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A Qualitative Assessment

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Contents

Abstract	6
Introduction	7
Materials and Methods	11
Results	13
General knowledge about immunizations	13
General barriers to obtaining immunization services	13
Fees for services	13
Loss of immunization card	16
Fear of side-effects	16
Long-waiting time	17
Other less-frequently mentioned problems	17
Inaccurate perceptions about immunizations	19
Discussion	21
Fear of humiliation as a barrier	21
Fees as a barrier	23
Lost cards as a barrier	23
Fear of side-effects as a barrier	24
Lack of time as a barrier	25
Lack of knowledge and misperceptions about vaccines and their effects	25
Other findings from Bangladesh relating to barriers	27
Findings of studies conducted in urban areas of other countries relating to barriers	28
Practical implications of the findings	29
Conclusion	32
References	33

Abstract

Improving the health of extremely poor people is essential for improving the health of the public more generally and for promoting equity. Disease, illness, and mortality are disproportionately concentrated among the extremely poor. Extreme poverty is inexorably linked to poor environmental conditions, such as crowding and lack of clean water and sanitation, poor nutritional status as a result of poverty and lack of food, and frequent childbearing, and all these contribute to a greater burden of disease. Furthermore, the extremely poor often lack resources which are essential for preventing or treating disease. They lack access to basic health services, lack awareness of the importance of timely use of basic health services, lack the time and money needed to use health services, and often need to address other more pressing issues. One of the most basic of all health services is immunization. This study attempted to understand the reasons that extremely poor people do not obtain immunizations. One hundred women living in the slums of Zone 3 of Dhaka city (in the central part of the city) participated in the study. Twenty women were randomly selected from each of 5 groups of women participating in an ongoing panel survey conducted by ICDDR,B: (a) mothers of minimally-vaccinated children, (b) mothers of partially-vaccinated children, (c) mothers of fully-vaccinated children, (d) mothers partially vaccinated against tetanus, and (e) mothers fully vaccinated against tetanus. Field staff with special training in qualitative techniques interviewed these women using an open-ended questionnaire. According to the respondents, the major barrier to obtaining immunizations was the fees—both official and unofficial—that clients were required to pay. Other major barriers included loss of immunization card (making mothers reluctant to go for immunizations because of a fear that the vaccinator would be upset with them), fear of side-effects, and the long-waiting time. The findings suggest that extremely poor mothers and children should be able to obtain immunizations free of charge. Vaccinators need to receive sufficient salaries and reimbursement of expenses so that they do not need to charge ‘unofficial’ fees. Improved counselling about side-effects and their treatment, along with minimizing the waiting times for clients, should also improve the use of immunization services among the extremely poor.

Introduction

In the not too distant past, Bangladesh was a global leader in rapidly expanding its immunization coverage of mothers and children—from only 2% in the mid-1980s to around 80% in the mid-1990s (1). This progress has since reversed itself; in the 1990s, only 54-60% of children aged 12-23 months were fully immunized, and in 2004, the coverage increased to 73%, still not reaching the previously-attended levels (2). A comprehensive review of immunization programmes in Bangladesh has raised concern about the overall quality and coverage of services (3). Furthermore, in Dhaka city, a persistent gap exists in the coverage of those living in slum households compared to those living in better-off circumstances (4,5).

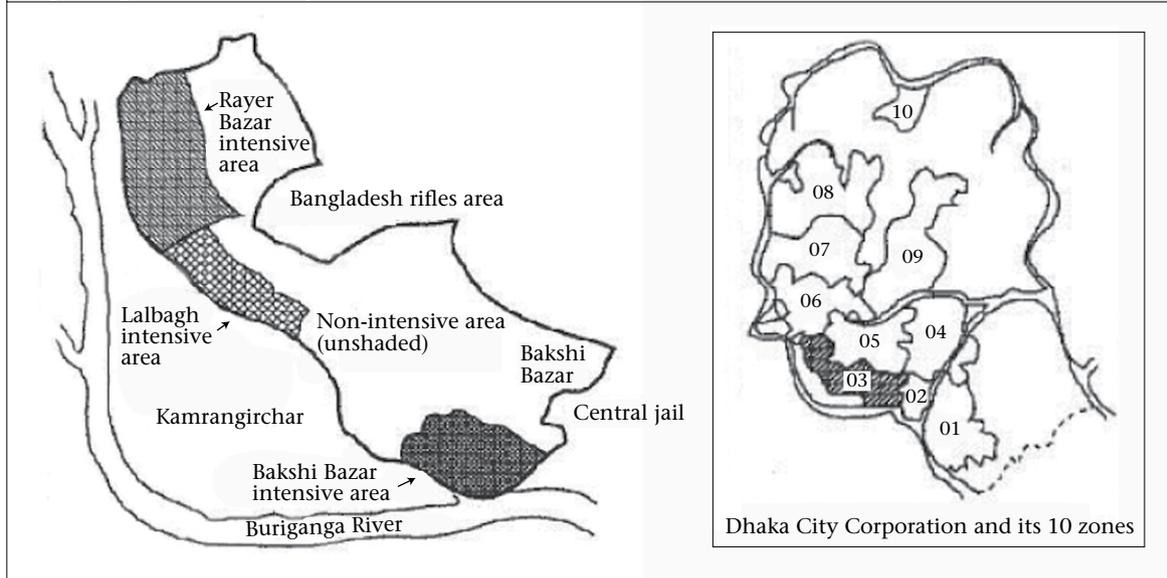
Understanding the reasons for the slum/non-slum gap in immunization coverage is important for Bangladesh, where the urban population growth rate has been 6% per year (meaning that, in only 10 years, the number of people would be double if this same rate of population growth persists) compared to the national population growth rate of 2.5% (5,6) The rate of urban slum population growth, particularly in Dhaka city, is even greater than that of urban areas in general.

Dhaka city is one of the fastest growing cities in the world, and the greater Dhaka city metropolitan area is anticipated to reach 22.8 million people in 2015, at which time it will be the second largest city in the world after Tokyo (7, p. 267). One-quarter of the population of the Dhaka City Corporation, which is located within the formal boundaries of the city proper, lives in slum households (4).

In their comprehensive review of urban immunization services in developing countries, Atkinson and Cheyne have pointed out some unique challenges that are not faced in rural areas (8). Among these are rapid population growth, especially among slum populations; multiplicity of types of service providers in the public and private sectors; the need to give priority to other more pressing challenges; and the need to use different strategies to reach marginal groups.

The present study was undertaken to identify the barriers to using immunization services as perceived by mothers of young children living in urban slum households in Bangladesh. Quantitative analyses of various influences on childhood and maternal immunizations in Zone 3 of Dhaka city have been carried out (4,9,10). Zone 3, one of the 10 zones of the Dhaka City Corporation, has a population of approximately 0.5 million, 29% of whom live in slum households (Fig.) (4).

The studies mentioned above have identified the importance of awareness about, availability of time for, and access to immunizations. Among the characteristics associated with or leading to a lower use of immunization in Zone 3 were: (a) lack of education among mothers; (b) three or more children living in the household; (c) mother working for money (usually the most severely-improved women); (d) living further away from the immunization site; and (e) receiving fewer home-visits from a family-planning field worker (who promotes immunization

Fig. Map of Dhaka city and Zone 3

services as part of her other normal job responsibilities). Other studies have shown that, on a national basis and in urban low-income areas, field workers have been the main source of information about routine immunization services and also about National Immunization Days (11-13). Bangladesh has an extensive cadre of field workers throughout the country whose main purpose is to promote family planning through home-visits to all women of reproductive age every two months, and they vigorously promote immunizations too.

Results of further analyses of the quality of immunization services in Zone 3 (14,15) showed that a wide variation existed in the use of individual immunization sites, with many sites being markedly under-used—mostly government facilities near to highly-used NGO sites. Furthermore, the immunization sites are not evenly distributed throughout the zone. The sites are clustered in pairs—one often quite close to another one—and slum households tend to be further away from the immunization sites than non-slum households. In only a minority of cases, healthcare providers inquired about immunization status in their encounters with women of reproductive age and with mothers of young children. Although most currently-pregnant women were aware that they themselves needed to be immunized, there was a general lack of awareness among all women of reproductive age regarding the importance of tetanus toxoid immunization and the need for 5 doses to achieve life-long immunity against tetanus for themselves and protection for their newborns during the neonatal period. Finally, the study revealed widespread confusion among both women of reproductive age and healthcare providers about protective effects and untoward effects of tetanus toxoid administration and the recommended dosage schedule.

To our knowledge, there has been only one other qualitative study of immunization services in slum households in urban Bangladesh. This study, carried out by Blanchet in the

Rayer Bazar and Hazaribagh sections of Zone 3 (16), stressed the following as barriers to obtaining immunizations:

- Time constraints, particularly among working mothers, and more pressing matters to deal with, such as earning money to buy food or obtaining medical care for a sick child;
- Opposition from husbands (particularly among those who are better-off financially and those who argue that if their children become sick, they can afford to see a doctor and get proper treatment);
- Traditional beliefs about the origins of vaccine-preventable diseases and the importance of traditional healers in 'curing' these diseases (particularly '*bhut*', which are evil spirits which need supernatural rather than medical cures);
- Lack of awareness that measles can several weeks later cause pneumonia and diarrhoea, and the belief that measles is actually good for the child because some think that the rash lets out substances which would be harmful if left inside the body;
- Lack of understanding regarding the need to complete the entire series of immunizations; and
- Lack of previous experience with the immunization centre and/or lack of trust in the services provided at the centre.

There have been two qualitative studies in rural areas of Bangladesh concerning barriers to using immunization services. In the first, field staff members from the Research and Evaluation Division of BRAC, Dhaka, Bangladesh, who were village residents for 6 months carried out in-depth and focus-group interviews with a cross section of residents in 8 villages (17). BRAC, the largest national non-governmental organization in the world, has had a long-standing active involvement in promoting immunizations. The study focused on perceptions of cause of vaccine-preventable diseases, treatment (rituals and elaborate home-remedies, including dietary remedies), and beliefs about how these diseases can be prevented. The following are the major findings of this study:

- In general, very few of those interviewed had correct knowledge about the cause, transmission, and prevention of measles, pertussis, tetanus, poliomyelitis, tuberculosis, and diphtheria, and they, therefore, had little motivation to obtain immunizations against these diseases.
- Villagers commonly believed that very young children are too 'delicate' to be given an injection.

In a separate study, BRAC staff carried out a qualitative study on all aspects of vaccine-preventable diseases and immunization programmes in Kishoreganj, the lowest-performing rural district of Bangladesh at that time, 69 km northeast of Dhaka towards

Sylhet (3). The following are their main findings with respect to perceived barriers to using immunization services:

- Vaccination sites were sometimes inaccessible, and EPI clinic sessions were often held irregularly and sporadically;
- Some mothers did not understand the importance of, and therefore the need for, immunization; and
- Some mothers did not have confidence in the technical quality of the vaccinator. They were either uncomfortable in obtaining immunizations from a male vaccinator, or they did not like the way the vaccinator pushed the needle.

The present study seeks to broaden the understanding of the perceptions of clients living in urban slums regarding barriers to obtaining immunization services.

Materials and Methods

One hundred women living in slum households were selected from participants in the Urban Panel Survey of ICDDR,B. The Urban Panel Survey in Zone 3 of Dhaka city was a quarterly household survey involving 5,940 households with 30,840 persons in 160 geographic clusters. The survey collected information between January 1995 and December 1998. Its purpose was to monitor sociodemographic and health indicators and to assess the effect of programme interventions designed to improve maternal and child health services in the Zone.

The 100 women selected for the study were chosen in 1997 from the following 5 different sub-groups of the participants in the Urban Panel Survey:

- Mothers of minimally-vaccinated children: those with children aged 12-23 months whose children had received no more than a BCG immunization (against tuberculosis) and/or a DPT1 and OPV1 immunization (DPT1 refers to the first of 3 doses against diphtheria, pertussis, and tetanus, and OPV1 refers to the first of 3 doses of vaccine against poliomyelitis);
- Mothers of partially-vaccinated children: those with children aged 12-23 months whose children had received no more than a DPT3 and an OPV3 immunization (i.e. their children had not received a measles immunization but had received the others);
- Mothers of fully-vaccinated children: those with children aged 12-23 months whose children were fully immunized;
- Mothers partially vaccinated against tetanus: those who had given birth during the previous 12 months and who had received no more than one tetanus toxoid immunization; and
- Mothers fully vaccinated against tetanus: those who had given birth during the previous 12 months who had received 2 tetanus toxoid immunizations.

Twenty women were randomly selected from each of these 5 groups.

A field guide was developed with the explicit purpose of attempting to elicit opinions from the respondents—their opinions about barriers to immunizations that they or their neighbours and friends had experienced. The exact questions and their sequence varied from one group to another. For those women who were selected on the basis of the immunization status of their children, only questions about childhood immunization were asked, while for women who were selected on the basis of their tetanus toxoid immunization status, only questions about tetanus toxoid immunization were asked.

Examples of questions asked included the following:

- “I have heard that there are immunizations for mothers and children in your community. What do you know about this?”

- “What happened when you yourself went to be vaccinated or when you took your child to be vaccinated?”
- “You said that _____, and _____, and _____ discouraged you from obtaining immunizations. Is there anything else?”
- “How could things be changed so that you could more readily obtain immunizations for yourself or for your child?”
- “What happens if you go to the clinic without a vaccination card?”

The last question was much more specific than the others. The interviewers for the Urban Panel Survey had noted prior to beginning the current study that women they interviewed had commonly mentioned that the vaccinators “gave them a hard time” if they returned to an immunization site without their cards, so a question about this issue was added at the end of the interview.

During October-December 1996, experienced field researchers working with the Urban MCH-FP Extension Project of ICDDR,B went to the homes of the 100 women selected for the study, all of whom were living in slum households in Zone 3 of Dhaka city. Slum households are considered to be those whose walls are composed of non-permanent materials, such as bamboo or plastic. These households have no indoor sanitation and no indoor running water. In most cases, they are located in large, densely-populated settlements alongside similar other structures. After obtaining consent, the field researchers interviewed them using a field guide developed for eliciting spontaneous information during the in-depth interviews.

Each respondent consented to an in-depth interview lasting about 45-60 minutes conducted by one of four experienced field researchers who also had been routinely working as an interviewer for the ongoing Urban Panel Survey. Each field researcher received formal training on open-ended survey techniques by one of the authors (AS). At the end of the interview, the field researcher returned directly to the project office and wrote down additional details of the encounter which she did not have time to write during the interview itself. The findings from the interviews were later translated into English.

A research team, led by two authors (SN and MAQ), reviewed both Bangla and English versions of the transcripts of interviews. Based on this review, a set of categories of responses was developed. The individual specific comments of the respondents were then classified according to these categories. Some open-ended responses were placed into more than one category when appropriate.

Results

General knowledge about immunizations

Although a majority of the respondents had obtained the complete series of recommended immunizations, the respondents commonly reported during the interview that they understood that immunizations are beneficial. They also commonly reported that field workers, neighbours, and other family members had strongly encouraged them to obtain immunizations, especially for their children. They further reported that they also had heard about the importance of immunizations on the radio and on television. Rarely did they report that they did not know where to go for immunizations.

General barriers to obtaining immunization services

The most commonly-mentioned barrier was the fee to be paid (Table). In some cases, these were official fees charged by NGO clinics, but in most cases, the respondents referred to unauthorized fees (also referred to as 'unofficial' fees or bribes) demanded by the government immunization providers. These fees were solicited although the official government policy at that time was to provide immunizations at the government immunization sites free of charge.

The second most common barrier mentioned was that women were reluctant to return to the immunization site if they did not still have their immunization cards. The third most commonly-mentioned barrier was concern about side-effects of the immunization itself, and the fourth was concern about the long time needed in obtaining an immunization. Concerns about fees were mentioned twice as frequently as other concerns, and the number of comments relating to the immunization cards, side-effects, and waiting times were similar (Table 1).

Fees for services: During the time that these interviews were conducted, the official policy of the Government's Expanded Programme on Immunization (EPI) was that immunization services should be provided free of charge to all persons. Consequently, the Government had not set any formal or official fees for immunizations provided at the government clinics and outreach sites. Non-governmental organizations (NGOs) that provide immunization services not uncommonly charged a registration fee or a fee for an immunization card (usually Tk 5.00-10.00, or about US\$ 0.10-0.20). However, there was also a widely-known practice among the government healthcare providers and other staff in the government healthcare facilities to charge 'unofficial' fees for many different types of health services, even when formal fees for the service did not exist (18). According to the respondents in our study, this practice was not uncommon among the government vaccinators. They reported that the government vaccinators often demanded a fee and, if it was not paid, they refused to provide the immunization service. One respondent reported, "If we pay money [to the government vaccinator], everything is o.k.; if not, the vaccinator 'misbehaves' with us." Another respondent reported that she had to pay Tk 100.00 (about US\$ 2.50) at a government EPI facility to obtain immunizations for her child. A third respondent stated, "If the [government] vaccinator did not charge, everyone would be able to obtain the vaccine. If the vaccinator is already receiving her salary from the Government, why is she charging money from us now?"

Table. Categories of responses regarding barriers to the use of immunization services mentioned by 100 respondents in open-ended questioning*

Category of response	Total no. of comments appropriate to the category [†]	No. of comments made by type of respondent
“We have to pay a fee or a bribe [‘unofficial fee’] which we cannot afford”	119	
Mothers of fully-vaccinated children		50
Mothers of partially-vaccinated children		24
Mothers of minimally-vaccinated children		18
Mothers fully vaccinated against tetanus		3
Mothers partially vaccinated against tetanus		24
“Loss of the immunization card is a barrier to returning for additional immunizations”	66	
Mothers of fully-vaccinated children		20
Mothers of partially-vaccinated children		30
Mothers of minimally-vaccinated children		16
Mothers fully vaccinated against tetanus		0
Mothers partially vaccinated against tetanus		0
“The side-effects of immunizations are a problem”	52	
Mothers of fully-vaccinated children		4
Mothers of partially-vaccinated children		12
Mothers of minimally-vaccinated children		17
Mothers fully vaccinated against tetanus		0
Mothers partially vaccinated against tetanus		19
“The waiting time is long”	50	
Mothers of fully-vaccinated children		17
Mothers of partially-vaccinated children		14
Mothers of minimally-vaccinated children		9
Mothers fully vaccinated against tetanus		0
Mothers partially vaccinated against tetanus		10
*There were 5 groups of respondents with 20 respondents in each group. The 5 groups of respondents are listed under each category of response. See text for further details		
[†] Some women made more than one comment		

In most cases, both official and 'unofficial' fees ranged from Tk 5.00 to Tk 20.00 (about US\$ 0.10 to US\$ 0.50). However, it was not unusual for respondents to report that they had paid more than Tk 50.00 (about US\$ 1.25) for the final dose of a vaccine. The clients reported that the vaccinators charged more at the time of giving the final dose because they knew that this would be the last opportunity to obtain a fee and that the mother was highly motivated to complete the immunization series. Furthermore, since the mother would not have to come back for another immunization, she would be willing to pay a greater amount than for the earlier immunizations. Several mothers reported that when they brought their children for the third dose of DPT and OPV, the vaccinator would justify charging a higher 'unofficial' fee on the basis that this was the 'last' immunization, leading the mother to think that she did not need to return for any additional immunizations when, in fact, her child still needed measles immunization.

One of the effects of the practice of charging 'unofficial' fees, according to the respondents, was that the vaccinators treated the clients differently depending upon their willingness to pay the 'unofficial' fee. The more the client paid, the better treatment the client received. One respondent reported that the 'rich' people get certain advantages, such as being treated with greater respect and being given preference for service (and, therefore, having a shorter-waiting time). One respondent reported that the 'rich' give Tk 50.00 (about US\$ 1.25) 'with pleasure' for immunizations from a government vaccinator. Another respondent stated, "If we pay money, the vaccinator behaves well; otherwise, they 'misbehave' and they shout at us." Several respondents mentioned cases in which the government vaccinator refused to immunize the clients who were unable to pay anything for the immunization.

The respondents commonly complained about how other clients often 'bribe' (the term actually used by the respondents) a government vaccinator to allow them to move to the front of the queue. One respondent stated, "Rich people obtain better treatment than poor people, but everyone should obtain the same treatment." Another respondent stated, "If the vaccinators treated the poor and the rich alike, we would use the service."

Thus, the issue of fees appears to represent a barrier among slum residents to using immunization services for the two following reasons:

- The fees involved represent an economic burden to slum residents which discourages the use of the service; and
- Providing preferential treatment to those with more financial resources who are willing to pay a 'bribe' leads to resentment and a loss of goodwill on the part of other clients who cannot pay it.

All the 5 categories of the respondents complained about the fee, but the mothers of fully-vaccinated children were the most vociferous group about this issue. For this group, although the problem was a real one, it was not a sufficient deterrent to prevent them from obtaining the needed vaccinations for their children.

Loss of immunization card: The respondents commonly mentioned that, if they had lost their children's immunization card, they were reluctant to return to the immunization site for additional immunizations that were needed. The two most common reasons reported for this reluctance were:

- The vaccinators become 'angry', and they 'scolded' and even 'shouted' at them; and
- They would have to pay an additional fee to obtain another card.

One of the reasons given by the respondents explaining why the vaccinators become upset at a mother who does not bring her immunization card is that the vaccinator's work then becomes more complex and time-consuming. The vaccinator has to spend time talking to the mother to determine which vaccinations had already been given and which ones are still required, and this often required a lengthy discussion. One respondent expressed the problem as follows: "If we come to the vaccination centre without our card, the vaccinator will become very angry, act rudely, or shout at us, and we will have to pay a fee to obtain another one."

Complaints about the loss of immunization cards are limited entirely to the 3 groups of the respondents who were questioned about childhood immunizations. No mothers who were interviewed about maternal tetanus toxoid immunization mentioned any problems relating to coming without the maternal immunization card, suggesting that the vaccinators were not as concerned about the presence of maternal immunization cards as about the presence of childhood immunization cards. This may have been due to the greater need of the vaccinator to use the immunization card in determining which immunizations a child should be given while, for maternal tetanus immunization, determining which immunization should be given is more straightforward and did not require a review of the maternal immunization card.

Fear of side-effects: A number of mothers mentioned that their children had developed fever, swelling at the injection site, or had otherwise become sick after immunization and they, therefore, did not want to take their children back for any further immunizations. One mother reported, "My mother-in-law became angry with me when I was starting off to take my child for his second immunization. She was upset because after my child's first immunization, he cried and had a high fever."

Other mothers reported that their husbands did not allow them to take their children back for further immunizations because of fear of a serious complication or because fever or rash had developed after the previous immunization. One respondent reported that a child living in the house next door developed paralysis of the arms and legs after receiving an immunization. Afterwards, the respondent stated that her brother-in-law refused to let her take her child to be immunized because of fear of a similar complication. Finally, a mother reported that a child next door fainted after returning home following an

immunization and, as a consequence, her brother-in-law prevented her from taking her own child to be immunized. The respondents frequently mentioned purulent discharges at the injection site as being a troubling side-effect.

Some respondents reported that they had never taken a tetanus immunization while pregnant because they had heard that the immunization causes swelling and pain at the injection site and sometimes infection. Several respondents mentioned that they had heard that tetanus immunization can produce a miscarriage among pregnant women and, as a result, they were hesitant to take it. Others reported that they were scared of injections and had never received any. One client stated, "Sometimes we get the strange feeling that we might die as a result of an injection. We begin to feel restless, and then we don't take it."

Mothers of partially- and minimally-vaccinated children and mothers who were only partially vaccinated against tetanus commonly mentioned about side-effects. Only 4 of the 20 mothers of fully-vaccinated children and none of the mothers who were fully vaccinated against tetanus mentioned side-effects as a barrier.

Long-waiting time: A number of respondents mentioned that they were too busy during the daytime to take time to obtain an immunization and that the immunization sites were only open during the daytime hours on regular workdays. This was a particular problem for mothers who work at income-generating activities (about 1 in 8 mothers, and they were usually the most impoverished mothers). One respondent reported that when she attended the nearby immunization centre, she had to wait all morning until 1:00 pm to obtain an immunization. Another respondent stated, "I have to leave all my household chores to wait in line for several hours before receiving my immunizations."

Several respondents indicated that those who were unable to pay had to wait for a much longer time than those who paid. One client even mentioned that she got so tired waiting that she finally left after waiting for a long time.

Among the groups of respondents who were interviewed about childhood immunizations, complaints about the waiting time were common. Complaints about the waiting time were less frequent, however, among mothers who were interviewed about tetanus immunization: there were no complaints about this in the group of mothers who were fully vaccinated against tetanus and only 10 complaints among those who were partially vaccinated against tetanus.

Other less-frequently mentioned problems: The respondents occasionally mentioned other barriers, but these barriers were mentioned much less frequently than the barriers shown in Table 1. Occasionally, a respondent mentioned that she or other women did not know the location of a centre or the hours of operation. By and large, however, there was good overall knowledge of where the immunization sites are and when they provided immunization services. The fact that there was such a high level of knowledge about the

nearest immunization centre is notable because there had been such a high level of recent in-migration into the area. Half of women in the study area with a child aged less than 5 years had been living there for less than 5 years.

Several respondents mentioned that there were problems with the regular functioning of the immunization centre. One respondent reported that she went to the same centre 3 times during regular operating hours, and the vaccinator was never there. Another respondent reported that she went to an immunization centre during the hours it was supposed to be open but it was found to be closed. A third respondent reported that she went to the centre and waited for 2 hours, but the vaccinator never showed up.

Although the great majority of the women interviewed understood the importance of immunization, some reported skepticism about its value. One respondent reported that she had grown up perfectly healthy without any immunizations, so why, she asked, should she have her child immunized? Another respondent reported that mothers-in-law and other older relatives discouraged younger mothers from obtaining tetanus immunization by saying, "We did not have any problems, so why should younger women take it?" Another respondent stated, "We do not take tetanus immunization because we have not heard about it and we do not need it. Tetanus immunization is for rich people. We have Allah."

Another respondent stated that she did not need tetanus immunization because she was young and "could tolerate anything that might happen to her." Another respondent said, "Those who understand the importance of immunization will obtain immunizations they need, but those who do not understand will not understand even after 100 attempts to motivate them."

Several respondents were not aware of when they should take their children for their first immunization, what the proper interval between doses is, or what the total number of required doses is. Other respondents reported taking their children for an immunization after their children had completed their first birthday and were told that the children were not eligible to receive any further immunizations (although this was not the official policy of the national immunization programme).

None of the respondents who were interviewed about maternal tetanus immunization was aware that all women of reproductive age should receive 5 immunizations to attain life-long immunity (although many women did state that three doses are needed). Only a few women were aware that it is appropriate for non-pregnant women to receive tetanus immunization.

Several respondents mentioned that they were afraid of leaving their home unaccompanied, implying that there was no one readily available to accompany them. Although the cultural restrictions on women's mobility were much less severe at the time of the study compared to 2 decades previously, many women were not free to walk about in the community away from their home neighbourhood at the time of the study, particularly

if they were unaccompanied. This limitation on mobility may be one of the reasons that several respondents mentioned that vaccinating in the home rather than at the immunization centre would be one way to expand the coverage of immunization services. The mobility of pregnant women is even more restricted by social norms than is the mobility of non-pregnant women. So, the access of pregnant women to immunization services is constrained, particularly if the waiting time is long.

Several respondents mentioned that their husbands or relatives were opposed to immunizations. As described previously, husbands and other relatives often opposed immunizations because of side-effects they cause. One respondent stated, "Although I had protested to my husband and told him that immunizations are good for the child's health, he would not allow me to immunize my child because of fever which accompanies immunization." Husbands and mothers-in-law are the most commonly-cited family members who opposed immunizations, but aunts and brothers-in-law also occasionally interfered as well, according to the respondents.

Several women reported lapses in quality and, because of this, chose not to return to the immunization centre. For instance, one respondent reported that she saw a vaccinator using the same needle for several different clients and decided never to go back again. Another respondent stated, "I think one syringe should be used for only one child, but at the immunization centre they use one syringe for many children."

Inaccurate perceptions about immunizations: Many respondents expressed ideas and opinions about immunizations which were either inaccurate or which reflected a misunderstanding about immunizations and their effects. In most cases, the respondents thought that immunizations produce a more favourable effect than they actually do. Several respondents indicated that immunizations produce good eyesight (perhaps confusing the effect of vitamin A administration—sometimes given at the same time as the immunization—with the effect of the immunization itself), and others stated that immunizations are given to prevent all types of paralysis and seizures. The mothers thought that immunizations promote overall good health and good nutrition: "Children stay healthy and grow better when given immunizations", or "Children gain weight better and have better nutrition after receiving immunizations." While these statements are not entirely wrong (given the debilitation that children who survive vaccine-preventable diseases—particularly measles—can experience), they give the impression that many women think that immunizations have a stronger and more general positive effect than they actually do. The overly-favourable attitudes about childhood immunizations are also made apparent by the statements of the respondents which indicate that they thought that immunizations prevent many illnesses which are, in fact, not vaccine-preventable. Although many respondents were aware that immunizations prevent measles, neonatal tetanus, diphtheria, and whooping cough, many also reported that immunizations prevent cough, cold, asthma, respiratory infections, including pneumonia, diarrhoea, cholera, 'pox', typhoid, skin diseases, 'soreness', chika (dry skin), and serious harm from fever or boils. One mother stated that if a child takes polio vaccine, the child will remain 'clean and hygienic'.

Misperceptions regarding maternal tetanus immunization were also present. One respondent stated that tetanus immunization during pregnancy prevents problems with labour. Another respondent stated, "Mothers are given tetanus immunization during their pregnancy so that the birth will go smoothly and problems will not develop." Another respondent stated that tetanus immunization "prevents the birth from coming early." One respondent said, "I know many women who took tetanus immunization during their pregnancy and they said that it did them good because they did not have any problems during their delivery." Another respondent stated that maternal tetanus immunization gives the foetus good nutrition. Another respondent reported, "Many people think that if tetanus immunization is taken during pregnancy, the delivery will be less painful and the mother will remain healthy." Another respondent stated, "Many people think that if tetanus immunization is obtained during pregnancy, the delivery will be less painful or the placenta will not be 'torn out' during delivery."

There was also a commonly-expressed idea that maternal tetanus immunization prevents convulsive disease of pregnancy (i.e. eclampsia). Since women commonly understand that the purpose of tetanus toxoid immunizations is to prevent 'convulsions', they apparently conclude (quite logically) that if tetanus toxoid immunization prevents convulsions caused by tetanus, tetanus toxoid immunization should also prevent convulsions caused by eclampsia. One respondent reported, "It is good to take tetanus immunization during pregnancy so that convulsions do not occur." Conversely, this same understandable logic also leads women to conclude that if a woman who has been immunized dies of seizures (i.e. eclampsia) during pregnancy, one can reasonably conclude that tetanus toxoid immunization is ineffective and, therefore, there is no use in taking tetanus immunization. One respondent reported, "The woman who lived next door took 2 tetanus immunizations when she was pregnant but she later died of convulsions anyway, so what is the use of taking the immunization?"

Some women believed that maternal tetanus immunization prevents all types of pregnancy-related complications, not just seizures. One respondent stated, "I believe that if a pregnant woman takes tetanus immunization, by the grace of Allah, she will be safe and will not die." Another respondent reported, "A woman who lived nearby had received 2 tetanus immunizations while pregnant, but she suffered pain for three days during delivery and the baby died" (implying that the tetanus immunization had not worked).

While some respondents appeared to attribute beneficial effects to immunizations that were beyond the actual effects of the immunizations themselves, others attributed health problems (which have been scientifically shown to be unassociated with immunization) to the immunization itself. For instance, one respondent reported that she had heard of an infant dying soon after birth, and she attributed the infant's death to a tetanus immunization the mother had obtained during her pregnancy. Another respondent mentioned that she heard of a woman who had had prolonged labour, and her friends told her that this problem had arisen because the woman had obtained tetanus immunization during her pregnancy.

Discussion

This qualitative study provides some important insights into the experiences of slum women in Dhaka, Bangladesh, with immunization services. This information is not readily available from routine surveys of EPI coverage and requires in-depth questioning by specially trained interviewers. Taking the findings into account could provide an opportunity to strengthening immunization services.

While the slum women in our study readily affirm the importance of immunizations and their role in producing good health, they describe 4 major barriers to their using immunization services:

- The 'high' price of immunization services, whether it is an official or an 'unofficial' fee, and the humiliation which poor women feel when they see that other women pay the 'unofficial' fee and jump the queue;
- The fear of being 'scolded' by the vaccinator after losing the immunization card (a not uncommon event), and the necessity of having to pay to obtain a new one;
- The fear of side-effects relating to immunizations; and
- The long-waiting time.

To our knowledge, the first 2 barriers have not been widely recognized previously in Bangladesh or in the published literature. The first, second, and fourth barriers are, in fact, related to and represent what Blanchet calls 'class encounters', namely the intimidation or humiliation which poor women experience because of their poverty and low social status (16, p. 29).

Fear of humiliation as a barrier

In her anthropological study on the use of urban immunization services by slum women, Blanchet points out that slum women in Dhaka are easily humiliated but they do not openly show it (16) . At the immunization site, poor women from slum households interact with a higher-status vaccinator. In addition, other higher-status (and economically better-off) mothers also come to the same immunization centre and, as a result of their superior financial status, are able to pay a fee which will enable them to jump the queue and, in the process, demonstrate their higher social standing to others waiting.

Meanwhile, clients from slum households, who are often under severe time constraints, may be humiliated because the (higher-status) vaccinator scolded them when they came to the clinic without their immunization cards which had been lost and demanded them to pay either an official or an 'unofficial' fee which was difficult for them to pay.

Blanchet noted similar 'class encounters' in 1989 when she observed immunization services in the slums of Dhaka city and interviewed 80 slum women in their homes. Interestingly, Blanchet made these observations in the same area of Dhaka city as the present study.

Blanchet writes:

One mother commented that the vaccinator shouted at her. He was arrogant and she felt humiliated. She did not return to complete the next scheduled vaccination for that child nor did she for the baby who was born afterwards. Some mothers who do not return for the next shot on the given date do not return at a later date ... because they fear to be admonished and humiliated.... The prestige of allopathy does not suffice to attract women who feel belittled by health staff who are arrogant and condescending (16, p. 29, 35).

The pressure which poor women feel because of many demands on their time is not readily apparent to the casual observer. Nevertheless, this pressure appears to be a strong deterrent to obtaining immunization services, particularly for those who are extremely poor and have to earn money in order for them and their children to survive. Again, Blanchet poignantly describes the plight of these poorest women, particularly compared to those who have better-paid and more secure jobs:

... [M]ost working mothers are simply overwhelmed by their numerous responsibilities. Besides physical exhaustion, some do not have mental energy left to even form an opinion about immunization. Vaccinating a child is not seen as an emergency, and they can only find time for their most pressing needs, like finding food to fill empty stomachs or going to a clinic to cure a child who is seriously ill.... Because *bustee* [slum] women on the whole are poor and do humble jobs, they are expected not to complain when they are made to wait for two or three hours. The clinic staff seems to be unaware of the fact that sometimes a long wait may mean no work, no income, and no food for these women and their children (16, p. 8).

Waiting may not necessarily be a form of humiliation for clients. But when others can pay a small fee and jump the queue, or when the vaccinators and other health workers are not doing their best to facilitate the process of immunization in an equitable manner, then, understandably, poor women might feel humiliated.

The open-ended, spontaneous comments of our respondents, in contrast to the comments of respondents participating in more traditional types of immunization coverage surveys, also reflect at least some indignation and humiliation which these women experienced (but have no doubt become accustomed to) and which Blanchet was able to observe directly.

The findings of our qualitative study appear to conflict with a previously-published study regarding encounters between vaccinators and clients in the same part of Dhaka city (4). In that study, field researchers who were observing interactions between vaccinators and clients observed the vaccinators to be friendly and respectful and to respond to the clients' questions appropriately. However, in that study, the vaccinator was fully aware of the presence of the field researcher, so the situation may well have tempered the tendency of a vaccinator to behave condescendingly to clients. In contrast, quite a few respondents in this study indicated that the vaccinators 'shouted' at them. Blanchet, who was apparently an unobtrusive observer, also observed the similar behaviour (16).

Fees as a barrier

In an unpublished study of immunization coverage carried out among slum households in Dhaka city and Rajshahi city in 1998, interviewers reported that the most frequent spontaneous complaint mentioned by respondents during interview was the fee, particularly the 'unofficial' fee which vaccinators not uncommonly charge (Siddiqi M. Personal communication, 1998). Blanchet noted that the small fees charged by NGOs she visited a decade ago were a deterrent for poor mothers, who told her that they were willing to pay a fee for treatment of an ill child but not for immunizing a child who is well (16). These charges for immunization services that poor women face are on top of already considerable costs (from their perspective) that they face as a result of having to pay for transportation or as a result of taking valuable time from household responsibilities and from income-generating activities. For the urban poor, the already existing costs are major barriers to obtaining a preventive health service, so the presence of additional costs could have a major impact on the use of services among the poorest population who typically already have the lowest levels of immunization coverage.

The policy of charging a fee for immunization services, particularly among the poor, generated considerable discussions among clients, providers, and programme officials both in the Government and NGO community in Bangladesh. There is a growing pressure for cost-recovery, on the one hand. But there is also a widespread recognition that the poorest members of society are unable and unwilling to pay anything for a preventive service, such as immunization; that they are at high risk of measles, neonatal tetanus, and other vaccine-preventable diseases; and that the benefits of immunization to the entire society go far beyond the value of immunization for a specific client. The findings of our research contribute to the debate about how best to ensure that immunizations reach the poorest of the poor in urban areas.

Numerous informal reports exist that indicate that vaccinators who work for the government EPI are not appropriately remunerated for their transport and sterilization expenses and, therefore, must charge something to recuperate this expense. Furthermore, the low salaries received by these workers also create pressure for generation of additional income as well.

Lost cards as a barrier

To the best of our knowledge, other studies have not identified 'lost cards' as an important reason for not returning for an immunization. We might not have asked specifically about this issue if the interviewers for our study, who already knew the study population from their previous experience in interviewing them for the Urban Panel Survey, had not noticed that slum women occasionally mentioned how the rude vaccinators are if previous clients come to the immunization centre without an immunization card.

A number of respondents stated, "Health workers often will not vaccinate children without a card." One respondent stated, "I came to Dhaka and lost my card. So, without my card, they will not give the *tika* [immunization]; that is why I did not go." Bhattacharyya and Khanam noted that not having a card was one of the reasons women gave for not participating in the National Immunization Day campaign (against polio) (11).

One review of the literature on immunization studies in Bangladesh revealed that coverage rates were higher among those with cards (19). The presumption is that either those who have their cards at home can remember more readily when they should return for follow-up immunization or those who are able to keep up with their cards are also more likely to seek immunization services. However, our findings suggest an additional explanation as well: losing a card may act as an actual deterrent to further immunization use.

The process of vaccinators humiliating clients who have lost their cards is apparently not unique to Bangladesh. In a qualitative study in Zimbabwe in which focus-group discussions were held (20, p. 285), one woman reported, "If you tell the nurses that you have lost your card, they will say that you are very careless. They will shout at you." In response to this and other related findings, Razum concluded that "care should be taken not to attribute the low immunization coverage to laziness and ignorance of the mothers when the main contributing factor is poor quality of services" (20, p. 286).

Further research concerning why slum women lose their cards and whether any steps could be taken to keep vaccination information from getting lost might be useful for improving use of immunization services.

Fear of side-effects as a barrier

The fear of side-effects is an important deterrent to immunizations, as demonstrated not only by this study but also by numerous other studies in Bangladesh and beyond. The fear of side-effects is a major reason given by mothers (21) and fathers (12) for not completing the entire series of doses, and 80% of mothers requested more counselling and better explanations when asked how immunization services could be improved (21).

Bhattacharyya and Khanam reported that most people they interviewed at the time of the first National Immunization Day were able to recount a story about someone they know who had an adverse effect following a vaccination (11). For instance, Blanchet (16, p. 28) noted that one slum mother told her:

When a child has a vaccine followed by fever, it means that the medicine has circulated throughout its body. It has taken. But when the arm or the leg swells and aches, it means that the vaccine got stuck there. It was not digested by the body. Sometimes, pus gathers there, and the skin starts rotting. This is very bad.

Parents need a better understanding of what normal reactions to immunization are and what their significance is. They also need a better understanding of the risk of adverse effect following immunization compared to the risk of acquiring the disease (and its adverse effects) in the absence of immunization, how minor side-effects can be ameliorated, and what subsequent untoward events should and should not be attributed to immunization. Stories of children who suffer serious side-effects and even death (perhaps relating to immunization, but perhaps not) circulate widely throughout the population and create hesitancy among some to use immunization services. Thus, a better understanding about immunizations, as discussed later, would help reduce this barrier associated with side-effects.

Lack of time as a barrier

Poor slum women are busy and are often involved in exhausting work that leaves them little time for resting, much less for attending to the long-term preventive healthcare needs of themselves and their children (22). Bhattacharyya and Khanam reported that some working women could not leave work to have their child immunized at the time of the National Immunization Day because they would lose income, which they could not afford to do (11). A study of slum households in Dhaka city revealed that lack of time was one of the 3 most commonly-cited reasons for failure to obtain immunizations (23). A survey of slum households in Dhaka city found that respondents considered the inconvenient hours of operation of immunization sites to be a major obstacle to obtaining immunization services since people in slum households are normally quite busy with other activities at the time when the immunization sites are functioning—that is, during the weekday morning hours (24).

The findings of our study serve as yet another important reminder of the importance of the time of poor women and the need to provide preventive services, such as immunizations, quickly and at a convenient time. Time is a precious resource for slum women and one of their most important assets, so the greater the time involved in obtaining immunizations the greater the cost of obtaining the service.

Lack of knowledge and misperceptions about vaccines and their effects

The fact that the slum women interviewed generally considered immunizations as something good for health is a major achievement. However, the attribution of positive effects to immunizations which, in fact, do not occur (such as prevention of diarrhoea, production of good eyesight, and prevention of complications of childbirth) and the attribution of negative effects to immunizations which are not known to be a complication of immunization (such as childbirth-related complications 'caused' by maternal tetanus toxoid administration) can ultimately discredit the value which clients place on the vaccine. When an incorrectly-presumed positive effect does not occur, or when an incorrectly-presumed negative effect does occur, the perceived value of the vaccine diminishes. One of the many unfortunate spin-offs of this process is that negative incorrect information about immunizations then travels from person to person in the local neighbourhood and beyond.

Villagers in Bangladesh have viewed neonatal tetanus for centuries as a disease caused by a spirit (*bhut*). Not surprisingly, therefore, some women think that tetanus toxoid vaccine has an effect other than the prevention of a spirit-caused disease. Communications about neonatal tetanus need to be tailored to the spiritual/magical beliefs about causation which exist in many traditional cultures, not just in Bangladesh (25). Furthermore, the effect of maternal tetanus toxoid immunization on prevention of tetanus in the neonates of mothers is not always recognized: in the 1994 national EPI coverage survey, 42% of urban respondents stated that tetanus toxoid immunization protects the mother only and did not mention any effect on preventing neonatal tetanus (26).

Almost 2 decades ago, Blanchet observed a radical shift in attitudes towards maternal immunization (16, pp. 16-17), although the major gaps in understanding, obviously, remained:

Over the last 3 years, tetanus toxoid has become increasingly popular, and it is the main purpose of women for attending antenatal clinics. This shows an interesting change in attitudes, for in the past the very idea that a pregnant woman should visit a clinic and go for check-ups was incomprehensible. Women in that state, even if ill, would refuse allopathic medication in the fear that it would harm the foetus and provoke an abortion. Some women still feel this way because they believe that the vaccination needle might contain a contraceptive. But, on the whole, the new attitude is rather positive. Do women clearly understand what tetanus toxoid injections prevent? This recent interest is hard to reconcile with the fact that tetanus (at least in its neonatal form) is believed to fall largely outside the realm of allopathic intervention. But, even if the confusion remains, it may suffice that women should consider immunization as beneficial to their health in a general way like vitamins which are often given on the same antenatal visits.

Stories about complications from vaccinations travel quickly (3). Bhattacharyya and Khanam found that most women with whom they talked could recount an incident in which they believed that an immunization caused a serious side-effect (11). Whether the stories reflect true complications or incorrectly-presumed complications cannot be determined, of course. Rahman *et al.* reported in 1982 that rural Bangladeshi women expressed considerable reluctance to obtain an injection of any kind during their pregnancy because of a fear that it may produce an untoward effect on the foetus (27). While these concerns have no doubt abated since that time, our study demonstrated that these concerns were nevertheless still present.

Side-effects of vaccines are a reality that cannot be ignored. Clients need to know what the actual side-effects are, which ones are necessary in order for the immunization to do its work, which ones are minor, which ones are major, and how they can best be managed. An earlier study found that fewer than half of clients in Zone 3 of Dhaka city receiving an immunization were given any counselling about possible side-effects and how to manage them (4).

The emergence of major concerns among clients in developed countries about the risks of vaccines has led to declining levels of immunization coverage (28). Therefore, a strong proactive ongoing campaign to inform clients about the risks and benefits of immunizations will always be necessary.

Our findings confirm those of Blanchet (16): there continues to be considerable misinformation about the importance of completing the entire series of immunizations, both for children (who need 5 visits to become completely vaccinated) and for women (who need 5 doses of tetanus toxoid to achieve life-long immunization for themselves and their newborns against tetanus). Her study noted that:

There is little comprehension that each of the vaccines has a separate action and after receiving 3 or 4 injections many mothers feel their children have got

some protection against common illnesses in general so they do not pursue. All injections are assumed to have a similar action, each additional one reinforcing the effect just like one multiplies the amulets around a child's neck to increase protection (p. 16, 29).

The 1991 national immunization coverage survey stated a similar finding (21). Some mothers who were interviewed in the survey informed that they forgot about measles immunization since there is a long gap between the DPT3 dose (normally given at 18 weeks of age) and the measles dose (normally given at 39 weeks of age). A number of the respondents in this 1991 survey also indicated that they thought that measles immunization is given with each of the 3 DPT doses. Thus, they thought that, at 9 months of age, the child is not receiving his one and only dose of measles vaccine but rather is receiving the fourth dose of measles vaccine. Therefore, they (understandably) apparently thought that the fourth dose was not really that important. Mothers also have a problem in thinking of their child's age in weeks. They usually think of their child's age in months or in stages (such as the newborn period, the sitting stage, and the crawling stage) and, therefore, may not be attuned to the exact time when she should take her child for a measles immunization.

A survey of urban slum women in 1990 revealed an extensive lack of knowledge about diseases that are vaccine-preventable (23). In focus-group discussions and exit-interviews with urban poor women throughout Bangladesh at the time of the first National Immunization Day (13), respondents said that they thought that vaccines provide general protection against all diseases rather than against a small number of specific diseases. This is not illogical, since the connections that lay people make between diseases as they are 'known' in lay terms and the diseases as they are known in biomedical scientific terms are often obscure (29). A 1995 comprehensive literature review of information pertaining to knowledge, attitudes, and practices relating to immunizations in Bangladesh emphasized that, in lower-coverage areas, awareness about the need for, and timing of, immunizations is weak and that, although face-to-face communication with clients at the time of home-visits have been shown to be the most effective channel for increasing knowledge and awareness about immunizations, little emphasis has been given to improving the effectiveness of inter-personal communications from field workers to clients about immunizations (19).

Other findings from Bangladesh relating to barriers

Surveys of immunization coverage commonly ask women why they did not obtain all the recommended vaccinations. The most frequently-mentioned responses in such surveys carried out in Bangladesh, including surveys representative of the national population, surveys representative of the urban population, and surveys representative of the slum population (12,24,30-34), have consistently identified factors which our study also found, namely:

- Lack of knowledge about the time, place, or need for immunization;

- Fear of side-effects;
- Lack of time (the mother is too busy) or inconvenience (the hours of operation of the immunization site are inconvenient); and
- Absence of the vaccinator.

One issue found in these studies that our study did not identify is the presence of an illness at the time a vaccination should be given—either as a reason for not taking the child or for not giving an immunization at the time of a clinic-visit. Internationally-accepted recommendations state that mild childhood illnesses are not a contraindication to administering a vaccine (35).

Findings of studies conducted in urban areas of other countries relating to barriers

Atkinson and Cheyne outlined the following major findings of earlier published studies regarding the barriers among the urban poor to using immunization services (8):

- Lack of information and knowledge among the client population;
- Lack of personal contact with health workers at a nearby health centre, with a community health worker, or with local leaders, neighbours, or relatives who promote the use of immunization services;
- Lack of access to health centres where curative services are also available (and where clients can establish an ongoing relationship and build up trust);
- Lack of time among mothers, especially those who work for money; and
- Inconvenient hours of clinic operation and lack of access to services during evening hours.

These same problems have been encountered by the respondents in our study as well. Many respondents mentioned that they would prefer to attend an immunization centre where they have previously had a good experience and which they have, therefore, come to trust. Once a relationship of trust has been established between providers and clients, knowledge about immunizations may not be as important in deciding whether to obtain them or not (16, p. 29).

Atkinson and Cheyne lament the paucity of assessments of immunization services in urban areas undertaken from the users' perspective (8). One important exception was the study carried out by Cutts *et al.* in Conakry, an urban area of Guinea (36). In that study, focus-group discussions with parents—both men and women—revealed that parents did not realize that sick children could be vaccinated and that every child needs to receive 5 immunizations before the first birthday. The parents complained about the long-waiting times, lack of rapport with health workers, and high fees. They reported that the development of complications, such as abscesses, deterred parents and neighbours from seeking further vaccinations. These problems were present in our study area as well.

Practical implications of the findings

Reaching and maintaining an immunization coverage level of greater than 90% is the goal of all immunization programmes. Strengthening the quality of the immunization services is an important intermediary step towards this longer-term goal.

Our study has revealed a number of important areas for improving the quality of immunization activities (from the clients' perspective) in one target group that has traditionally had a low immunization coverage, namely women and children residing in slum households. The findings suggest that improving the quality of immunization services could reduce barriers for slum residents and improve coverage. Quality-improvement activities that the findings from our study suggest would lead to an increase in the use of immunization services include the following:

- Training which will help vaccinators understand the humiliation which slum residents experience when they feel like they are treated in a condescending manner;
- Providing adequate financial support for immunization staff salaries and the expenses they incur in their work;
- Putting in place a monitoring system to identify vaccinators who are charging unauthorized fees and to ensure that this practice is stopped;
- Establishing a policy which will make it possible to obtain immunization services free of charge if paying a fee creates a financial hardship;
- Strengthening counselling for all clients (and particularly for slum residents) so that mothers understand what immunizations are being administered and why, when the next dose is needed and why, what the potential side-effects are and what to do about them if they occur, and the importance of keeping the immunization card and bringing it back at the time of the next immunization;
- Developing strategies to minimize the waiting time for all clients and to reduce the opportunities for those with more money who pay to jump the queue;
- Developing strategies to motivate and assist slum residents to be able to better keep up with their immunization cards; and
- Developing messages for use in social mobilization campaigns that address the misperceptions identified in this study and which also stress the importance of (and the reasons for) completing the entire series of doses in a timely fashion.

Parents need a better understanding of what normal reactions to immunization are and their significance. They also need a better understanding of the reality that there is a small risk relating to immunization that is much less than the benefit and also that all untoward events following immunization should not automatically be attributed to the immunization itself.

Considerable efforts have been devoted in Bangladesh to promote the importance of the immunization programme in general and to encourage mothers and children to obtain immunizations. Perhaps the time has now come to give additional emphasis to educational messages specifically aimed at clarifying exactly what vaccines do and do not do, what the side-effects and complications of vaccines are, and what health problems are not amenable to prevention with immunization. These messages need to be promoted through the mass media, through neighbourhood media campaigns, and through inter-personal messages from health workers to clients. A better understanding of specific immunization-related side-effects and complications could gradually diminish the fear of side-effects and lower this particular barrier to immunization use.

Immunization programmes need to provide clients with information about what each dose is for, when it is needed, and why one should complete the entire series as soon as possible. Talking with clients takes much more time than simply giving an injection, so new methods will have to be devised and tested to effectively and efficiently communicate this information.

Who will communicate this information at the time of immunization provision is another critical issue. Programmes should not overload vaccinators with too many time-consuming activities. One programme has had a positive experience incorporating semi-literate and illiterate slum women as volunteers to assist in strengthening immunization activities in the slums of Dhaka (37), and using such volunteers for counselling clients might be an option.

Brabin *et al.* and Fauveau *et al.* have proposed initiation of tetanus toxoid immunization for girls during late childhood or early adolescence (38,39). This would shift the focus of tetanus toxoid immunization away from pregnant women, thereby providing protection against neonatal tetanus for all offspring and dissociating any perceived complications of tetanus immunization from pregnancy-related complications. Furthermore, this would provide protection to women who develop post-abort tetanus resulting from induced septic abortion.

At the time of collection of data for this study, very few routine immunization centres were located within the slums themselves. These centres tended to be located in better-off neighbourhoods. Other studies carried out in this same geographic area have shown that slum households are further away from immunization centres than non-slum households (9). Although the difference in distance is not great, it does affect use. The findings of this same study also support the need to establish immunization centres where slum women feel 'at home'. More qualitative research is needed to define precisely how to do this.

Perhaps the time has come to rethink the strategy of information, education and communication activities for immunization programmes in urban slums. Nichter has pointed out that immunization-use among poor illiterate people could gradually decline as

overall health status improves and as vaccine-preventable diseases become rarer, particularly if these people believe that immunizations promote 'good health' in general rather than prevent only a few specific (but nonetheless very important) diseases (40). Targeting slum populations and other underserved areas for special-focused activities (including house-to-house vaccinating) to strengthen routine immunization activities would be an effective strategy in improving overall immunization coverage (41).

Finally, these findings serve as an important reminder of the highly-sensitive influence of fees—both official and 'unofficial'—on the ability (and willingness) of the poor to access needed preventive and curative services. These fees have been shown to have an inequitable effect on the poor because they reduce access (42). Furthermore, the findings provide yet another example of how 'unofficial fees' operate within the public system of health services in Bangladesh, a practice which others have documented as well (1,18).

Conclusion

Effective promotion of the public's health requires, among other things, an understanding of what motivates people to seek out preventive health services and what barriers exist to using these services. Good public-health practice involves the use of this information in implementing programme strategies aimed at improving the use of essential preventive healthcare services, such as immunizations. One of the important public-health issues in the world today is the achievement and maintenance of high levels of immunization coverage of poor urban populations of developing countries. The findings of this study in Dhaka city indicate that specific and practical strategies for raising the level of knowledge about immunizations and for improving the quality of services provided at immunization sites should increase the satisfaction of clients, increase the use of immunization services, and provide a foundation for a longer-term sustainable immunization system in urban slums. Our findings have relevance to other urban areas in Bangladesh and also to urban areas in other developing countries.

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