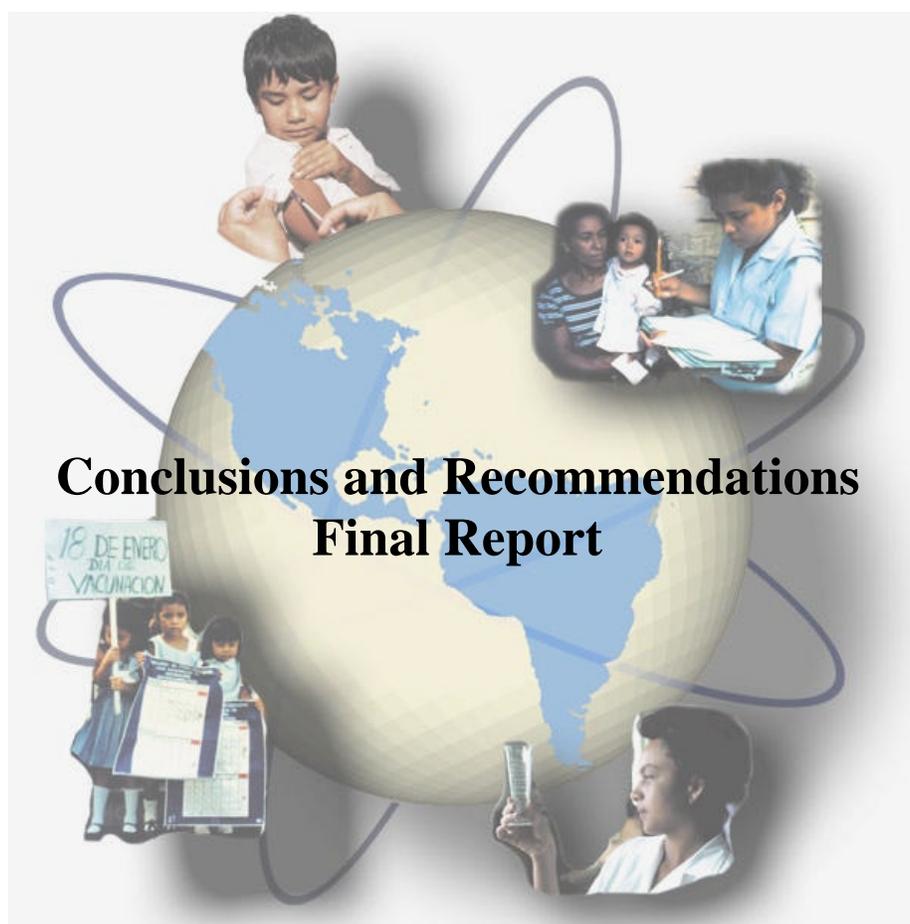


XIV MEETING OF THE PAHO TECHNICAL ADVISORY GROUP ON VACCINE PREVENTABLE DISEASES

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Division of Vaccines and Immunization



PAN AMERICAN HEALTH ORGANIZATION
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INTRODUCTION

The Program of Vaccine Preventable Diseases in the Region of the Americas enters the new millennium with a history of remarkable accomplishments and exciting prospects for the future. Nine years have elapsed since the last case of poliomyelitis was detected in the Americas, measles transmission is on the verge of being interrupted and several new vaccines have been added to the basic immunization schedule. The Region is making progress to ensure that all vaccines used in immunization programs meet international standards of quality, and that surveillance programs are steadily improving. Still, much remains to be done to strengthen surveillance programs, assure the quality control of vaccines, and extend high-level vaccination coverage to all populations throughout the Americas. At the same time with the processes of health reform and decentralization in the Region, ongoing efforts are needed to keep the technical and managerial excellence achieved by immunization programs in most countries. These processes represent an opportunity to ensure that immunization programs are delivered in an equitable way in all areas of a country and to broaden the support for immunization at all levels of society.

The XIV Meeting of the Technical Advisory Group on Vaccine Preventable Diseases of the Pan American Health Organization was held between October 2-5, 2000 at Foz do Iguaçu, Paraná, Brazil. The meeting emphasized continued cooperation and coordination among all countries and partner agencies who are now part of the expanded Global Alliance for Vaccines and Immunization (GAVI). Participating agencies included: the United States Agency for International Development, the Centers for Disease Control and Prevention, the Canadian International Development Agency, UNICEF, the World Bank, the March of Dimes, Rotary International, the Children's Vaccine Program of the Bill and Melinda Gates Foundation, the Red Cross and the Oswaldo Cruz Foundation (FIOCRUZ). Present were also representatives of several scientific associations: the Latin American Society of Pediatric Infectious Diseases, the Pan American Society of Infectious Diseases and the Brazilian Pediatric Society.

Countries that have fully implemented the vaccination strategy recommended by PAHO have successfully interrupted transmission, largely due to high measles vaccination coverage rates. When experiencing measles importations, these countries have succeeded in keeping measles transmission at low levels. In order to interrupt the regional transmission of indigenous measles, all countries need to improve surveillance, maintain high vaccination coverage, monitor vaccination coverage at all levels and implement house-to-house *mop-up* vaccination in areas with low coverage.

The majority of countries in the Americas have introduced rubella-containing vaccine. However, there is evidence of continued widespread rubella virus circulation in the Region. Only the English-speaking Caribbean countries have implemented the strategy recommended by TAG to interrupt rubella transmission.

For the Region to maintain its polio-free status, it will be necessary to sustain very high levels of surveillance of acute flaccid paralysis (AFP). The latter will be critical during the process of global certification of poliomyelitis eradication. It will soon be necessary to obtain an inventory of laboratories in the Region that contain stocks of

poliovirus so as to develop options for either their destruction or transfer to containment laboratories.

Neonatal tetanus is now confined to less than 1% of all districts in the Americas. Countries need to develop and implement targeted strategies for neonatal tetanus in these districts, in order to continue reducing the number of children who die each year from this disease.

The threat of yellow fever is ever present in areas where the selvatic disease is found. In these areas yellow fever vaccine should be incorporated into the routine immunization schedule. Furthermore, special vaccination campaigns should be conducted in areas at highest risk.

Progress is being made in the introduction of new vaccines, such as hepatitis B and *Haemophilus influenzae type b* which are now being included in the routine vaccination schedules of most countries in the Americas.

The availability of high quality vaccines continues to be critical to the success of immunization programs. Improved communications with the public will be key to assuring consumers about the benefits and safety of current vaccines.

The TAG took note with satisfaction of the establishment of the Global Alliance for Vaccines and Immunization (GAVI). This represents a great opportunity for the improvement of immunization programs in those countries at greatest need. The countries of Latin America, including the six that are eligible for support from the Global Fund for Children's Vaccines, have already made significant progress towards achieving milestones established by the GAVI Board.

In this regard, the TAG suggests that the GAVI Board consider waiving the 80% immunization coverage criterion for the six needy countries in the Americas to enable them to obtain support for infrastructure needs. Performance-based indicators appropriate to the Region can be identified for these countries. Such indicators could include the proportion of districts with a DPT3 coverage of more than 80% and surveillance indicators that meet national standards. These countries have to guarantee that funds requested of the Global Fund do not replace the contributions of the national governments and those of the partners at the national level.

The TAG and all the participants of the meeting congratulate the people of Brazil on their 5th centennial and the Oswaldo Cruz Foundation for the commemoration of its 100 years of contribution to the health of the Americas.

1. MEASLES ERADICATION

PAHO's Technical Advisory Group on Vaccine Preventable Diseases commends the efforts of countries in the Americas to significantly reduce the burden of measles in the Region. Most countries have already interrupted measles virus transmission as a result of the full utilization of the vaccination strategy recommended by PAHO. The

number of confirmed measles cases are at an all-time low and measles is currently affecting only 53 out of approximately 12,000 municipalities. TAG also notes the progress being made at the global level towards accelerated measles control. These efforts will complement and facilitate the work being carried out by all countries in the Americas.

Achieving and maintaining zero measles in all countries in the Americas will require the political will, as well as the sustained commitment of health authorities and health workers and the international community. At this stage of the eradication initiative the main objective is to minimize susceptible population to measles virus by using the complete measles eradication strategy.

For the past two years most countries of the Region, including all countries in Central America and Cuba, most Caribbean countries and the majority of South American countries have reported zero measles cases. As of 23 September 2000, there were only 938 confirmed measles. Countries with high measles vaccination coverage experienced importations with very limited spread included: Canada (128), United States (66), Peru (1), and Costa Rica (1). In Mexico (28) measles occurred for which no source could be identified.

Transmission of measles was reestablished in the Dominican Republic in 1998 and has continued to spread. As of September 2000, the country had reported 187 confirmed measles cases. In March of 2000, measles was detected in Haiti and there have been 354 confirmed cases to date. Several other countries have also reported cases, but none recently; Bolivia (119), Brazil (48) and Argentina (6). Virologic surveillance conducted since 1997 has suggested that D6 is the only genotype circulating in the Region of the Americas.

Haiti and the Dominican Republic deserve special attention. Despite repeated vaccination efforts, both countries have been unable to stop measles transmission. Problems have included: failure to implement the full measles eradication strategy, deficient supervision of vaccination campaigns, inadequate and delayed monitoring of vaccination coverage and severe logistical obstacles. As a result many municipalities have failed to reach $\geq 95\%$ coverage with measles vaccine, thereby leaving pockets of susceptible populations. Attack rates are highest among children <5 years of age. Most cases have occurred among unvaccinated children living in areas already covered by vaccination with a reported $\geq 95\%$ coverage. House-to-house monitoring of vaccinated areas that lacked adequate supervision revealed insufficient coverage.

Major Concerns

National coverage levels and/or inflated coverage estimates have lead to a false sense of security in many countries

Measles vaccination coverage rates in many municipalities, estimated through house-to-house monitoring or other measurement methods, are often substantially lower than those officially reported rates. In addition, some countries rely only on national coverage levels, thus failing to identify local problem areas with low coverage.

Densely populated urban centers pose special problems because they are ideal for prolonged measles transmission due to the rapid accumulation of susceptible children and migrant workers (particularly those of rural origin). Special attention is needed to address these population groups.

Problems in epidemiological investigation of measles cases

In some countries case investigations are poorly performed, thus failing to provide critical information regarding outbreak source and delaying outbreak response efforts. Follow-up investigations, which include the identification of additional related cases is often lacking. Prompt cross-notification between local jurisdictions, as well as between countries is not carried out on a regular basis.

Special groups at risk of acquiring and transmitting measles

Experience shows that certain groups may be at high risk of acquiring and/or transmitting the disease during outbreaks. These may include: health care workers, military personnel, persons with philosophical objections to vaccination, teachers, university students, workers in the tourist industry, persons living/working within institutions such as prisons, large factories, as well as other young adults of rural origin. Whenever these groups are identified as at risk they should be targeted for special vaccination programs.

Quality of Surveillance

Measles surveillance needs to be strengthened in many countries to ensure that measles transmission is interrupted. Countries must take specific corrective actions whenever indicators are not at adequate levels.

Recommendations

TAG urges the international community to accelerate measles control worldwide to reduce measles morbidity and mortality, and to minimize the risk of importations into countries free of indigenous measles transmission. Of special concern to the Americas are the countries of Japan, Germany, Italy and France as several recent measles importations have been traced to these countries. In view of the significant disease burden of measles (30% of the estimated 3 million global deaths due to vaccine-preventable diseases every year), TAG recommends that the Global Alliance for Vaccines and Immunization supports accelerated global measles control through explicit commitment and financial resources.

Vaccination Strategies

1. Following the successful implementation of a one-time nationwide vaccination campaign of all children ages 1-14 years (*catch-up*), TAG reaffirms the other components of the strategy to achieve, maintain and monitor the interruption of endemic measles transmission in the Region: (a) routine immunization of children 1 year of age (*keep-up*), and (b) a complementary vaccination campaign targeting all children ages 1-4 years, irrespective of prior vaccination history at least every four years (*follow-up*).
2. It is necessary to achieve and verify a ≥ 95 percent coverage with measles-containing vaccines in all municipalities:
 - Routine vaccination coverage should be validated periodically either by house-to-house monitoring or by the comparison with the number of doses of DTP1 or BCG administered. The regularity of this monitoring activity is critical in densely populated areas.
 - Supplemental vaccination (*mop-up*) activities should be conducted in municipalities failing to reach 95% vaccination coverage. These activities should include door-to-door vaccination.
 - Countries should ensure that all campaigns are properly planned and have adequate supervision.
 - Vaccination coverage during all outreach efforts should be monitored through house-to-house visits.
3. Ensure the collaboration, implementation and regular monitoring of school-entry laws requiring mandatory vaccination of children entering preschools and schools.
4. In all countries, measles and rubella-containing vaccines (MMR or MR) should be used for routine infant vaccination. In countries with rubella/CRS control programs, measles and rubella-containing vaccines should be used for *follow-up* campaigns and outbreak response activities.
5. Countries should carry out periodic evaluations of the national immunization and surveillance programs using the PAHO recommended methodology.

Vaccine Availability

PAHO should assure that an adequate quantity of measles containing vaccine (MMR/MR) is readily available to deal with emergency situations, particularly at this time of increasing demands for vaccines in the world market.

Surveillance and Outbreak Investigation

1. A reliable routine surveillance system and its regular validation through active search for cases should be in place, particularly in high-risk areas. Every opportunity

should be taken to find cases, including during house-to-house vaccination, routine visits by health center staff, schools, and by special epidemiological reviews.

2. Countries should integrate measles and rubella surveillance.
3. Adequate investigation of all outbreaks should be performed. This includes the rapid investigation of all cases and contacts, identification of the source of cases including epidemiological links, risk factors, and the timely collection and analysis of specimens.
4. Greater collaboration is required between laboratory and epidemiology units in all countries to assure that:
 - Serum samples are obtained at the first contact with the patient. In an outbreak, once measles has been confirmed, it is not necessary to routinely collect additional blood specimens.
 - Appropriate clinical specimens (urine or nasopharyngeal) for viral isolation should be obtained from every chain of measles transmission, and forwarded to a reference laboratory capable of performing measles virus isolation, and if necessary to determine the viral genotypes.
5. Countries must ensure that all pending measles cases have a final classification within 30 days.
6. All countries should provide data on a weekly basis to the region-wide measles eradication surveillance system, to monitor progress toward the achievement of measles eradication.

Criteria for Interruption of Indigenous Measles Transmission

The principal method for assuring that indigenous transmission of measles has been interrupted is to demonstrate that the virus no longer circulates within a country that has a sensitive surveillance system and a documented high immunization coverage. Virologic surveillance with genotype determination should be in place. Also, if measles is introduced transmission should be limited by rapid and appropriate control activities.

2. RUBELLA AND CONGENITAL RUBELLA SYNDROME (CRS)

Although congenital rubella syndrome (CRS) is a readily preventable public health problem, rubella virus continues to circulate in most countries in the Region. Only the English-speaking Caribbean countries have implemented the strategy recommended by PAHO for the control and prevention of both rubella and CRS, while Chile has implemented a strategy for the prevention of CRS.

Considerable progress has been achieved with the introduction of rubella vaccine in national immunization programs. Of the 47 countries in the Americas, 42 have

already introduced rubella vaccine, while the remaining five countries will include it in 2001. In 1999, 41 countries reported approximately 60,000 cases of rubella; four countries, Mexico, Venezuela, Argentina and Brazil accounted for 86% of the cases. During 2000, the surveillance system for measles was expanded to include rubella.

The English-speaking Caribbean countries have conducted vaccination campaigns for adult women and men to interrupt rubella transmission and prevent the occurrence of CRS. During 1999, only 70 cases of rubella were confirmed, with two cases of CRS, compared to 135 cases of rubella and nine CRS cases in 1998. To date, only five rubella cases have been confirmed in 2000.

In the absence of accelerated efforts to control rubella, outbreaks of the disease are likely to continue, with the resulting CRS cases adding heavily to the disease burden in all countries.

Recommendations

Vaccination Strategies

- All countries should incorporate rubella-containing vaccine (MMR/MR) into childhood vaccination programs, both as part of routine childhood immunization at 12 months, and as part of *follow-up* campaigns. Moreover, targeted efforts are needed to reduce the number of rubella susceptible women of childbearing age. Immunization strategies, targeting post-partum women, those attending family planning clinics, as well as those in schools and the workplace can be used to protect them.
- Countries wishing to prevent and control both rubella and CRS promptly should conduct a one-time mass campaign to vaccinate both males and females 5-39 years of age with measles and rubella containing vaccine.
- There are substantial data available documenting the absence of any risk of rubella vaccination during pregnancy. For women who are vaccinated and then subsequently found to be pregnant, abortions are not recommended. It is not necessary to counsel women to avoid pregnancy following rubella vaccination because there is no known risk of adverse fetal outcomes.

Surveillance and Laboratory

- Rubella surveillance should be completely integrated with measles surveillance. All sera from suspected measles cases which test negative for measles IgM antibodies should be tested for rubella IgM antibodies and vice versa.
- CRS surveillance should be initiated throughout the Americas in order to detect CRS cases in children under one year of age. Countries should follow the case definitions for CRS surveillance, which were recommended at the 1999 TAG meeting. It is not necessary to routinely confirm CRS in older children.

- A single serum specimen is generally considered adequate to either confirm or discard CRS.
- Countries should improve the collection of samples for virus isolation in outbreak situations. Nasopharyngeal aspirates or swabs are the preferred specimens for rubella virus isolation and should be collected within four days of rash onset. This will provide important information concerning the virus sub-types that are currently circulating in the Region.
- National programs should actively promote the collaboration with the medical sector (especially obstetricians, neonatologists and pediatricians) to enhance rubella/CRS surveillance and vaccination efforts.

3. POLIOMYELITIS

Despite nine years of freedom from polio, the Region of the Americas remains at constant risk for polio importations from countries where the wild virus still circulates widely. The number of polio cases worldwide has also been significantly reduced as a result of the global eradication initiative. However, in large areas of Africa and South Asia polio is still endemic and the disease could spread to the Americas.

It is critical that vaccination coverage with OPV remains at high levels and that surveillance for acute flaccid paralysis (AFP) is fully functional to rapidly detect wild poliovirus should it be re-introduced. Most countries are maintaining adequate AFP surveillance; in some, however, surveillance has deteriorated to the point where it no longer meets certification standards. It is imperative for countries to comply with all surveillance indicators, and that a high level of political commitment is maintained for a polio-free status and polio certification.

TAG appreciates the need to assure the containment of wild poliovirus strains now housed in laboratories throughout the world. Nevertheless, it notes that the scope and method of implementation of the Global Action Plan for Laboratory Containment (GAPLC) initiative will require clear guidelines, especially in industrialized countries that have a large number of laboratories and researchers.

Recommendations

- Countries need to maintain 95% vaccination coverage with OPV, the vaccine of choice, in all districts or equivalent geopolitical areas.
- All countries should strengthen their compliance with the key surveillance indicators, including at least one AFP case per 100,000 population <15 years of age per year, and at least 80% of the AFP cases with an adequate stool sample collected **within 15 days** of paralysis onset.
- Given the complexities that may surround the implementation of the GAPLC initiative

for laboratory stocks of wild poliovirus, TAG recommends that the Americas initiate pilot studies building upon the experience of other regions that have already undertaken their own studies, to determine the feasibility and methodology of the Plan. PAHO should invite these regions to attend the next TAG meeting for exchange of experiences and findings.

4. NEONATAL TETANUS

Tremendous progress has been made in eliminating neonatal tetanus (NNT) as a public health problem throughout the Americas. In 1987, there were 1,495 cases reported, in 1999 there were 160 reported cases, and during the first six months of 2000, 75 cases have been reported. The disease is now confined to less than 1% of all districts in the Americas.

Recommendations

1. The occurrence of each neonatal tetanus case should be considered as a failure of the health services, and as an indicator of inequity in the provision of health services.
2. Areas with poverty indicators like those where NNT cases are often found, should be targeted for special vaccination and surveillance efforts.
3. Intensive prevention activities should be conducted in all districts where NNT incidence is greater than 1 per 1,000 live births. Within such districts careful analysis should be carried out to identify populations at highest risk.
4. Missed opportunities to vaccinate can be markedly reduced by administering Td to all mothers who visit a health center for any reason.

5. YELLOW FEVER

Although no case of urban yellow fever has been reported in the Region since 1942, more than 1,900 cases of sylvatic (jungle) yellow fever have been reported from Bolivia, Brazil, Colombia, Ecuador, Peru, French Guyana, and Venezuela over the past 10 years. Although all of these infections were acquired in endemic areas, many of the cases were diagnosed and reported in urban environments. The widespread dissemination of the *Aedes aegypti* mosquito throughout the Americas makes the re-urbanization of yellow fever an increasing concern.

The seriousness of the yellow fever problem in the Region requires a commitment by countries at risk to implement appropriate vaccination and surveillance strategies to control and prevent the disease. Yellow fever vaccine is highly effective, safe and inexpensive. A single dose of yellow fever vaccine will confer immunity to at least 95% of persons vaccinated and probably provides lifelong protection.

Recommendations

1. Yellow fever endemic countries must achieve 100% vaccination coverage in enzootic yellow fever zones. Yellow fever vaccination is necessary for all travelers entering enzootic areas.
2. Yellow fever surveillance must be strengthened. Timely yellow fever surveillance will allow the rapid implementation of control activities when an outbreak is detected.
3. Countries should prepare emergency rapid response guidelines to be used in the event of a yellow fever outbreak.
4. Adequate planning of vaccine supply for routine vaccination and outbreak control is critical. Vaccine should be available at all times to deal with emergencies.
5. The implementation of a comprehensive vector control and surveillance program will keep the density of *A. aegypti* low in urban environments. This approach will also help to prevent dengue outbreaks.

6. **HAEMOPHILUS INFLUENZAE TYPE B/HEPATITIS B**

***Haemophilus influenzae* type b**

Considerable progress has been achieved in the introduction of *Haemophilus influenzae* type b (Hib) vaccine, with over 80% of countries including the vaccine in routine immunization programs. Countries that have introduced Hib vaccine have obtained high coverage levels and a significant reduction on disease incidence.

Recommendations

1. Countries not yet using Hib vaccine should make an effort to introduce it into their routine immunization program.
2. Countries already using Hib vaccine should monitor and report vaccine coverage and Hib cases to measure the impact of the vaccine.
3. TAG recommends that sustainable financing mechanisms be in place to maintain Hib vaccination. Purchase of this vaccine either as a single antigen or in combination with DPT or DPT/HepB (thus reducing the number of needed visits and increasing compliance) through the PAHO Revolving Fund can result in significant cost savings.
4. The availability and use of DTP combination vaccines will simplify the administration of vaccine antigens against major childhood diseases.

Hepatitis B

In the Americas hepatitis B continues to be a major public health problem with as many as 400,000 new hepatitis B infections occurring annually. Transmission of infection can occur throughout life but primarily perinatally or in early childhood.

The hepatitis B vaccine is highly effective in preventing acute hepatitis infections including perinatal transmission and hepatocellular cancer in adults. The majority of countries in the Region have now introduced Hepatitis B vaccine into their routine immunization programs.

Recommendations

1. Routine universal infant immunization should be the primary strategy to prevent HBV transmission.
2. Healthcare workers who are at risk of being exposed to blood or other body fluids should be routinely vaccinated.
3. Vaccination coverage should be monitored on a regular basis and the impact of hepatitis B vaccination measured through surveillance. Coverage levels for HepB3 should equal that of DPT3 by the year 2003.
4. Countries that have introduced hepatitis B (HepB) vaccine should consider using combined tetravalent (DTP+HepB) or pentavalent (DTP/HepB+Hib) vaccines. These vaccines have a similar cost to the monovalent vaccines purchased separately and are easier to administer.

7. HEALTH SECTOR REFORM AND IMMUNIZATION PROGRAMS

In the last two decades, most of the countries of the Region have undergone a process of health reform that represents both a challenge and an opportunity for the achievement of immunization program goals. Decentralization is a critical component of this process. Decision makers and health professionals working in priority areas, such as immunization, need to take advantage of decentralization to strengthen immunization programs while assuring the normative role of national health authorities in the fulfillment of the technical requirements and goals of the program.

Recommendations

1. PAHO should promote dialogue between decision makers and managers working in the field of general health policy and health professionals working in the field of immunization. Interdisciplinary approaches to health reform decisions must be encouraged.
2. The success of immunization programs based upon established indicators can be a good measure of the success of the health system as a whole. Immunization

programs must be included as a priority intervention in the basic health package defined as mandatory for the whole population. Greater equity in health is promoted by successful immunization programs because the entire population is included.

3. Funding of priority public health interventions such as immunization should be done with public funds in order to facilitate universal access to immunization and the fulfillment of national goals, norms, and standards.
4. Resources allocated to decentralized units (such as municipalities) to fund immunization activities must be clearly linked to results. Contracts with performance criteria and incentives are useful tools to assure success and the correction of failures detected by the supervising health authorities.
5. Strengthening of the public health infrastructure in the countries is very important for the achievement of the goals of priority health interventions such as immunization. Essential public health functions must be identified clearly and the capacities needed for their performance must be determined. Decision makers should include these needs as part of the inventory of required investments for health.

8. NEW AND FUTURE VACCINES

Progress in the development of vaccines for the prevention of an increasingly longer list of infectious diseases is proceeding rapidly. Several new vaccines are currently available and they may be of use in the Region of the Americas. Moreover, rapid progress is expected on several other vaccines with great potential in this Region.

Recommendations

1. All countries of the Region need to establish disease surveillance capabilities that will provide information on the epidemiology of these infections, help assess the burden of these infections and provide data on approaches to public health interventions. The TAG identifies influenza, pneumococcal disease, meningococcal disease, rotavirus infection, hepatitis A and varicella-zoster virus as potential candidates for future consideration.
2. All programs in the Region need to establish scientific advisory committees to assist them in reaching decisions regarding priority in the introduction of vaccines, taking into account the benefits and costs. Moreover these committees should also consider issues related to the implementation of these recommendations. For example, influenza vaccines are used in the elderly and other high-risk groups that are not the current targets of the infrastructure already in place to deliver childhood vaccines.
3. Once a new vaccine is introduced, the TAG strongly emphasizes the continued need to maintain supplies of vaccines and disease surveillance efforts, to monitor the impact of the immunization program.

9. VACCINE QUALITY AND SAFETY

Vaccine Quality

Using vaccines of proven quality is essential for immunization programs. Although the manufacturer is primarily responsible for assuring vaccine quality, there should be a national authority in each country that performs the six basic regulatory functions: licensing, clinical evaluation, Good Manufacturing Practices (GMP) inspections, lot release, laboratory testing and post-marketing surveillance.

PAHO has sought to strengthen the vaccine quality control system in the Region by organizing a network of certified national control laboratories responsible for the quality testing of vaccines, and by harmonizing the regulatory procedures of National Regulatory Authorities of all countries.

Recommendations

1. It is essential that immunization programs use vaccines of known quality according to international standards of safety, potency, efficacy and stability. Governments in the Region must, through their National Regulatory Authorities, assure that they have effective control of the quality of vaccines used in the country.
2. Vaccine producers must implement quality systems that guarantee consistent production of vaccines in compliance with GMP, national regulations, and WHO requirements on vaccine quality and production through the international certification process.
3. The fulfillment of international quality standards must be an essential factor to be considered in the economical and technical feasibility studies of vaccine production.

Immunization Safety

It is critical to maintain the public trust in national immunization programs. Although vaccines are extremely safe and effective, no vaccine is without some risk. The regular monitoring of immunization safety will provide technical and scientific assurance of the safety of vaccines utilized.

Recommendations

1. All health care workers and program managers should be trained and well informed on the issues concerning immunization safety.

2. Adverse events possibly attributable to vaccination should be promptly reported and carefully investigated and information should be shared between immunization managers and health workers within the Region.

10. PAHO IMMUNIZATION AWARD

Nurse J. Ramsamong from Jamaica and Nurse Maria Isabel do Nascimento from Brazil were awarded the fourth PAHO Annual Immunization Award, which recognizes outstanding contributions to a national immunization program and to a country's efforts in controlling and/or eliminating vaccine-preventable diseases. Nurse J. Ramsamong will receive her award at the EPI Managers' meeting of the English-speaking Caribbean countries, to be held in Martinique, 13-15 November 2000, and Nurse Maria Isabel do Nascimento will be receiving her award at a special ceremony to be held at the Ministry of Health in Brasilia, Brazil. The award includes a certificate, as well as a monetary gift of US \$3,000, which will be shared between the two awardees. Previous recipients have included Ms. Clarice Watson, EPI Nurse Coordinator in Guyana; Ms. Mirian Strul, EPI Manager of Peru; Dr. Rosario Quiroga, EPI Manager of Bolivia; and Dr. Miguel Angel Galindo, EPI Manager of Cuba.

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