Expanded Programme on Immunization: achievements and challenges

Each dollar invested in immunization will result in an even greater return in prevented disability and death, and avoided medical care costs. Further expansion of immunization services is one of the best bargains available for primary health care and national development.

For the Expanded Programme on Immunization (EPI) the past decade has been one of building national immunization systems, with the primary focus on developing countries and with the primary objective of expanding coverage as quickly as possible. National programmes, backed by an impressive coalition of national and international partners, have now for the most part succeeded in establishing systems that reach the majority of children attaining one year of age with a protective course of immunizations. The global achievement of the 1990 target of 80% immunization coverage among infants worldwide with BCG and measles vaccines, and with the third dose of DPT (diphtheria – pertussis – tetanus) and oral poliovirus vaccines, represented a milestone on the way to universal childhood immunization. This progress in global immunization is directly attributable to the efforts of national governments, WHO, the United Nations Children’s Fund (UNICEF) and other bodies of the United Nations system, bilateral development agencies, and nongovernmental organizations such as Rotary International. Developing the capacity to achieve these levels of coverage of infants was a major public health triumph for the decade of the 1980s.

Global statistics, however, mask disparities among regions, countries, states or provinces, and districts. Differences in immunization coverage levels reflect, in part, the varied development of the primary health care infrastructure, and are one of the measures of the degree of equity and social justice that communities have achieved. The much lower coverage of 42% reported for tetanus toxoid among pregnant women in developing countries to protect their newborn babies from neonatal tetanus serves as a reminder that neonatal tetanus was the “forgotten” vaccine-preventable disease of the last decade, which was partly due to the fact that efforts to prevent it were directed at a target population different from infants.
Coverage must be increased

At current levels of immunization coverage, it is estimated that immunization programmes prevent each year some 2.9 million deaths from measles, neonatal tetanus and pertussis, as well as some 530,000 cases of paralytic poliomyelitis. The occurrence each year of an estimated 2.1 million deaths from these same diseases, as well as 120,000 cases of paralytic poliomyelitis, underlines the urgent need to continue raising immunization coverage levels and to focus on control of the target diseases. The 1 to 2 million deaths attributable to hepatitis B infection highlight the importance of adding new vaccines.

The success of the global immunization initiative has been remarkable, but there is no room for complacency. The sustainability of immunization services in many developing countries remains fragile, a symptom in part of a poorly developed health infrastructure. In the 1990s, EPI will have as a central task, along with other WHO programmes, to strengthen the health care infrastructure. This will be pursued both by working for the better integration of immunization with other primary health care services and by further improving immunization services themselves – paying special attention to “reaching the unreached”, that segment of each society which bears the highest burden of disease and disability. Integration will be carried out through training and evaluation linked with other maternal and child health programmes, and by the active promotion through EPI of other interventions such as micronutrient supplementation. The major strategy for improving immunization services themselves is to move from a focus on coverage to a focus on impact. This is where the disease control initiatives concerning neonatal tetanus, measles and poliomyelitis play a critical role.

The World Summit for Children, by endorsing the joint WHO/UNICEF health goals, spelled out the major

One shot only will save from tetanus

Tetanus is still a killer in the developing world, particularly among newborn babies. In the past it was commonly known as lockjaw because of the painful spasm of the jaw muscles which is a characteristic early symptom of the disease. Young girls and pregnant women who are immunized against this disease under the Expanded Programme on Immunization receive three doses of vaccines at intervals. However, current research suggests that it should soon be possible to fully immunize everyone with one dose only.

The Product Development Group on Single-Dose Tetanus Toxoid Vaccine, established by the CVI, is committed to finding a technology applicable to tetanus immunization, and especially for the reduction of neonatal tetanus, that would prove just as efficient as the conventional three-dose product. It should be safe, convenient to use, and as stable as the conventional vaccine.

The main line of research is to develop a controlled-release vaccine by injection of the tetanus toxoid encapsulated in microspheres prepared from copolymers of lactic and glycolic acids. This research is being carried out under the auspices of the WHO/UNDP Programme for Vaccine Development (PVD) and the above-mentioned Product Development Group to assess whether this goal can be achieved using this technology. Other lines of study – like the possibility of obtaining preparations suitable for oral delivery including the alternative approach using salmonella bacteria as vectors for the tetanus toxoid – will continue to be assessed by the PVD.

Meanwhile, the Product Development Group will try to develop appropriate partnerships for this new technology with vaccine manufacturers.
challenges for immunization programmes in the 1990s as follows:
- maintenance of a high level of immunization coverage (at least 90% of children under one year of age by the year 2000) against diphtheria, pertussis, tetanus, measles, poliomyelitis and tuberculosis, and against tetanus for women of child-bearing age;
- global eradication of poliomyelitis by the year 2000;
- elimination of neonatal tetanus by 1995; and
- by 1995, reduction by 95% of measles deaths and reduction by 90% of measles cases compared to pre-immunization levels, as a major step towards the global eradication of measles in the future.

Improving immunization coverage beyond 80% and achieving the disease control targets will be more difficult than reaching the 80% immunization coverage target for 1990, since efforts will need to be targeted towards high-risk, and possibly difficult to reach, populations. This means that immunization programme managers will have to improve the information system so as to identify pockets of unimmunized children and areas of continued disease transmission as well as expend greater efforts to determine which aspects of the programme need to be enhanced to reach them. Increased resources to intensify the delivery system and strengthen capacities to respond to outbreaks will be required.

**Quiet revolution**

The past 15 years have witnessed a “quiet revolution” in health. Immunization programmes have been a prime mover in the development of an increasingly effective health infrastructure that is now making some 500 million contacts with infants and mothers each year. The challenges ahead lie in tapping the full potential of these contacts in the decade of the 1990s to control an expanding number of target diseases and help provide increasingly complete primary health care. The global coalition built around immunization programmes will serve to further improve immunization and disease control activities, and will act as a catalyst for building more comprehensive health services in developing countries. This health infrastructure contributes, in turn, to national development.

Quite apart from the important humanitarian reasons for immunizing, the investment in immunization services makes sound economic as well as epidemiological and political sense. Disease prevention through immunization reduces not only deaths, but also the need for expensive curative and rehabilitative care. In the situation of disease eradication, as with the poliomyelitis eradication initiative (see opposite page), there will be the ever-accumulating benefits of being able to stop all activities relating to the prevention and treatment of the disease.

Immunization, in both industrialized and developing countries, will continue to be an important element of national health programmes as new and improved vaccines become available. Each dollar invested will result in an even greater return in prevented disability and death, and avoided medical care costs.

To these direct benefits are added important indirect benefits: immunization provides a means of helping to break the vicious cycle of high infant and childhood mortality rates. By permitting more of a family’s children to survive, it reduces the number of births desired by a family which, in turn, reduces maternal, infant and child mortality rates. In this way it acts in strong synergy with family planning activities, and makes the further expansion of immunization services one of the best bargains available for primary health care and national development.

Immunization programmes face exciting challenges during the present decade. The continued commitment of governments and the international community to meet these challenges will move us all closer to the ultimate vision of a world free of suffering, disability and death due to vaccine preventable diseases.

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Immunization programmes are best managed when they are carried out within the primary health care services.

An informed community will ensure that no child is left unprotected.