B A N G L A D E S H

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National Immunization Days in the Chittagong Hill Tracts:

Are special strategies needed to eradicate polio in this region of Bangladesh?

A special study of the HKI/IPHN Nutritional Surveillance Project (NSP) in May 2000 on the nutrition and health of children and women in the Chittagong Hill Tracts (CHT) provided an opportunity to examine the coverage of the seventh polio National Immunization Days (NID) in children aged less than five years. Coverage in the CHT was found to be 80% during the first round and 76% during the second round, considerably less than the high coverage of 96% recorded by the NSP in other parts of rural Bangladesh in the second round. Coverage was lower in children living in remote areas far from markets, the usual site of vaccination, particularly among some local ethnic groups. This finding suggests that strategies to improve coverage should consider the remoteness of some communities and socio-cultural issues. The study demonstrates how the NSP can be used to obtain information outside its traditional field of nutrition and how it can provide stakeholders with crucial information on factors that are associated with low coverage which can be used to improve strategies in future NIDs.

Introduction

The Chittagong Hill Tracts (CHT) in southeastern Bangladesh is topographically, demographically and socioculturally very different from other parts of the country. About 13 ethnic groups, collectively known as the *Pahari*, live in this upland forested region along with Bengalis. The ethnic groups are distinct from each other and from Bengalis in terms of their social and cultural customs, language, agricultural techniques and dietary practices.

The internal conflict of 1973 to 1997 in the CHT prevented many development agencies, particularly NGOs, from working in the region. The HKI/IPHN Nutritional Surveillance Project (NSP) was unable to include the CHT in its national surveillance system. Following the signing of the Peace Accord in late 1997, the restrictions on the activities of NGOs in the CHT were removed. Recognizing the need for up-to-date information on the nutrition and health situation of children and women, the NSP conducted a special study in the CHT during May and June 2000. This study provided an opportunity to collect data on the coverage of the seventh polio National Immunization Days (NID), which took place on April 23rd and May 29th 2000. Polio is a severely debilitating disease characterized by muscular wasting and paralysis. The Government of Bangladesh, UNICEF and the WHO have recently intensified their efforts to eradicate polio by vaccinating all children aged less than five years with oral polio vaccine (OPV) during NIDs held every year. In the first bulletin on the findings of the study in the CHT, we report on the coverage of the seventh polio NID.

Helen Keller WORLDWIDE

NSP NUTRITIONAL SURVEILLANCE PROJECT

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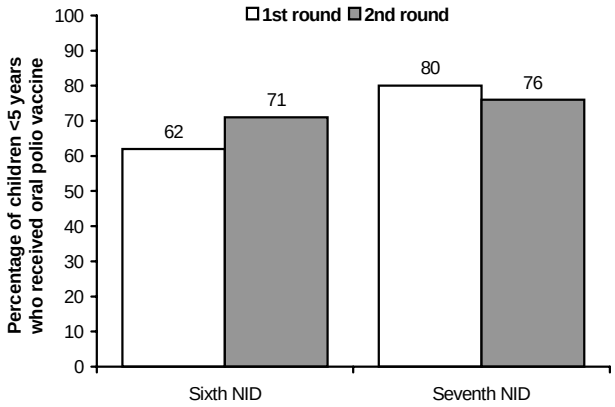
Findings

Coverage of OPV among children aged less than five years in the CHT during the seventh NID was found to be 80% in the first round and 76% in the second round. One of the *thana* in Khagrachari District had a coverage of only 43% during the first round, indicating that pockets of very low coverage exist within the CHT. As the international community moves closer towards the goal of eradicating polio it becomes increasingly important to identify and target these areas of low coverage, where the transmission of poliovirus is more likely to occur.

Figure 1 indicates that OPV coverage in the CHT has increased since the sixth NID, held in November and December 1999 (IOCH/UNICEF, 2000). While this increase suggests that delivery of vaccines to children has improved, coverage in the CHT remains considerably below the rest of rural Bangladesh: the weighted average OPV coverage during the second round of the seventh NID in the rural NSP sample was found to be 96%. Only 67% children in the CHT received two doses of OPV during the seventh NID, 16% received one dose and 17% received none.

Figure 1. Percentage of children aged less than 5 years given the oral polio vaccine during the two rounds of the sixth (UNICEF/IOCH, 2000) and seventh (NSP) National Immunization Day in the CHT



In order to improve OPV coverage in the CHT, it is important to identify factors that are associated with whether or not a child is vaccinated. Because a wide range of sociodemographic data were collected, it was possible to identify some of these factors. The Table shows the coverage of the first round of the NID campaign according to selected sociodemographic characteristics of the child and household. Younger children (<2 years) were slightly less likely to have received OPV than older children (2-5 years), but the difference between the two age groups was not statistically significant. Girls and boys were equally likely to have been vaccinated. Children of educated women were more likely to have been vaccinated than mothers who had no education.

The Global Initiative to Eradicate Polio

Polio is a highly infectious disease caused by poliovirus. Transmission of poliovirus usually occurs via the fecal-oral route through direct contact with infected people. Between 5-10% of people infected with polio die and one in 200 infections leads to irreversible paralysis, usually in the legs. The majority of infected people do not die or become paralyzed, but are a source of infection for others.

The Global Initiative to Eradicate Polio by the year 2000 was launched at the 41st World Health Assembly in 1988. In response to this initiative, the Government of Bangladesh, UNICEF and the WHO have joined forces to conduct a series of National Immunization Days (NIDs) throughout the country. During the NIDs children aged between 2 days and 5 years are vaccinated with an oral polio vaccine (OPV). Each NID comprises two rounds of vaccinations, 4-6 weeks apart. The purpose of the NIDs is to immunize enough children so the disease cannot spread. This is more likely to be achieved if children receive multiple doses of OPV and so ideally children should receive OPV at both rounds of the NID. Following each NID, house-to-house visits are made to administer OPV to children who were not vaccinated on the day of the NID.

Methods

The Nutritional Surveillance Project (NSP) works with NGOs to collect bimonthly nutrition, health and socio-economic data from households through Bangladesh except in the CHT. The methods used by the NSP for its national surveillance system (NSP, 1999) were adapted for the purposes of the study in the CHT. A multi-stage sampling frame was used to select a statistically representative sample of 1760 households from all three districts of the CHT. Data were collected in May and June 2000 by interviewers who were fluent in the local languages on the health and nutrition of children under five years and their mothers, and on ethnic origin, household demography and socioeconomic status. All 1760 households, containing 2,288 children less than five years, were asked about OPV receipt during the first round of the NID, held on April 23rd. The 632 households visited on or after June 6th, containing 808 children under five years, were also asked about OPV receipt during the second round of the NID, held on May 29th.

Coverage varied according to the ethnic group of the mother; coverage was highest among Bengalis, followed by the Marma and the Chakma. Possible explanations for this finding include ethnic variations in the knowledge, attitudes or perceptions towards vaccination, a lack of information on the NIDs in the local languages, and the tendency of ethnic groups to live in remote locations. Figure 2 shows that a higher proportion of Chakma and other ethnic groups lived far from the market, the usual site of the NID vaccination centers. This may explain the lower coverage among these groups, since coverage was lower among children living further from the market. Mothers living far from the market may not hear about the NIDs or may find it difficult to travel to the vaccination centers. Figure 3 shows that there was no relationship between distance to market and OPV coverage among the Bengali or Marma, but coverage fell rapidly with distance among the Chakma and other tribes. This finding indicates that special efforts are needed to deliver OPV to children of the Chakma and other ethnic groups who live in remote areas far from the vaccination centers.

Conclusions

While the polio NIDs have achieved a high coverage in most of rural Bangladesh, the findings of this study indicate that in the CHT 20% of children in the first round and 24% of children in the second round of the seventh NID were not vaccinated. The end of the internal conflict in CHT has opened the region, but the difficult terrain and remoteness of many communities continues to obstruct access to children. OPV coverage was found to be particularly low among the ethnic groups who lived far from the market, with the exception of the Marma. These groups should be the focus of intensified efforts in future NIDs.

At present, there is a lack of timely information on the nutrition and health situation in the CHT to promote better coordination and rational use of limited financial and human resources. By extending the NSP's national surveillance system into the CHT, regular information on nutrition and health, as well as specific programs such as the NIDs, could be made available to assist in the design, monitoring and evaluation of interventions to address the nutrition and health needs.

Table. *Coverage of the first round of the seventh polio National Immunization Day among 2288 children aged less than 5 years in Chittagong Hill Tracts in April 2000 according to characteristics of the child and household*

Characteristic		Sample size	% Received OPV	
Age of child	< 2 years	932	77.6	
	≥ 2 years	1356	80.9	
Sex of child	Male	1166	79.2	
	Female	1122	80.0	
Mother's formal education	None	1724	77.6	***
	≥ 1 year	564	85.4	
Mother's ethnic group	Bengali	625	90.9	***
	Marma	559	82.5	
	Chakma	766	69.5	
	Other	338	77.7	
Time to travel to market	≤ 1 hour	1356	88.0	***
	> 1 hour	932	67.1	

**** p<0.001, comparison of oral polio vaccine receipt between categories, OPV = oral polio vaccine.*

Figure 2. Percentage of children living ≤ 1, 2 and ≥ 3 hours distance from a market, by ethnic group, in May to June 2000 in the CHT (n=2287)

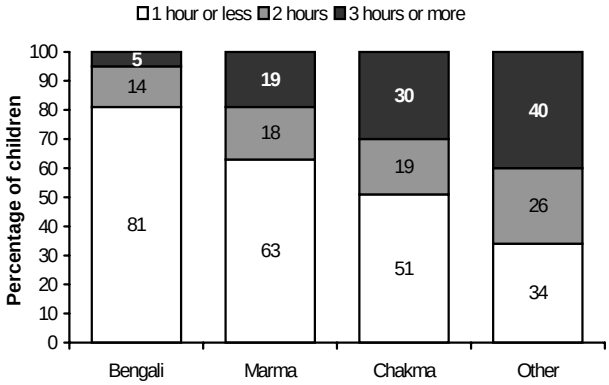
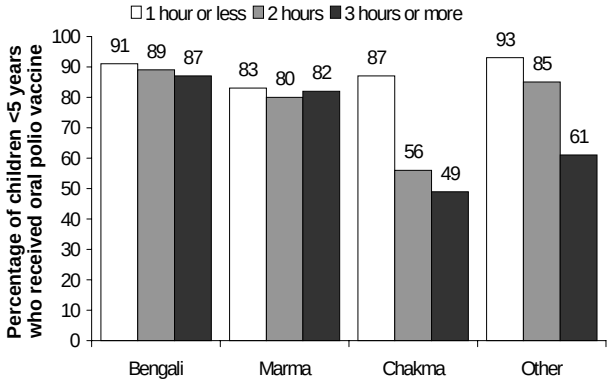


Figure 3. Percentage of children aged <5 years who received OPV during the first round of the seventh polio NID in April 2000 by ethnic group and distance of residence from a market in the CHT (n=2287)



Recommendations

1. *Strategies be modified to increase OPV coverage in CHT by:*

- Increasing the number of vaccination centers in remote areas.
- Improving outreach activities following each round, particularly in remote communities, in order to identify and vaccinate children who did not receive OPV during the NID.
- Conducting mop-up campaigns[1] in areas of low coverage.
- Investigating and addressing the reasons for low coverage among the ethnic groups.

2. *A routine surveillance system be established in the CHT to provide information on nutrition, health and specific programs such as the NIDs, as the nutrition and health situation in this region needs immediate attention but the data are lacking.*

[1] *Mop-up campaigns are similar to NIDs except that they are usually carried out in a thana or municipality and employ house-to-house immunization.*

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