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Immunization: full coverage the aim

In villages of northeast Thailand the protection of children aged under five years against vaccine-preventable diseases improved markedly following the retraining of village health workers so that they could lend greater effect to the Expanded Programme on Immunization.

Thailand initiated its Expanded Programme on Immunization in 1976, yet in 1987 over 50% of the country’s infants were still not completely immunized.

In the largely agricultural northeast region the drop-out rate in respect of second and third doses of diphtheria/pertussis/tetanus and oral poliomyelitis vaccines was above the national average. The frequency of contacts between clients and village health workers was the most important factor determining the completion of immunization. These contacts involved the provision of health information and the making of appointments for children to be immunized. The proportions of children completely immunized varied directly with the knowledge that mothers possessed about infectious disease. Coverage also varied with the levels of knowledge of the health workers about infectious diseases and immunization, the frequency with which they reported on local situations to subdistrict health officers and assisted them in programme planning and coordination, and the proportions of the village health workers making household visits in order to disseminate health information (1).

Retraining village health workers

It was concluded that improved immunization coverage could be achieved through the retraining of village health workers. This would involve: expanding their knowledge of infectious diseases and immunization; encouraging them to increase the frequency of their liaison activities between clients and subdistrict health officers and of their participation in programme planning and coordination with these officers; and instruction on how to conduct household visits with a view to disseminating health information and persuading mothers to have their children immunized.

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A one-week intensive training programme for village health workers was therefore conducted in Khon Kaen Province by research staff with the help of a manual prepared specifically for this project. The training covered: the objectives of the intervention programme; the symptoms, causes and prevention of measles, diphtheria, pertussis, tetanus, poliomyelitis, and tuberculosis, and the types of vaccine available against these diseases; the timing of immunizations in infants and children; side-effects of vaccines; the maintenance of immunization records; the role of service providers in promoting immunization and persuading mothers to have their children immunized; health education approaches in the context of home visits and increased contacts with mothers of children eligible for immunization; and the development of follow-up schedules for children not having received all the necessary doses of vaccine.

Concurrently, meetings were held with a view to developing a good rapport between health officers and village health workers and thus involving the care providers more directly in planning, coordination, and the scheduling of household visits.

Following these meetings the village health workers began their health education and immunization recruitment programme, which continued for six months. During the first week of the fourth month a refresher course was held and meetings were organized between the village health workers and the health officers to re-emphasize the objectives explained at the initial meetings.

Monitoring

The intervention and control villages were selected by stratified random sampling. In the first stage four districts were selected from those in Khon Kaen Province with less than 50% immunization coverage. Two clusters of villages were then selected from those with the lowest coverage in each district. Finally, two villages were selected from those with the lowest coverage in each cluster. The sixteen villages were then randomly assigned in equal numbers to intervention and control groups. The 421 women with children aged under five years were interviewed, as were the 141 village health workers in the selected villages.

The mean populations in the intervention and control villages were 1287 and 1143 respectively. The proportion of people with access to hospitals in the intervention villages was 17%, and another 54% had access to subdistrict health centres; in the control villages the corresponding proportions were 20% and 49%.

A baseline survey was conducted in November 1988 in the control and intervention villages among the mothers of children under five years of age and the village health workers. Information was collected from mothers on their socioeconomic status, their knowledge of and attitudes to immunization, the time and cost of travel to health centres, and the immunization status of their children aged under five years. The village health workers provided information on their knowledge of immunization, their attitudes to their work
activities and clients, their work performance, and the methods of health education.

A follow-up survey was conducted in June 1989, and the results were compared with the baseline data for the 396 respondents who were present throughout the period of the study.

The surveys were conducted by third-year nursing students who had received two weeks of intensive training on interview techniques. The interviewers did not know which were the intervention villages. Information on immunization status was obtained by interview and verified by examining the mothers’ immunization cards or the health office records. Neither the health workers nor the mothers were told that a follow-up survey would be conducted.

Focus groups were employed to develop questions on mothers’ knowledge of immunization and infectious diseases. Rigorous pretesting was performed, care being taken to ensure that local definitions of terms were included and that the questions were structured so as to produce valid results.

**Impact**

The effects of the intervention programme (see table) are summarized below. The proportion of mothers in the intervention villages with a high level of knowledge about infectious diseases rose from 1% to 8%, whereas in the control villages there was virtually no change. The corresponding proportions with a high level of knowledge about immunization almost tripled and increased by half during the same period.

**Effects of intervention programme, Khon Kaen Province, Thailand, 1988–89**

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Intervention villages</th>
<th>Control villages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline %</td>
<td>Follow-up %</td>
</tr>
<tr>
<td>Mothers with high level of knowledge about infectious diseases a</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Mothers with a high level of knowledge about immunization b</td>
<td>12</td>
<td>33</td>
</tr>
<tr>
<td>Health workers with a high level of knowledge about infectious diseases a</td>
<td>3</td>
<td>72</td>
</tr>
<tr>
<td>Health workers with a high level of knowledge about immunization b</td>
<td>19</td>
<td>81</td>
</tr>
<tr>
<td>Health workers liaising between clients and health officers</td>
<td>47</td>
<td>64</td>
</tr>
<tr>
<td>Health workers participating in programme planning and coordination</td>
<td>11</td>
<td>36</td>
</tr>
<tr>
<td>Children &lt; 1 year completely immunized</td>
<td>65</td>
<td>89</td>
</tr>
<tr>
<td>Children &lt; 5 years completely immunized</td>
<td>30</td>
<td>81</td>
</tr>
</tbody>
</table>

a Knowledge levels about infectious diseases were categorized as follows on the basis of responses to questions on susceptibility and severity yielding a maximum of 60 points: low, 0–20; medium, 21–40; high, 41 and over.

b Knowledge levels about immunization were categorized as follows on the basis of questions yielding a maximum of 25 points: low, 0–8; medium, 9–16; high, 17 and over.
The proportion of health workers in the intervention villages with a high level of knowledge about infectious diseases increased from 3% to 72%, while there was a decline to 2% in the control villages. The corresponding values in respect of immunization were an increase of more than fourfold to over 80%, and one of slightly more than twofold to 18%. Thus the increases in the proportions of mothers and health workers with a high level of knowledge were much greater in the intervention villages than in the control villages. Nevertheless, the Ministry of Public Health’s programme, operating in all areas, clearly helped to increase knowledge levels.

The proportion of health workers who liaised between clients and subdistrict health officers increased in the intervention villages but declined substantially in the control villages. The proportion in the intervention villages who participated in programme planning and coordination with subdistrict health officers more than tripled, while in the control villages there was a large decline in this attribute.

The proportions of children under one year and five years who were completely immunized in the intervention villages increased from 65% to 89% and from 30% to 81% respectively. By contrast, the proportions completely immunized in the control villages remained unchanged for children under one year and increased only slightly for children under five.

The intervention programme evidently had a substantial impact on the immunization status of children aged under five years. Multiple regression analysis tended to confirm this. Even without other factors, the programme had a significant positive effect on children’s immunization status. Neither socioeconomic indicators nor distance from the nearest health centre were significantly correlated with immunization status, suggesting that the programme did not discriminate in favour of children whose mothers were comparatively well educated or whose families enjoyed comparatively high incomes.

The increases in the health workers’ knowledge of infectious diseases and immunization, in their liaison between clients and subdistrict health officers, and in their participation in planning and coordination, undoubtedly contributed to the impact of the programme. However, these factors cannot be linked statistically to changes in immunization status at the individual level.

The proportion of mothers visited by health workers increased two and a half times to over 75% in the intervention villages, whereas in the control villages it declined slightly to about 20%. Both the frequency of contact between mothers and health workers, and mothers’ knowledge of infectious diseases and immunization, were significantly correlated with immunization status, although the first of these factors was the more important predictor.

* * *

The retraining of village health workers clearly helped to raise the immunization status of children aged under five years in
villages of northeast Thailand. This was achieved using the established staff structure of the Ministry of Public Health's programme, and similar results could undoubtedly be obtained in other areas, where the health workers' training manual could be adopted and more home visits by health workers to mothers of children under five could be promoted. Such contacts helped to improve coverage and it is to be expected that further progress along these lines would raise the effectiveness of the national immunization programme.

Reference


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**A bridge to community health**

*The community health worker comes from the community and is trained to work in it, in close relationship with the health care system. The community health worker is expected to perform a wide range of functions, which generally include: home visits, environmental sanitation, provision of an adequate and safe water supply, first aid and treatment of simple and common ailments, health education, nutritional surveillance, maternal and child health and family planning activities, referrals, record-keeping, and collection of data on vital events.*

*Community health workers are in a unique position because they have a role both in the community and within the health care system. They make a bridge between one and the other. In the community they help to identify problems, and people at risk or in need. They involve the community in planning how to deal with its own problems, and they help the community to be in touch with the health services. The community health worker also provides the health services with the information needed for surveillance, planning, and management.*