Original Article

Immunization goals: Is Nepal keeping the promises?

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Nepal committed to the global immunization goals in 1992 as expressed in the World Health Assembly of 1989. This article examines whether Nepal has attempted to keep the promises. It is seen that the promises are being seriously taken and fulfilled as evidenced by various activities carried out in the past one decade.

Introduction

After the eradication of a highly fatal disease small pox from the planet earth, a new era had begun to fight various infectious diseases. In many developing countries of the world national immunization programs were established. Side by side, development of new vaccines and new technologies also were accelerated. At least six vaccines were considered as "a must" for the national immunization programs in the poor countries, where as many more vaccines were introduced in the immunization programs of rich countries. In some countries, they did show dramatic results in reducing mortality and morbidity among the children. Besides, immunization programs have been considered the most cost-effective interventions in the field of health.

In 1989, World Health Assembly undertook a major decision in terms of immunization. It set a target of eradication of poliomyelitis by 2000, elimination of neonatal tetanus and control of measles. In this respect, World Health Organization (WHO) asked all the member countries to initiate or accelerate the immunization activities. However, the time line was postponed to 2005, the goal remained the same.

Nepal endorsed the global goals in 1992.[1] Various activities were initiated following the endorsement. This article analyses the promises made and the achievements made so far in terms of these goals by Nepal.

Objectives

The major objective of this article is to analyze the status of immunization program in terms of global targets. Specifically, it tries to analyze:

- Nepal's effort in terms of reaching the global immunization goals
- Trends in achieving the goals
- Possibility of achieving the target

Methods and materials

This study uses various documents and secondary data available for the immunization program. The basic documents in this respect were annual reports of the Ministry of Health/Department of Health Services/ HMIS, Reports of Child Health Division and WHO/PEN.

Limitation of the Study

This article is based on secondary source of information; so, it has in-built limitations pertaining to the quality of data and their validity.

Results

A) Achieving 80% coverage in the routine immunization: The global goal is to achieve 80% coverage in the routine immunization.
Regular administrative reports obtained from the Health

Management Information System (HMIS) under the Department of Health Services (DOHS) provide the following figures in terms of routine immunization coverage by year. *Table 1* gives the summary of national immunization coverage by year.

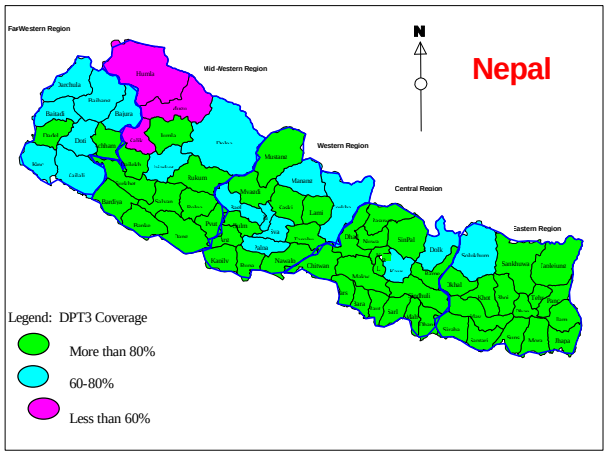
Table 1 Immunization coverage in Nepal by year (indicated by DPT3)

Fiscal Year	Target Number (Infants)	Coverage %
1995/96	628,445	81.0
1996/97	645,325	80.4
1997/98	662,670	82.7
1998/99	680,498	76.4
1999/2000	698,824	79.8
2000/2001	717,664	80.0
2001/2002	737,032	80.3
2002/2003	756,943	86.2
2003/2004	728,473	90.3

Source DOHS/HMIS and WHO/UNICEF

As shown in the table, the national EPI coverage is exceeding the 80% coverage. However, analysis of the performance by district shows wide discrepancy in the coverage. The following map shows the DPT3 coverage for fiscal year 2003/2004 by district.

Map of Nepal showing DPT3 coverage for FY 2003/04



This map clearly shows that though majority of the districts have a immunization coverage above 80%, 21 districts are below the cut-off point, especially three districts of Karnali zone, which has less than 60% coverage. Grossly speaking, the hilly districts and mountainous district have less coverage.

Performance Categorization for Immunization

Using the indicators of high coverage (>= 80%) and low drop out rate (<=10%), Nepal undertook classification of districts into four groups. According to this classification, districts categorized as 1 have high immunization coverage and low drop out rate, Category 2 districts have high coverage but also high drop out rate, category 3 districts show low coverage but low drop out rate and category 4 districts have low coverage along with high drop out rate. These two indicators also indirectly show accessibility to the services and quality of services. The ultimate objective of NIP is to bring all the districts into category 1. The following table shows the trend of the performance based on the indicators.

FY	Category 1	Category 2	Category 3	Category 4
2002/2003	33	3	29	9
2003/2004	33	4	30	9

B) Eradication of Poliomyelitis

The global goal of eradicating polio is taken seriously by most of the developing countries. In this respect, along with routine immunization, extensive effort has been done after the endorsement of global goals to eradicate polio from Nepal. It was estimated that in the absence of immunization in Nepal some 8438 children might get infection by poliomyelitis virus. Special Immunization Campaign named "National Immunization Days (NID) have been organized since 1996 and continued till 2003. Children up to the age of five years were given oral polio vaccine (OPV) during the NID at least two times each year for eight consecutive years. Besides, Sub-National Immunization Days (SNID) was also organized in high-transmission- risk districts for poliomyelitis. Along with the NID and SNID, Mopping-up campaigns were also organized in the identified high-risk areas. Besides, a system for surveillance of Acute Flaccid Paralysis (AFP)[2] was established in 1998 for the active surveillance of Poliomyelitis. All these efforts have led Nepal to have no case of poliomyelitis for last four years since November 2000. The coverage achievements of NIDs are given in the *table 2* below.

Table 2 NID coverage for eradication of polio

Year	Target Number (Rounded)	Achievement	Coverage (%)
1996/97	3,300,000	3,922,248	>100
1997/98	3,600,000	3,917,449	>100
1998/99	3,800,000	3,744,672	98
1999/2000	3,850,000	3,808,202	98.9
2000/2001	3,900,000	4,011,593	>100
2001/2002	4,000,000	4,121,729	>100
2002/2003	4,100,000	4,252,959	>100
2003/2004	4,200,000		>100

Source DOHS, Annual Reports and CHD/EPI Section

As stated earlier, AFP surveillance took off the ground in 1998.

The quality of surveillance of AFP is considered to meet the WHO standards. The surveillance data shows the following figures for AFP and laboratory-confirmed polio cases

Table 3 Surveillance of AFP and lab confirmed polio cases

Year	Total AFP cases	Annual Non-Polio AFP rate	Laboratory confirmed polio cases (Wild Polio Virus)
1998	69	0.41	0
1999	234	2.0	2
2000	211	1.96	4
2001	186	1.95	0
2002	197	2.0	0
2003	192	1.9	0
2004	213	1.99	0

Source CHD, HMIS and WHO/PEN

C) Maternal and Neonatal Tetanus elimination

It is estimated that some 3917 cases of tetanus occur every year in Nepal. It remained a significant cause of morbidity and mortality in Nepal.[3,4] So, special activities were also undertaken to reduce the maternal and neonatal tetanus in Nepal. The activity started in 2000 in a phase-wise manner. All the women aged 10-39 years of age were targeted in the supplemental immunization activities for tetanus elimination. By the end of fiscal year 2003/04 the activities to immunize all the girls and women were completed irrespective of their past immunization status. *Table 4* shows the achievements of the special campaign.

Table 4 Coverage of tetanus toxoid immunization campaign

Year	Target No	Coverage	Remarks of TT2+
2000/2001	849,425	87.9	Conducted in 8 districts
2001/2002	1,829,908	89.9	Conducted in 17 districts
2002/2003	1,687,563	95.0	Conducted in 27 districts
2003/2004	956,729	84.7	Conducted in 23 districts
Total/Average	5,323,625	90.3	

Source CHD/ EPI Section

In an average 90% of the girls and women aged 10-39 years received at least two doses TT vaccine. Continuation of immunization with TT to women during the pregnancy is expected to reduce the number of maternal and neonatal tetanus.

D) Measles Mortality Reduction

Measles is a major cause of morbidity and mortality in Nepal.[5, 6] It is estimated that every year some 150,000 children in Nepal are infected with measles. Of them some 5000 die of measles each year. In this context, Nepal has decided to undertake special measles control campaign in the fiscal year 2004/2005. In this campaign a total of around 9.5 million children between the ages of 9 months to 14 years are targeted as the second opportunity for measles vaccine. Due to various factors, the measles campaign will be conducted in three phases. First phase covers 35 districts of Eastern and Central regions of Nepal, whereas the second phase includes 33 districts of Western, Mid-Western and Far-Western regions of Nepal and the third phase will cover the remaining seven mountainous districts of the Western and Mid-Western regions.

Discussion

The year 1989 is important for Nepal's Immunization Program. In the fiscal year 1989/90, all the 75 districts of Nepal were included for immunization activities under the slogan "Universal Child Immunization".[7] This initiated a mechanism for easy access of the mothers and their children to immunization services all over the villages and municipalities of Nepal.

Though routine immunization was initiated in every district of the country, the coverage was low in the initial phase,[8] which gradually increased over the years. Similarly, establishment and annual reporting through Health Management Information System (HMIS) under the Department of Health Services/ Management Division gave ample opportunity to get the service statistics by districts. It also helped in estimating the target for each district every year and get information on coverage, drop out rate, vaccine wastage rate etc through the system. All these information have helped the National Immunization Program (NIP) to review its performance regularly once a year and develop appropriate policy and strategy in the form of Strategic Guidelines for National Immunization Program and Multi-Year Plan of Action (2002-2007) of NIP.[7,10] The later document stresses the global goals and accordingly defines targeted interventions.

Though there are variations in the coverage of immunization in various districts, the national coverage is good. However, some pockets of high-coverage districts still need some attention and serious concerns are definitely the low-coverage districts.

As seen from the *table 1*, the coverage has gone up to about 90% by the end of fiscal year 2003/2004 as measured by the third dose of DPT3. This gives a positive signal that Nepal is trying to keep the promises for the attainment of global goal in immunization. However, to get uniform high coverage across the country, the districts and VDCs need extra effort as evidenced by the map.

Initiation of special immunization activities like National Immunization Days (NID), Sub-National Immunization Days

(SNID) and Mop-up campaign for polio eradication for last eight consecutive years in the country has signaled Nepal as a country in the verge of polio eradication. Active surveillance of Acute Flaccid Paralysis (AFP) throughout the country and high quality of surveillance has shown that Nepal has done its best to keep its promises. The last indigenous case of Poliomyelitis in Nepal was detected in November 2000. Though Nepal is still in the risk of transmission as across the southern border, wild poliovirus is still circulating, which gives ample chances of importing wild Poliovirus in Nepal any time through porous border due to various socio-economic activities and geographical proximity.

Activities targeted to Maternal and Neonatal Tetanus elimination (MNTE) were also carried out in Nepal in last few years. Strategies were developed in 2000 to cover the country with these activities in a phased manner. Initially 8 districts were piloted, then the MNTE activities were conducted in 17 districts, following which 27 more districts were covered and subsequently, 23 districts were covered with "TT-Campaign". The coverage of the special activities show that in an average the country might have reached the global goal by 2004. However, validation of this activity needs to be supported by surveys and administrative statistics and ongoing surveillance.

Measles has been a serious concern for Nepal. Many reports show that measles is causing high number of death in children. Ministry of Health of Nepal has estimated that in year 2003 alone some 5000 children might have died of measles. A large pool of unvaccinated children along with about 15% immunized children not having protective immunity were some of the explanations for the frequent outbreaks and deaths. In such a scenario, it was important to take serious initiation on measles control. This concern was raised in various forums because there was no clarity regarding the approach and coverage. However, the joint strategy of WHO and UNICEF[11] along with the Cape Town Declaration paved the way to undertake the necessary activities. Nepal, probably the first country in South Asia has undertaken the measles control activities through "second opportunity" approach covering the children between the ages 9 months to 14 years through campaign approach. These activities are undergoing. These efforts show that Nepal will keep up with the global goals.

Various other monitoring-evaluation activities along with the mentioned above major activities also played very important role in the performance of NIP. National Immunization Coverage Survey of 1998,[12] Demographic Health survey of 1996 and 2001 were also very important to give feedback on the performance of National Immunization Program. Global Alliance for Vaccine and Immunization (GAVI) has been in scenario for last few years, which has some push factor to the immunization program, especially in the introduction of Hepatitis B vaccine and injection safety.

Conclusion

Programmatically speaking, Nepal has kept its global promises in terms of immunization goals. However, the effectiveness and long-term impact in terms of reducing the disease burden, mortality and enhancing the quality of life by the national immunization program need to be monitored regularly.

Acknowledgments

I would like to thank all the health workers and volunteers who were actively involved in the national immunization program. Their hard work and dedication has been important in keeping the promises.

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