vaccine in HIV-infected children in light of new evidence. Data from retrospective studies from Argentina and South Africa indicate a higher risk of disseminated (not limited to the lung, but generalized to several or all organs) BCG disease in children with AIDS who were vaccinated at birth. The Committee considered whether the reported risk outweighed the benefits of preventing severe tuberculosis.

It concluded that BCG vaccine should not be used in children who are known to be infected with HIV. The Committee recognizes the difficulty in identifying infants infected with HIV at birth in settings where maternal-infant HIV diagnostic and treatment services are limited. In such situations, BCG vaccination should continue to be given to all infants.

Building clinical trial regulatory oversight capacity in Africa
Many vaccine candidates are being developed against diseases predominantly endemic in Africa and several clinical trials in the African region have been planned. The regulatory burden for the authorization and monitoring of clinical trials, which previously rested on the vaccine-producing countries, is shifting to the countries hosting these trials. However, most developing countries do not have the expertise and capacity to review clinical trial applications, authorize the importation of clinical trial batches and monitor the trials.

In recognizing the need to support national regulatory authorities in the assessment of clinical trial applications and monitoring of clinical trials, as well as evaluating clinical data in registration dossiers, WHO has initiated the African Vaccine Regulatory Forum (AVAREF). AVAREF is intended to serve as a source of expertise for countries that have to make regulatory decisions for which they may not have the capacity or expertise, and as a forum
where countries can discuss with peers in order to build on available expertise in the region, strengthen the capacity of weaker countries and identify needs for support and training. The first AVAREF meeting was held in Accra, Ghana in September 2006. Participants were drawn from national regulatory authorities and national ethics or scientific advisory committees from 18 African countries. A plan of action was agreed: guidelines will be developed and joint regulatory activities for the following 12 months were identified.

**Speeding up the approval of pandemic influenza vaccines**

There is a need to standardize methods for the evaluation of the immune response following immunization with influenza vaccines. This has regulatory implications for the acceptability of these vaccines, including those for pandemic situations. In this context, the European Medicines Agency and WHO will collaborate further in this area towards the standardization of these assays.

WHO, Health Canada and the United States Food and Drug Administration held a workshop in Ottawa on regulatory preparedness for pandemic influenza vaccines with the aim of developing regulatory collaboration between WHO and key national regulatory authorities responsible for licensure of pandemic influenza vaccines.

Regulatory positions were reviewed in a follow-up meeting of this group in Bethesda, United States of America. Regulators from 18 countries attended and consensus was reached on a wide range of issues. One key outstanding issue was the definition of immune criteria for the evaluation of pandemic influenza vaccines. The meeting further recommended that WHO should: develop mechanisms to prequalify influenza vaccines (both seasonal, pre-pandemic and pandemic vaccines); develop a pandemic flu vaccine regulatory coordination group; facilitate coordinated post-marketing surveillance studies of the 2006-07 season influenza vaccines; and convene a further meeting of this group.

**Improving world health through regulation of biological products**

A total of 130 participants including representatives from national regulatory authorities of 34 countries and from local and international industry attended a WHO-organized conference held in Seoul. The objective was to discuss and review issues concerning appropriate approaches and mechanisms for assuring the quality, safety and efficacy of biological medicines and vaccines. The main outcomes were a recognition that biological products (products derived from living organisms) are a major contributors to global health both now and increasingly in the future. Moreover, biologicals are diverse and complex and regulation presents special challenges. It was recognized that not all countries have comprehensive regulatory oversight systems for biologicals. Countries were therefore encouraged to establish effective regulatory collaboration, including regulatory research. WHO was requested to facilitate the process through establishing regional and global networks of regulators. More information may be found at: http://www.who.int/biologicals.

**Japanese encephalitis vaccines: production and control**

A two-day consultation to initiate revision of the WHO recommendations on the production and control of Japanese encephalitis (JE) inactivated vaccines for human use took place at WHO headquarters. Experts from national regulatory authorities and the vaccine industry agreed upon key issues to be included in the revised version, including the section on non-clinical and clinical evaluation of new JE vaccines. The scope of the revised document should encompass both existing vaccines and those under development. An international collaborative study on the test for potency of JE inactivated vaccines was proposed.

**D. Access to immunization services**

*NOTE FOR LAYOUT: THIS IS THE CENTRESPREAD ON MEASLES. It should probably have different look than the rest of the achievements.*
Historic victory for global public health

Measles deaths worldwide plunged by 60% from 871,000 in 1999 to an estimated 345,000 in 2005, exceeding the goal to halve measles deaths between 1999 and 2005. Dr Margaret Chan, in one of her first press conferences as newly elected WHO Director-General, announced this success, along with partner agencies.

"This is an historic victory for global public health, for the power of partnership and for commitment by countries to fight a terrible disease. Our promise to cut measles deaths by half and save hundreds of thousands of lives has not only been fulfilled, it has been surpassed in just six years with Africa leading the way," Dr Margaret Chan, Director-General, WHO as quoted in news release WHO/UNICEF/American Red Cross/CDC/UN Foundation, Global goal to reduce measles deaths in children surpassed, 19 January 2007.

The largest reduction occurred in Africa, where measles deaths fell by 75%, from an estimated 506,000 in 1999 to 126,000 in 2005.

"We are winning the fight against measles, which has long killed, sickened and disabled our children. Our determination is stronger than ever to make measles history by further strengthening our measles control activities, working in concert with our international partners and setting aside resources," Mr U Olanguena Awono, Minister of Public Health, Cameroon, as quoted in news release WHO/UNICEF/American Red Cross/CDC/UN Foundation, Global goal to reduce measles deaths in children surpassed, 19 January 2007.

This public health achievement is the result of major national immunization activities and better access to routine childhood immunization. Nearly 7.5 million lives were saved through measles immunization between 1999 and 2005, with accelerated immunization activities accounting for 2.3 million of the lives saved - mainly lives of children. The data related to the goal's achievement were published in The Lancet, 20 January 2007: http://www.who.int/immunization_delivery/adc/measles/Lancet.pdf
New goal to further reduce measles deaths

Building on this achievement, a new goal aims to reduce global measles deaths by 90% by 2010, compared to 2000 levels. This means that the gains made in countries that have implemented accelerated measles control strategies must be sustained, and similar strategies must be applied in large countries with high numbers of measles deaths, such as India and Pakistan.

A successful partnership: The Measles Initiative
http://www.measlesinitiative.org

A key factor contributing to the progress in reducing global measles deaths has been the strong support of the Measles Initiative. Launched in 2001, the Measles Initiative is spearheaded by the American Red Cross, the United States Centers for Disease Control and Prevention, United Nations Foundation, UNICEF and WHO. Other key partners of the Initiative include the Canadian International Development Agency, the Japanese International Agency for Development Cooperation, the Bill & Melinda Gates Foundation, the Vodafone Group Foundation, the Izumi Foundation, the Church of Jesus Christ of Latter Day Saints, the International Federation of Red Cross and Red Crescent Societies and Becton Dickinson.

WHO's Immunization Department provides technical leadership and strategic planning for the management, coordination and monitoring of global measles control activities and is responsible for ensuring that all components of the WHO/UNICEF strategy are technically sound and successfully implemented.

Measles vaccination campaigns are an example of initiatives that can deliver "a package of health-promoting interventions, including insecticide-treated bednets, deworming tablets, vitamin A supplements, and polio vaccine in addition to measles immunization," Dr Margaret Chan, Director-General, WHO, as quoted in her first address as WHO Director-General, 4 January 2007. Dr Chan reinforced this idea in her opening address to the January 2007 meeting of the WHO Executive Board, where she mentioned the measles goal achievement as “a model of what can be achieved through integrated service delivery.”

Press materials

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Polio outbreaks stopped or slowed

Strong progress was made in curbing outbreaks of polio in re-infected countries, due to the rapid implementation of new outbreak response guidelines adopted at the World Health Assembly in May. Implementation of these guidelines markedly reduced the size, extent and duration of such outbreaks. As a result of these efforts, only 6% of all new polio cases in 2006 were from re-infected countries, compared to more than 50% in 2005.

At the end of 2006, only three areas remained re-infected with active transmission of imported poliovirus: central Africa (Angola and the Democratic Republic of the Congo), the Horn of Africa (Ethiopia and Somalia) and Bangladesh.

New tactics employed to finish polio

In December, the national technical advisory groups of the four remaining endemic countries — Afghanistan, India, Nigeria, and Pakistan — recommended new, tailored tactics for 2007 to overcome the specific operational challenges to reaching every child in each of these last remaining polio strongholds.
In Nigeria, state-driven Immunization Plus Days offer additional vaccines and health interventions to communities in the north of the country, along with oral polio vaccine, in a combination of fixed sites and house-to-house activities.

In India, the interval between polio vaccination campaigns has been reduced to just four weeks to more rapidly establish immunity in infants and very young children in the only two remaining endemic states, Bihar and Uttar Pradesh.

In Afghanistan and Pakistan, activities are synchronized by both countries to increase access to communities that are mobile or that are situated in insecure areas.

In all four countries, widespread utilization of new tools — new monovalent oral polio vaccines which provide type-specific immunity twice as rapidly as the standard trivalent oral polio vaccine, and new laboratory procedures to confirm polio infection twice as quickly — is further intensifying eradication efforts.

The key to effectively implementing the new tactics will be strong political leadership at all levels in the above-mentioned countries and the ongoing financial support of the international donor community and polio-endemic countries. As this report went to print, the Global Polio Eradication Initiative was facing a funding gap of US$ 415 million for 2007-2008.

**Impact of RED Activities on District-Level Coverage in 29 African countries**

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- Low performing districts (< 50% DTP3 coverage)
- Medium performing districts (50-79% DTP3 coverage)
- High performing districts (50-79% DTP3 coverage)

Note for layout: Title should read: Impact of RED activities on district-level coverage in 29 African countries

**Strengthening routine immunization**

As mentioned earlier, in 2006, an estimated 102 million children under one year of age were vaccinated with three doses of diphtheria-tetanus-pertussis (DTP3) vaccine and the number of children who did not receive DTP3 decreased to 26.3 million from 28.1 million in 2005. This was made possible through a renewed focus on routine vaccination, particularly at district level. As a result, the stagnation of routine immunization coverage that has prevailed since the early 1980s shows an encouraging trend of increasing, particularly in sub-Saharan Africa, since 2003. The district approach known as the "Reaching Every District" (RED) strategy has been jointly developed by WHO and UNICEF. Using the RED strategy, DTP3 coverage in Ethiopia improved in 14 of the worst performing districts, from an average of 35% in 2002 to 71% in 2005. In several eligible countries, the GAVI Alliance Immunization services support has facilitated the implementation of the RED strategy as well as other activities for strengthening routine immunization.
Maternal and neonatal tetanus: progress towards elimination in India

Maternal and neonatal tetanus is a disease that kills tens of thousands of newborns each year, most of them in developing countries. Yet, it is preventable through hygienic birth practices and immunization of women of child-bearing age with tetanus toxoid vaccine. A 1989 World Health Assembly resolution called for the elimination of maternal and neonatal tetanus. In 2006, five Indian states (Haryana, Maharashtra, Tamil Nadu, Karnataka and West Bengal) were validated as having eliminated maternal and neonatal tetanus, in addition to Andhra Pradesh (validated in 2003) and Kerala (validated in 2005). Surveys found that neonatal tetanus had fallen to levels below the elimination threshold, which is one per 1000 live births at district level. In addition, tetanus toxoid coverage among pregnant women was above 80% in all of the districts. 2009 is the target year for elimination of maternal and neonatal tetanus in India. The government, in collaboration with WHO and UNICEF, is gradually validating elimination of the disease. At the end of 2006, 49 countries remained where MNT had not yet been eliminated.

Increasing pandemic influenza vaccine supply

At present, there is a shortage of several billion doses of pandemic influenza vaccine that would be needed to protect the global population in the event of a pandemic. This situation could lead to a public health crisis in the event of a pandemic. Activities identified in the World Health Organization’s *Global pandemic influenza action plan to increase vaccine supply* will reduce the potential large vaccine supply gap in the event of an influenza pandemic. The Global Action Plan provides eight strategies with activities for the short (tangible results in less than five years), medium (five to ten years) and long (more than ten years) terms. The Global Action Plan is the product of the advice of more than 120 scientific experts from national immunization programmes, national regulatory authorities, scientists and vaccine manufacturers in both industrialized and developing countries.

"Immunization is a critical control strategy for limiting the impact of an influenza pandemic. Immediate, collaborative action to increase vaccine supply could have a massive payoff." — Dr David L. Heymann, Assistant Director-General, Communicable Diseases and Representative of the Director-General for Polio Eradication, WHO News release *Immediate and sustained action required to sharply increase pandemic influenza vaccine supply*, 23 October 2006.

"The *Global Action Plan* sets the course for what needs to be done, starting now, to increase vaccine production capacity and close the gap. In just three to five years we could begin to see results that could save many lives in case of a pandemic." — Dr Marie-Paule Kieny, Director, WHO Initiative for Vaccine Research, WHO News release *Immediate and sustained action required to sharply increase pandemic influenza vaccine supply*, 23 October 2006.

Governments support development of H5N1 vaccines

Immediate and sustained funding for activities specified in the *Global pandemic influenza action plan to increase vaccine supply* is estimated at US$ 3-10 billion. Several governments have provided funding.

WHO received an award of US$ 10 million from the United States Department of Health and Human Services to facilitate pandemic influenza preparedness and planning, particularly in the international development of H5N1 human vaccines and in building manufacturing infrastructure in countries where resources for vaccine acquisition and manufacturing may be limited or nonexistent. Likewise, Japan has provided US$ 8 million towards technology transfer to developing countries. Canada is also supporting the implementation of the action plan.

For this critical work to continue and advance in a timely manner, additional funds are needed for this effort to protect the world from what could be a devastating public health crisis.
E. Regions and countries

WHO African Region

Routine immunization: steady increases in coverage
In 2006, through the implementation of the RED strategy and the intensification of routine immunization activities, immunization coverage in Nigeria (25% of the Region’s population), Democratic Republic of the Congo and Ethiopia, improved significantly. Routine immunization coverage in the Region continues to improve—from 54% in 2001 to 73% in 2006.

As of December 2006, 40% of countries in the Region had received support for the development of comprehensive multi-year plans for immunization. Half of the countries were assisted with the use of WHO’s data quality self-assessment tool: this is a flexible package of methods used to evaluate different aspects of the immunization monitoring system at district and health unit levels.

Training ensures increased capacity for immunization systems
During the course of the year, 21 African countries introduced new vaccine management tools, with training provided on the strengthening of national capacity in the areas of vaccine and cold chain management, and health-care waste disposal. National regulatory capacity was strengthened through training on vaccine regulation and inspection of clinical trials and exchanges between African regulators during the first "African Vaccine Regulatory Forum". A follow-up evaluation of the national regulatory authority in Senegal was conducted in order to ensure full functionality, such that the prequalification status of the yellow fever vaccine produced in the country could be maintained. Further training was provided on vaccine procurement systems and the development of health-care waste management plans. Courses for mid-level immunization programme managers were also held.

Two Expanded Programme on Immunization (EPI) curricula prototypes for medical and nursing schools were adopted by 23 countries; eight countries have already initiated changes in their EPI content curricula.

New immunization plan sets ambitious targets for coming year
At its 56th session, the Regional Committee for Africa approved the Regional Strategic Plan for the Expanded Programme on Immunization for the period 2006-09.

The Plan recognizes the huge challenges in relation to immunization in the Region such as the large numbers of unimmunized children, ensuring sustainable financing for more costly new vaccines (such as rotavirus, pneumococcal and human papillomavirus vaccines) and the continuing circulation of wild poliovirus. It incorporates the lessons learned of "what works", for example the RED approach, comprehensive multi-year planning, and working in partnership with the GAVI Alliance.

Countries decide to introduce hepatitis B and Hib vaccines
Two high-level fora for francophone and anglophone countries were organized, to provide technical information to help decision-makers make informed choices on the introduction of new and underutilized vaccines. Following the fora, 16 out of the 18 eligible countries for GAVI Alliance funding who had yet to make a decision on the issue at the time of the fora, decided to introduce both hepatitis B and Hib vaccines.

An important contribution to the evidence base for decision-making on the introduction of Hib vaccine in Africa is a recently-published paper (Cowgill KD, Effectiveness of Haemophilus influenzae type b conjugate vaccine introduction into routine childhood immunization in Kenya. Journal of the American Medical Association, 2006, 296:671-678). It shows that three years after introduction, routine vaccination of infants in Kenya against Hib reduced invasive Hib disease rates by 88%.

Improving overall child survival while fighting measles and polio
As mentioned earlier in this report, strong progress in measles control was made in Africa with measles deaths falling by 75% from 1999 to 2005. Supplemental immunization activities
(SIAs) had an important role to play in this progress. In 2006, 20 countries in the African Region conducted SIAs, vaccinating over 76 million children. These activities served as a channel for delivery of other interventions including vitamin A supplements for children under the age of five in fifteen countries, de-worming tablets in ten, oral polio vaccine in six, and distribution of insecticide-treated bed nets to prevent malaria in seven. The links with other interventions have led to improved collaboration with other areas of the health sector and a reduction in distribution and planning costs. At country level, political commitment remains strong for measles control; all countries contributed varying degrees of in-kind and financial support, which proved critical for the success of each campaign.

WHO Region of the Americas

Remarkable progress made on rubella control
In 2003, a resolution was adopted at the 44th Directing Council in the WHO Region of the Americas, calling for rubella and congenital rubella syndrome elimination in the Americas by 2010. In 2006, the Directing Council reaffirmed the rubella elimination initiative as a regional priority.

The countries of the Region have demonstrated remarkable progress in the implementation of strategies for effectively interrupting endemic rubella transmission. In 2006, Argentina, Bolivia, the Dominican Republic and Peru conducted national mass vaccination campaigns to reduce populations susceptible to measles and rubella and to prevent future CRS cases. By the end of 2006, more than 108 million women and men, adolescents and adults, in the Region had been vaccinated against rubella through the implementation of mass vaccination campaigns.

By December, 40 (91%) countries and territories (accounting for 90% of the population of the Region) had implemented vaccination campaigns, obtaining at least 95% coverage. As a result of sustained commitment to the rubella elimination initiative, the number of confirmed rubella cases decreased by almost 98% between 1998 and 2006.

Vaccination Week in the Americas: participating countries double
Vaccination Week in the Americas focused on the importance of immunization in border areas where high-risk populations reside. In its four years of existence, the event has grown in terms of participation from 19 countries in 2003 to 40 countries and territories in 2006. In 2006, countries vaccinated almost 50 million children and other age groups, exceeding their goal. Over 15 million doses of Measles-Rubella vaccine were administered. A large proportion of the doses were given in Bolivia and Venezuela, which took advantage of the event to introduce campaigns to eliminate rubella and maintain measles elimination.

The event was an opportunity for providing other health interventions. During Vaccination Week, seven countries administered vitamin A, anti-parasitic drugs, oral rehydration solutions, iron, and folic acid, to the benefit of millions of women and children.

Of the 40 countries that participated in the event, 15 carried out mass communication campaigns to raise awareness about vaccination among their populations.

Making tough decisions on introduction of new vaccines
The Pro-Vac Initiative (Initiative to Promote the Implementation of Economic Analysis for Vaccine Introduction in Countries of Latin America and the Caribbean), which aims, over a period of five years, to strengthen national capacity for evidence-based decision-making on the introduction of new and underutilized vaccines, was launched during a workshop held at the Regional Office's headquarters. Expected outcomes of the Initiative include: the formation of a regional network of key centres for economics, epidemiology, and public policy; strengthened national capacity through information technologies, long-distance training/meeting platforms and region-wide follow-up conferences; and the development and communication of evidence for decision-making through the use of models for programme cost and disease burden.
Since the workshop took place, cost-effectiveness studies have been proposed by several countries. These include studies for human papillomavirus, pneumococcus and rotavirus vaccines.

**WHO Eastern Mediterranean Region**

**Boosting routine immunization coverage**
The Eastern Mediterranean Region sustained recent achievements in increasing routine immunization coverage in 2006. Reported coverage in 2006 was: 86% with three doses of diphtheria-pertussis-tetanus and oral polio vaccines; 83% with one dose of measles vaccine; and 73% with three doses of hepatitis B vaccine. This was mainly due to the achievements made in Afghanistan, Sudan and Yemen, which have been very successful in implementing RED.

**Huge cut in measles deaths**
2006 was marked by successful measles campaigns in Somalia, Sudan and Yemen. Deaths from measles in the Region as a whole have declined significantly over the last years - from 102 000 in 1999 to 39 000 in 2005. Much remains to be done, however, if the Region is to achieve its 2010 goal of measles elimination. A measles elimination strategy has been fully implemented by all countries in the Region, with the exception of Egypt, Morocco and Pakistan. Each of these countries is currently planning initial measles catch-up campaigns.

Considerable work was done during the course of the year to improve measles surveillance, with all countries now reporting case-based surveillance data. A monthly surveillance bulletin was put in place. This was key to raising awareness of the regional goal for measles elimination.

**Introduction of new vaccines gains momentum**
In 2006, the Eastern Mediterranean Regional Technical Advisory Group recommended that Member States in this Region adopt a goal to reduce the prevalence of chronic hepatitis B virus infection to less than 1% among children born since vaccine introduction, and recommended that each Member State that has introduced the vaccine for at least 10 years should conduct studies to evaluate whether this goal has been achieved.

Hepatitis B vaccine is now part of the routine immunization programmes in all but two countries in the Region (the exceptions being Djibouti - which is due to introduce the vaccine in the pentavalent combination using GAVI Alliance funding in 2007-08, and Somalia).

While the introduction of the *Haemophilus influenza* type b vaccine (Hib) has been slower than hoped (with the vaccine now used in 11 of the 22 countries in the Region), mainly due to insufficient information about disease burden, several countries made the decision in 2006 to introduce the vaccine in early 2007. These countries are Iraq, Libya, and Morocco. In addition, Djibouti and Sudan have received approval to introduce the vaccine using GAVI funds in early 2008, and Afghanistan and Pakistan are planning to apply for GAVI Alliance support in 2007.

**Surveillance networks strengthened**
Following their establishment, the regional surveillance networks for rotavirus diarrhoea (2004) and paediatric bacterial meningitis (2005), were strengthened and extended to additional countries in 2006. The paediatric bacterial meningitis surveillance has been extended in some countries to include surveillance for other invasive bacterial diseases. These networks are supporting countries in the Region in documenting disease burden relating to rotavirus, Hib and pneumococcal diseases so that decision-makers can make evidence-based decisions on whether or not to introduce the vaccines.

Thus far, 16 of the 22 countries in the Region are contributing to the regional bacterial meningitis surveillance network, and are providing detailed case-based information on a monthly basis. Twelve countries are participating in the regional network for rotavirus surveillance. Sixty-five sites overall are fully supported. With regard to invasive bacterial
disease surveillance, five countries have already received training and are planning to start surveillance in early 2007.

Recommendations made on mumps immunization and a comprehensive routine immunization schedule
The Regional Office organized consultations during the course of the year on the routine immunization schedule, including the incorporation of mumps vaccine into the schedule. Important recommendations were reached at the first meeting on mumps immunization strategies. One of the main outputs of the second meeting was a standardized routine immunization schedule which includes infants, other children under five, adolescents and adults.

WHO European Region

Progress towards measles and rubella elimination by 2010
In order to reach disease control and elimination goals, efforts were scaled up to support countries in building and sustaining strong immunization systems.

- A regional plan to eliminate measles, rubella and congenital rubella infection by 2010 was finalized — highlighting advocacy, awareness-raising and reaching high-risk groups.
- An expert meeting of German-speaking countries and areas identified specific issues to be addressed in measles and rubella elimination in this part of the Region.
- Azerbaijan conducted a nationwide measles and rubella immunization campaign in February and March, targeting nearly 2.4 million people.

Substantial progress was achieved within the Region as a whole in the control of measles and rubella. By the end of 2006, all countries had a routine two-dose measles vaccination programme; 98% of countries were using rubella vaccine; more than 10 countries were undertaking national or sub-national supplementary immunization activities to address measles and rubella susceptible populations; and 55% of countries were reporting measles incidence of less than one per million population.

A total of nearly 15 million people have now been reached by supplementary immunization activities, and campaigns in 2007-2008 are scheduled to reach another 20 million people.

Evidence to make decisions on introducing new vaccines
Countries of the European Region were provided with extensive support to begin collecting evidence for possible introduction of new or underutilized vaccines. WHO and its partners in the European Region supported Member States in establishing surveillance of Hib and pneumococcal diseases, and rotavirus diarrhoea — a significant step towards limiting these diseases which are important causes of childhood morbidity and mortality in the European Region.

New tools developed to strengthen surveillance, quality and safety
New regional assessment tools were developed to strengthen national capacity for vaccine-preventable disease surveillance and ensuring the quality and safety of immunization. These tools are important components of capacity-building activities, focusing on laboratory-supported surveillance of vaccine-preventable diseases and adverse events following immunization, as well as vaccine management and waste disposal. During the course of the year, the Regional Office offered inter-country workshops and direct country support in these areas.

Free of polio for the fifth year
Following the certification of a polio-free European Region in 2002, the Regional Office has ensured technical and financial country support and continued monitoring. A strategic vision meeting for polio was held in the middle of the year. Participants, which included polio eradication experts, considered the programmatic challenges and directions for a strategic plan to sustain the Region's polio-free status. The MECACAR countries (countries in the
Eastern Mediterranean and Caucasus, the Central Asian Republics and the Russian Federation working together to sustain or achieve the eradication of polio and to eliminate measles) agreed on the “MECACAR Declaration” to be signed by all parties at the 2007 World Health Assembly. This signifies commitment at the highest levels to fight polio and measles.

Increasing awareness of the benefits of immunization

In times of scepticism and rumours about the safety and necessity of vaccination, continuous advocacy and information activities are critical. In order to achieve and sustain high immunization coverage and reach high-risk groups, countries strengthened their communication and advocacy work. This was reflected in the strong interest of countries to participate in European Immunization Week in 2007. Supporting this increased focus on raising awareness, Her Royal Highness Crown Princess Mary of Denmark, participating in the European Region Committee, announced her support to immunization, declaring that it is the right of every child to be immunized.

“As a mother I want to ensure that my child has every opportunity to grow up healthy, and vaccinated against those diseases that can so easily be controlled. As patron I want to ensure that this opportunity is given to every child in the European Region, and that we also reach those vulnerable groups that continue to exist.”— Her Royal Highness Crown Princess Mary of Denmark, speech to the WHO European Regional Committee, 11 September 2006.

WHO South-East Asia Region

Polio eradication: the battle continues

During the course of the year, use of type-specific monovalent oral polio vaccine types 1 and 3 had a significant impact on increasing the immunity levels of children in areas of Uttar Pradesh and Bihar where polio is still entrenched.

With regard to polio surveillance and response, a new algorithm for testing of stool specimens from paralyzed children was developed, tested and finalized. This algorithm will soon be introduced in the regional laboratory network, cutting the time required from the day specimens are received in the laboratory to the day that results are available to the vaccination programme by half, to two weeks. This will reduce the total time required to respond to wild poliovirus detection from 60 to 30 days, thus reducing spread of the virus.

In terms of polio eradication in the South-East Asia Region as a whole, a slight setback occurred in 2006, with over 700 cases of poliomyelitis reported. Nevertheless, in all countries where either polio still remains or the threat of importation still exists, intensified rounds of supplemental immunization activities were conducted.

Efforts continue to interrupt polio circulation in the endemic reservoirs in India, maintain the polio-free status of other countries and mobilize the additional resources required to achieve these goals.

Measles mortality reduction activities accelerated

Accelerated implementation of measles mortality reduction activities was undertaken during the year in Bangladesh, Bhutan, Indonesia, Maldives and Myanmar, with a total of 43 million people vaccinated in measles catch-up campaigns in most of these countries. Bhutan and Maldives used measles-rubella vaccine for campaigns conducted. In addition, all preparations were made such that catch-up campaigns could be completed in Indonesia and Myanmar by mid-2007.

India, given its large annual birth cohort, will be the biggest challenge to achieving the measles mortality reduction goal for the Region. Fortunately, with the support of the Regional Office, India has already initiated measles surveillance in polio-free southern states. Following a WHO recommendation, an advisory group, the India National Expert Advisory Group for Measles, has been established. A measles mortality reduction strategy for the country has been developed.
Steady progress made in introducing new and underutilized vaccines
After completing the introduction of hepatitis B vaccine in their national immunization programmes, Bangladesh, Bhutan and Sri Lanka moved ahead with plans to introduce Hib vaccine with funds from the GAVI Alliance. Support for the generation of more robust disease burden information or the continuation of existing surveillance for Hib was provided to Myanmar, Nepal, and Sri Lanka.

WHO is working with countries in the Region to: strengthen rational decision-making with regard to the introduction of new and underutilized vaccines; ensure the financial sustainability of the vaccines already used; and keep open the possibility of adding additional antigens in the future. This support is particularly important as funding becomes available for additional vaccines from the GAVI Alliance.

JE diagnosis: new laboratory network established
A regional network of laboratories was established during the year for the diagnosis of JE. In the outbreaks that occurred in India and Nepal, it was clear that not all encephalitis cases were caused by the JE virus. The surveillance strategy was thus expanded to include surveillance for both viral and bacterial causes of acute encephalitis syndrome. Training was given to laboratory staff and standardized diagnostic kits were provided to network laboratories. Additionally, surveillance staff from Bangladesh, India and Nepal are being trained on surveillance for acute encephalitis syndrome.

Fast track licensing of vaccines
A guideline for fast-track licensing of vaccines was pioneered by the WHO Regional Office for South-East Asia in collaboration with headquarters. It was developed to guide countries that do not have adequate regulatory mechanisms for the licensing of new vaccines, and particularly for the introduction of vaccines required in emergency situations.

Training to reach the highest standards of quality and safety
In the area of vaccine quality and safety, two courses of the WHO Global Training Network, on vaccine management and vaccine lot release, were conducted for Member States in the Region. Support for training is part of the Regional Office’s strategy for building national capacity for vaccine regulation. A workshop to develop regional reference standards for testing JE and pertussis vaccines was also conducted during the year.

WHO Western Pacific Region
Still free of polio
The Western Pacific Region was certified polio-free in 2000. The quality of polio surveillance and routine immunization coverage have been maintained at levels similar to previous years, resulting in the Region remaining polio-free.

Work has begun to review national policies and legislation on the immunization of travellers from areas with circulating poliovirus.

Significant progress has been made towards completion of regional phase I wild-poliovirus laboratory containment (development of an inventory of laboratories with polioviruses) in China and Japan, the two countries with a large number of laboratories yet to achieve this. Completion of this phase will reduce the risk of re-introduction of the virus from laboratories into communities. Phase II of laboratory containment entails either destruction of materials or higher bio-safety storage requirements.

Progress towards hepatitis B control
In the Western Pacific Region, all Member States have introduced hepatitis B vaccine, including a birth dose, into national immunization programmes. This was achieved in 2004. Two years later, the Region developed criteria to certify whether countries will have met the regional hepatitis B control goal of chronic hepatitis B virus infection in less than 2% of children around five years of age by 2012, and has begun to collect data to determine if some
countries have already met this goal. In addition, the Region developed comprehensive guidelines for hepatitis B control that address immunization at ages beyond infancy. Considerable progress was made during the year in ensuring future funding for the vaccine, with China and Viet Nam transitioning out of GAVI financing to full domestic funding in 2007. A revised regional plan and certification guidelines for hepatitis B control are being developed. Twenty-four out of 37 countries and areas in the Region are expected to have achieved the regional goal by 2008.

**Action to eliminate measles**

Progress was made towards the Region's target of eliminating measles by 2012. The Republic of Korea became the first country in the Western Pacific Region to declare that measles had been eliminated. Viet Nam is planning to introduce a second dose of measles vaccine in 2007 in addition to targeted supplementary immunization campaigns in high risk areas and is likely to eliminate measles well ahead of its 2010 target. China developed a National Measles Elimination Plan and organized a first national meeting for measles elimination in December. Cambodia also developed a national plan, with the goal of elimination by 2012. Kiribati, the Solomon Islands and Vanuatu implemented scheduled national measles campaigns in the second half of the year as part of their measles elimination strategies. Kiribati intends to introduce a second dose of measles vaccine in 2007-08. In January 2007, five of the countries eligible for GAVI Alliance funds (Cambodia, the Lao People's Democratic Republic, Mongolia, Papua New Guinea, and Viet Nam) received over US$ 8 million dollars in support of supplemental measles immunization activities to be conducted in 2007-08.

**Expanding the use of new and underutilized vaccines**

A regional forum held in March on the prevention of childhood pneumonia and meningitis through vaccination helped countries take actions required to expand the use of Hib and pneumococcal vaccines in the near future. Viet Nam undertook a rapid assessment of the burden of Hib disease in September and intends to introduce Hib vaccine on a pilot basis in 2007. China, Macao Special Administrative Region, and Papua New Guinea made the decision to introduce Hib vaccine into their national immunization programmes in early 2007, bringing the total number of countries and areas in the Region that have done so to 19. A number of countries have plans for surveillance activities which will help estimate the disease burden due to JE, Hib and pneumococcus and serve as an evidence base for potential introduction of vaccines against these diseases in the future.

**F. Communication, advocacy and media**

In 2006, a communications team for immunization was established at WHO headquarters consisting of three professional and one administrative staff. The team carries out media, advocacy and other communications work leading to a variety of products and events. Communications staff contribute regularly to several partnerships such as the GAVI Alliance and the Measles Initiative.

"We want to be alive, we have been immunized !"

**New brochure on reducing measles deaths**

WHO and UNICEF issued a joint statement on the Global Plan for Reducing Measles Mortality 2006-2010 in the form of a short brochure. This advocacy document presents the effective measles mortality reduction strategy, outlines measles mortality reduction challenges and goals, and notes the importance of partnership in this endeavour. "We used to bury two or three children every week during measles epidemics. This does not happen any more," says Serigne Dame Leye, Chief of Ngouye Diaraf village, Senegal in the brochure. The brochure also explains why children need to receive a "second opportunity" for measles immunization and notes that less than a dollar is needed to protect a child for life against measles.

The Global Plan ([http://whqlibdoc.who.int/hq/2005/WHO_IVB_05_11_eng.pdf](http://whqlibdoc.who.int/hq/2005/WHO_IVB_05_11_eng.pdf)) focuses on reducing measles mortality in 47 priority countries that account for approximately 98% of global measles deaths. These countries, characterized by weak health systems and chronically low immunization coverage, are among the world's poorest.
"Immunization — an investment in life"
Immunization financing issues were highlighted by the Immunization, Vaccines and Biologicals Department at the World Health Assembly. The theme of the Department's exhibit at the 59th World Health Assembly was "Immunization - an investment in life". "We found powerful new sources of economic returns from immunization" (quote by author of Harvard School of Public Health study) and "It costs less than US$ 1 to immunize a child against measles" were the texts of two large banners. The many visitors to the stand took documents and give-aways relating to immunization financing. Six short papers on vaccine cost, supply and financing issues were published in three languages.

Visual identity: Global Immunization Vision and Strategy
Work was carried out to create a visual identity for the WHO/UNICEF Global Immunization Vision and Strategy. The visual identity will be used on various elements of an advocacy package including a brochure.

Advocacy with Group of Eight decision-makers
Information was prepared for the G8 summit hosted by the Russian Federation in St. Petersburg, attended by the WHO Director-General, Dr Anders Nordström. A web page was created in the Immunization, Vaccines and Biologicals Department Newsroom. The control of infectious diseases was one of the topics considered by leaders of the eight countries—they have long recognized that AIDS, tuberculosis, malaria, polio and other vaccine-preventable diseases slow economic development, perpetuate poverty, and threaten security in large parts of the world. The recent threat of an influenza pandemic has focused international attention on the need for all countries to be better prepared, in order to reduce the death toll, widespread illness and severe social and economic consequences.

Queries on immunization pour in from all over the world
Numerous queries from the media, partners, governments, academics, individuals and other WHO departments were handled by the Communications, Advocacy and Media team. It is estimated that at least 250 queries from all over the world are responded to each year.

Communicating a success the world should celebrate
As soon as the Immunization, Vaccines and Biologicals Department learned that The Lancet had accepted, for fast track publication, an article on reaching the 2005 measles mortality goal written by some Department staff and partners, communications staff began working on a comprehensive communications package, in close consultation with the in-house measles expert. Staff produced nearly 40 elements of the package, some jointly with United States-based partners, within two weeks. The package included a joint news release, a WHO fact sheet, key statistics, stories from the field, questions and answers, an op-ed signed by the WHO Director-General published in The International Herald Tribune, key messages, a podcast, web pages and a splash screen. The effort culminated in a dial-in news conference with the WHO Director-General and her counterparts in Measles Initiative partner agencies. WHO experts did many interviews with major media outlets and Joy Phumaphi, Assistant Director-General, Family and Community Health, WHO, appeared on BBC World TV. News reports related to this announcement were compiled and number about 220.

Media and advocacy products
Global Immunization Coverage

Immunization financing: a set of six papers

Measles mortality reduction: a series of products related to achievement of the 2005 goal

WHO Immunization work: 2005 Highlights
News releases and other press documents

*Bangladesh to launch largest ever measles vaccination campaign*, 22 February 2006, News release
http://www.searo.who.int/EN/Section1226/Section1603_11282.htm
Photo story:

*Viet Nam eliminates maternal and neonatal tetanus*, 28 February 2006, News release

*Immediate and sustained action required to sharply increase pandemic influenza vaccine supply*, 23 October 2006, News release

*Global strategy aims for effective malaria vaccine by 2025*, 4 December 2006, Note to the press
http://www.who.int/immunization/newsroom/NOTE_MVTRM_4_12_06_Final.pdf

*Global goal to reduce measles deaths in children surpassed; Measles deaths fall by 60 per cent*, 19 January 2007, News release

*Measles*, January 2007, Revised Fact sheet
IV. Investing in saving lives: the financial picture

Global funding for immunization

In recent years, overall spending on immunization has increased in the 117 poorest countries. In the chart below, spending includes purchase of current and new vaccines, operations, routine immunization and immunization campaigns, and immunization systems costs (human resources, infrastructure and cold chain.)

The equity gap in immunization spending has narrowed between 2000 and 2005

Immunization Costs in 117 Poorest Countries 2000-2005 (USD Billions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>$3.29 Billion (US$ 2.02-$6.72)</td>
</tr>
<tr>
<td>2005</td>
<td>$5.3 Billion (US$ 3.23-$11.27)</td>
</tr>
</tbody>
</table>


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"There is no better case for advancing money than vaccination." United Kingdom Chancellor of the Exchequer Gordon Brown, Brown launches vaccination bonds. BBC news web site, 7 November 2006.

A number of countries and organizations supported new financing mechanisms for immunization during the course of 2006. This provided a clear signal of the perceived importance of immunization in achieving the Millennium Development Goals on reducing child mortality, improving maternal health and combating infectious diseases.

IFFIIm and the pilot Advance Market Commitment (AMC) for pneumococcal vaccines will undoubtedly help meet the challenges that are now being faced in the vaccine world such as: vaccines of increasing number and complexity in the research pipeline; the high cost of new vaccines; reaching global and regional mortality and morbidity reduction targets; and timely response to emerging public health crises such as pandemic influenza.

Successful sale of bonds raises funds for immunization
IFFIm, a new multilateral development institution designed to accelerate the availability of funding for health and immunization programmes in the poorest countries, successfully issued its inaugural five year bonds amounting to US$ 1 billion. In November, notes were placed with a diverse group of 54 investors from 15 different countries, including His Holiness Pope Benedict XVI, rock stars Bono and Bob Geldof, central banks and corporations. Orders ranged from US$ 1000 to US$ 250 million, averaging US$ 32 million.

This was the first time that bonds were used to finance a specific objective related to health and immunization. Brazil, France, Italy, Norway, South Africa, Spain, Sweden and the United Kingdom of Great Britain and Northern Ireland have made legally binding commitments to IFFIm. IFFIm uses long-term, legally binding donor commitments to leverage additional money from international capital markets for immediate use as grants to developing countries to support immunization programmes. Proceeds from the first bonds are going, via the GAVI Alliance, towards: supporting new vaccines, strengthening immunization services, funding measles and tetanus campaigns and creating an oral polio vaccine stockpile, in case there is a recurrence of circulating poliovirus after polio has been declared eradicated.

**IFFIm will, over the next ten years:**

- Spend US$ 4 billion on vaccines and health and immunization systems;
- Immunize more than 500 million children in over 70 of the poorest countries by 2015;
- Save 10 million lives, of which 5 million will be children by 2015;
- Help to eradicate polio;
- Help introduce new vaccines and technologies; and
- Help strengthen health systems to deliver immunization services and other medical interventions.

**Note for layout: quote to be placed near the above paragraph on IFFIm**

"An innovative bond aimed at financing child immunisation in some of the world's poorest countries on Tuesday raised $1bn after attracting demand from a wide range of investors, including central banks, religious groups and rock stars." Chung J. New bond raises $1bn for child jabs, *The Financial Times*, 7 November 2006.

**A new incentive for industry to develop life-saving vaccines**

The Advance Market Commitment concept is based on the premise that making a commitment in advance to buy vaccines, if and when they are developed, would create incentives for industry to increase investment in research and development or to invest in large-scale manufacturing capacity. As initiated by the finance ministers of the G7, through the World Bank, an AMC would be applicable both to products at a late stage of development (such as vaccines against rotavirus, pneumococcus and human papillomavirus) and to products at an early stage (vaccines against malaria, HIV and tuberculosis). A commitment of US$ 1-6 billion for each priority disease is needed.

The AMC proposal is for sponsors to make payments for the purchase of vaccines by developing countries, for qualifying vaccines, up to a fixed number of sales or to a total investment figure. Developing countries would pay a relatively low price for the vaccines and donors would top-up those payments to a premium price aimed at rewarding producers for their research and development and investment in capacity. Once the commitment has been exhausted, manufacturers who have chosen to benefit from the premium price would be contractually obliged to either sell at a sustainable low price related to the cost of production or to license their technology to other manufacturers.
WHO immunization budget and funding

For the 2008-09 biennium, the cost of fulfilling the strategic objectives of the Organization is estimated at US$ 269 million. For WHO headquarters, which provides overall policy guidance and programme management and oversight, the cost for the biennium is US$ 76 million. Many of the traditional donors of the Department of Immunization, Vaccines and Biologicals have committed to support the ongoing work. Pledges from donor governments, foundations and multilaterals, together with WHO’s core funding, amount to US$ 68 million for headquarters. This leaves a shortfall of US$ 8 million, without which implementation of planned activities will be at risk.

Note for layout: all figures in above graph are in millions and are rounded. This should be stated or put millions on graph.

Available funding: US$ 68 million
Shortfall: US$ 8 million

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* Others include: PATH; the Arab Gulf Programme for United Nations Development Organizations; the Governments and aid agencies of the Netherlands and Japan; the Joint United Nations Programme on HIV/AIDS; the Korea Food and Drug Administration; the United States Agency for International Development; the United States Department of Health and Human Services; and UNICEF

Of the total cost for headquarters, regions and countries (US$ 269 million), there is a shortfall of US$ 107 million. Approximately half of this amount (US$ 54 million) is urgently required to address key immunization challenges faced by Member States. These challenges are: to reach more people with available vaccines; to establish and strengthen surveillance systems for new and underused vaccines; to ensure the quality and safety of the vaccines being administered; and to carry out research and vaccine development. The largest unmet needs are in the African and South-East Asia Regions.
WHO global immunization budget (excluding polio eradication): US$ 269 million

Total global shortfall: US$ 107 million
Immediate global shortfall: US$ 54 million

Note for layout: above figures to be highlighted in some way

With global development assistance increasingly focusing on harmonization and alignment of aid in general, and health aid in particular, it is vital that the donor community makes the transition to predictable, long-term financing of health interventions a reality. Failing to build on the success of recent disease mortality reduction, missing opportunities to reach more people and expand the benefits of new vaccines, and scaling down efforts on research and quality control would threaten progress towards achieving the Millennium Development Goal on reducing child mortality.

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Sincere thanks are extended to all organizations providing financial support to WHO’s immunization work in 2006-07: AGFUND; Antwerp University; Asian Development Bank; Bill & Melinda Gates Foundation; European and Developing Countries Clinical Trials Partnership; GAVI Alliance; Governments and aid agencies of Australia, Belgium, Canada, China, Denmark, Finland, France, Germany, Japan, Luxembourg, Netherlands, Norway, Republic of Korea, Spain, Sweden, United Kingdom of Great Britain and Northern Ireland, and United States of America; International Vaccine Institute; PATH; UNICEF; United Nations Fund for International Partnerships; United States Centers for Disease Control and Prevention; as well as Merck & Co., Inc. and the Serum Institute of India who provided unrestricted grants.
V. Publications

Strategic plans

Immunization, Vaccines and Biologicals Department Strategic Plan 2006-2009
http://www.who.int/vaccines-documents/DocsPDF06/842.pdf

Initiative for Vaccine Research Strategic Plan 2006-2009
http://www.who.int/vaccines-documents/DocsPDF06/854.pdf

General

Global immunization vision and strategy (French version)
La vaccination dans le monde : vision et stratégie 2006-2015
http://www.who.int/vaccines-documents/DocsPDF06/844.pdf

State of the art of new vaccines: research and development
http://www.who.int/vaccine_research/documents/stateoftheart/en/

Position Papers


Technical guidelines and procedures

Guidelines on the international packaging and shipping of vaccines
http://www.who.int/vaccines-documents/DocsPDF06/818.pdf

Procedures for assessing the acceptability, in principle, of vaccines for purchase by UN agencies
http://www.who.int/vaccines-documents/DocsPDF06/812.pdf

Temperature sensitivity of vaccines
WHO/UNICEF Guidelines for developing a comprehensive multi-year plan
http://www.who.int/vaccines-documents/DocsPDF06/832.pdf

http://www.who.int/vaccines-documents/DocsPDF06/799.pdf

Surveillance

http://www.who.int/vaccines-documents/GlobalSummary/GlobalSummary.pdf

Disease-specific documents

Accelerating the global effort for HIV vaccine research: Report of the Third Forum of the African AIDS vaccine programme
http://www.who.int/vaccines-documents/DocsPDF06/852.pdf

Global pandemic influenza action plan to increase vaccine supply
http://www.who.int/vaccines-documents/DocsPDF06/863.pdf

http://www.who.int/vaccines-documents/DocsPDF06/WHO_IVB_05_11.pdf

VI. Web site and useful links

Web site gets a new look and contents
The re-designed web site of the Immunization Department [http://www.who.int/immunization/en](http://www.who.int/immunization/en) went live in February. The home page of the web site now features a news column and a Newsroom was created. Photo stories on measles campaigns in Bangladesh and Tanzania, new pages on the Global Immunization Vision and Strategy and measles, key immunization resources for journalists and video footage were posted, along with all press materials. The Document Centre lists Department publications currently in circulation. About us describes the main focus of the Immunization Department’s activities, its structure, and its staff, who are pictured. Permanent links to the list of WHO position papers on vaccines and the latest information on the Strategic Advisory Group of Experts can be found in the right column of the site. Topics provides information on vaccines for specific diseases. Any general comments on the site can be sent to vaccines@who.int.

The web site of the Department of Immunization, Vaccines and Biologicals covers the following topics: immunization standards; vaccine research and development; immunization financing, supply and procurement; immunization safety; immunization service delivery and accelerated disease control; and immunization surveillance, assessment and monitoring.

Useful links
WHO headquarters immunization web site

Immunization standards

Vaccine research and development
[http://www.who.int/vaccine_research/en/](http://www.who.int/vaccine_research/en/)

Immunization financing, supply and procurement

Immunization safety

Vaccine Safety Net

Immunization service delivery and accelerated disease control

Immunization surveillance, assessment and monitoring

Measles Initiative
[http://www.measlesinitiative.org](http://www.measlesinitiative.org)

Global Polio Eradication Initiative
[http://www.polioeradication.org](http://www.polioeradication.org)

Global Advisory Committee on Vaccine Safety

**WHO regions’ immunization web sites**
Africa
[http://www.afro.who.int/ddc/vpd/index.html](http://www.afro.who.int/ddc/vpd/index.html)

Americas
http://www.paho.org/english/ad/fch/im/Vaccines.htm

Eastern Mediterranean
http://www.emro.who.int/index.asp

Europe
http://www.euro.who.int/vaccine/

South-East Asia
http://w3.whosea.org/en/section1226.asp

Western Pacific
http://www.wpro.who.int/health_topics/immunization/