Assessment of Knowledge, Attitude and Practice of Stakeholders Towards Immunization in Borno State, Nigeria: A Qualitative Approach

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Abstract

**Background:** Vaccine preventable diseases remain one of the major causes of illnesses and deaths among children in Nigeria and this country is one of the few remaining countries in the world where polio is still endemic. Though routine immunization coverage has improved since 2003, Nigeria’s coverage is still one of the lowest in the world. Nigeria accounts for half of the deaths from Measles in Africa, the highest prevalence of circulating wild poliovirus in the world, and the country is among the ten countries in the world with vaccine coverage rates below 50 percent, having been persistently below 40 percent since 1997. Borno state has one of the lowest coverage in the country.

The objective of the study was to assess the knowledge, attitude and practice of stakeholders in Borno state towards immunization with the view of intervening to improve acceptance.

**Method:** Focus Group Discussions (FGDs) were used to collect information from the various stakeholders in 18 selected Local Government Areas of Borno representing both rural and urban areas.

**Result:** All stakeholders were aware of immunization and its benefits as well as the routes and schedule of administration. Different groups have different traditional alternatives to immunization. Majority indicated that they accept immunization and allow their children to receive it. However, lack of adequate information about logistics and time of immunization programme, inadequate involvement of traditional and religious leaders and poor attitude of health workers were reasons for not fully supporting immunization program in some communities. Mothers looked forward to incentives for bringing their children for immunization in terms of soap and complimentary health care services.

**Conclusion:** Advocacy through involvement of traditional, religious leaders and community leaders in the planning and implementation of immunization exercise should be intensified in all communities. The integration of traditional medical practitioners is also deemed important.

**Keywords:** KAP; Immunization acceptance; Stakeholders; Qualitative technique

Introduction

Inadequate immunization coverage continues to hamper the health of the children of Africa and remains the cause of millions of preventable deaths. Routine immunization against Diphtheria, Tetanus, measles, whooping cough, polio and tuberculosis is perhaps one of the most cost-effective interventions for reducing childhood illness and mortality, especially with the addition of other vaccines such as Cerebrospinal meningitis (CSM) and yellow fever in endemic and epidemic areas and Tetanus Toxoid (TT) injection for pregnant women. Though immunization has improved since 2003, Nigeria has one of the lowest coverage in the world [1].

It is believed and in some cases documented, episodes of immunization programme blockage or participation refusal occurring based on lack of involvement or censorship by local indigenous leaders. If this immunization coverage rates are to be improved, it is believed that the involvement of traditional practitioners and indigenous religious leaders is essential.

Majority of the population of sub–Saharan Africa receives its health education and healthcare from practitioners of traditional medicine. Traditional healers are revered in their communities; provide not only primary health care services, but moderate issues of governance, ethics, family formation and dispute management.

Any effort regarding the provision of health care services or individual/family health related decisions eventually will therefore be impacted by the influence and participation or non-participation of this group of health care providers and community leaders.

In Nigeria, the national coverage for full immunization is less than 13%, one of the lowest in the world, even lower than many countries in conflict, such as Democratic Republic of Congo. Some states in northern Nigeria have coverage rate below 1% and the average for the whole North West zone is just 4%. These coverage figures are much worse than neighboring countries of Benin, Niger, Chad and Cameroun. Both the Nigeria Demographic and Health Survey (NDHSS, 2003) [2], conducted by the National Programme on Immunization (NPI), provide the same irrefutable evidence. Nigeria’s performance on routine immunization has continued to decline since the high point achieved around 1990.

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Received October 09, 2012; Accepted October 17, 2012; Published October 19, 2012


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The survey result revealed significant differences across zones ranging from 0% - 40% fully immunized children. In Borno State the coverage was as low as 20 percent [2].

WHO’s Nigeria country representative, Peter Eriki was once quoted in the Daily Trust Newspaper as commending “traditional rulers and elders roles in educating people about the importance of immunization……….but we must however ensure a systematic involvement of all stakeholders especially the traditional leaders if we as a nation must interrupt the transmission of polio…”

It may appear therefore, that the national immunization efforts may have been hampered and in some cases, reversed, due to superstitions, misinformation, community rumors, uninformled leadership, improper interpretation of cultural and religious norms – most of which can be described as a problem at the intersection of science, religion and culture. Why, and what can be done to reverse this trend?

Vaccine preventable diseases remain one of the major causes of illnesses and deaths among children in Nigeria and the country is one of the few remaining countries in the world where polio is still endemic. The WHO Global Polio Eradication Initiative 2005 Annual Report cited “uncontrolled transmission of poliovirus in northern Nigeria,” and identified the states of Bauchi, Kaduna, Jigawa, Kano and Katsina as, “the greatest threat to the global eradication of Polio.” Nigeria accounts for half of the deaths from Measles in Africa, the highest prevalence of circulating wild poliovirus in the world, and the country is among the ten countries in the world with vaccine coverage rates below 50 percent [3], having been persistently below 40 percent since 1997 [4].

Immunization is a proven tool for controlling and eliminating life-threatening infectious diseases and is estimated to aver over 2 million deaths each year. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations [5].

Nigeria’s routine immunization schedule stipulates that infants should be vaccinated with the following vaccines: a dose of Bacillus Calmette-Guerin (BCG) vaccine at birth (or as soon as possible); three doses of Diphtheria, Pertussis and Tetanus (DPT) vaccine at 6, 10 and 14 weeks of age; at least three doses of oral Polio vaccine (OPV) – at birth, and at 6, 10 and 14 weeks of age; and one dose of Measles vaccine at 9 months of age [6]. Nigeria’s immunization schedule [7] contains tetanus toxoid (TT), BCG, Hepatitis B vaccine (HBV), OPV, DPT, measles, cerebro-spinal meningitis vaccine (CSM) for types A and C, and yellow fever (YF).

This study was commissioned by PROMETRA International, an international association with headquarters in Dakar, Senegal and chapters in 22 countries in Africa, Europe, USA, Asia and the Caribbean. PROMETRA is dedicated to the development and promotion of Traditional Medicine and African indigenous knowledge, science and technology. The association is currently implementing a three-year project titled “Immunization Advocacy: Saving the Lives of Africa’s Children” with a start date of November 12, 2009 through November 11, 2012 supported by the Bill and Melinda Gates Foundation. The goal of this project was to develop and execute a three year public health education and immunization project in three African nations (Benin, Nigeria and Senegal) that will have measurable impact on childhood immunization programs by leveraging the voices of traditional healers and indigenous religious leaders to inform government and donor supported immunization programs and the scientific academy of the role that traditional medicine and indigenous community and religious leaders play in immunization program utilization.

The aim of this study was to attempt to answer the question of “why and what can be done to reverse the trend of immunization failure in Borno State of Nigeria?” by going directly to those who are often accused of being a major impediment to the process – traditional healers and traditional medicine organizations. End users (or non – users) of the immunization system at the local level were also involved.

Methodology

A total of 12 FGDs; (5 in the urban/semi urban Local Government Authorities (LGAs) and 7 in the rural LGAs) were conducted using an 11 guide questions. Each group consisted of young mothers and fathers, old mothers and fathers, traditional healers and community leaders. In the rural LGAs, groups of additional categories of traditional healers were involved to provide opportunity to explore variability of views of different traditional healing practices on immunization. Each FGD was conducted by trained moderator and note taker who are fluent and conversant with the culture and language of the FGD members using the guideline. Each group was made up of 8 to 10 members of the same age group and sex to allow for freedom of expression of opinion and no member was allowed to dominate any aspect of the discussion. The proceedings were video and audio recorded and were transcribed by the moderators and note takers.

Focus Group Discussions are useful for understanding cultural norms or an overview on issues such as that on the objective of this study.

Results

Table 1 described the responses of the various rural groups on Immunization and childhood diseases.

Vomiting and diarrhea seem the most commonly mentioned disease by virtually all the groups among children in the rural area followed by malaria. Among the vaccine preventable diseases, measles, whooping cough were the ones mentioned most often. Polio was only mentioned by old mothers in Magumeri. Bilharziasis, meningitis, chickenpox and scabies were also mentioned.

There is variation in the ones perceived to be most dangerous, often leading to death. However, measles, whooping cough and malaria were most frequently mentioned by the participants.

Most of the participants resort to local remedies as the first line of treatment for most of the diseases mentioned, except for old women in Konduga who resort to orthodox treatment. Onion juice, lizard and chameleon gargled was used for measles, boiled garlic and groundnut oil for cough. Many other herbal remedies are also used.

Most participants in the various groups claimed that the remedies are effective except old women in Konduga who said otherwise because they go to the hospital. In Dambisa, the community leaders said that most of the treatment remedies are effective, while in other groups very effective was their response. In Mafa old fathers said they are effective if ‘Allah wishes’.

All the groups know about immunization and the various types either by name of the disease or the route of administration (oral or Injection). They all know that immunization is a preventive measure for childhood diseases and accept it, except old fathers in Mafa who said they do not know, meaning they cannot explain what it is. In their response they said ‘they give it to our children 5 years and above’. They are also only conversant with the ‘drops’, meaning poliomyelitis.

Young mothers in Dikwa and old mothers in Konduga do not think
### Items

<table>
<thead>
<tr>
<th>Common diseases affecting children</th>
<th>Young mothers (dikwa)</th>
<th>Old mothers (konda)</th>
<th>Old fathers (kaga)</th>
<th>Young fathers (ngananzi)</th>
<th>Community leaders (dambo)</th>
<th>Old mothers (magumeri)</th>
<th>Old fathers (mafa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vomiting &amp; diarrhea, rash and cold (without prompting) chicken pox, whooping cough</td>
<td>Measles, vomiting diarrhea, malnutrition and whooping cough</td>
<td>Measles, malaria, eye problem, whooping cough, diarrhea &amp; vomiting, fever associated with teething problem.</td>
<td>Whooping cough, malaria, measles (without prompting) meningitis, diarrhea and vomiting.</td>
<td>Malaria, candidiasis, fever, vomiting, measles, whooping cough, worm infestation and diarrhea.</td>
<td>Measles, Whooping cough, polio and to lesser extent, diarrhea and vomiting.</td>
<td>Measles, Whooping cough, measles, meningitis, malaria, vomiting and diarrhea, scabies and bilharzia.</td>
<td></td>
</tr>
</tbody>
</table>

### Treatment remedies

| Onions, boiled garlic and groundnut oil for cough, herbs for diarrhea, nguzo tree cell's interdrefolia for measles. | Go to hospital, use nguzo with honey, raw (white rice), fried sand rinsed and the water taken, used to use onion juice but no longer practiced. | Onions. Soddd apple (kayeu), in the past (peppered lizard), wheat drink against fever, fish oil, chameleon, fig (tamu) water-tap Whooping cough, malaria and measles the roots water and drink. | Seprtin and syrup. Lizard meat is also used. Water is put in the chameleon mouth and gargled. The water is given to the person suffering from whooping cough. Fox is also cooked & eaten. | Traditional preparation used to bathe the baby and also given to them to drink. Add shea butter to hot water and give baby to drink, lizard meat against pertusis, cooked fresh fish. | Herbs such as kaachi root of (Balsamededron Africanum) koloko (acasia meniflora) bark of kaemas tree, (Erogrestic) nguzo, mixed with honey. For whooping cough we give lizard, cow or bull eye, butter chameleon gargled. | Measles, whooping cough, malaria, measles, meningitis, malaria, vomiting and diarrhea, scabies and bilharzia. |

### How effective are they?

| Very effective | Not very effective, we go to the hospital | They are effective. | Very effective | Most are effective. | Very effective | Very effective if Allah wishes. |

### Do you know about immunization?

| Yes | Yes | Yes, it means disease prevention. | Yes | Yes we know it very well. | Yes, they give it to our children 5 years and above. |

### How many types do you know?

| Whooping cough, measles, polio and meningitis. | Two types; injection and drops | No response | Measles, diphtheria | No response Injection and drops | Drops |

### Items

<table>
<thead>
<tr>
<th>What is Immunization?</th>
<th>Young mothers (dikwa)</th>
<th>Old mothers (konda)</th>
<th>OLD FATHERS (KAGA)</th>
<th>YOUNG FATHERS (NGANZAI)</th>
<th>COMMUNITY LEADER (DAMBOA)</th>
<th>OLD MOTHERS (MAGUMERI)</th>
<th>OLD FATHER (MAFE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is good and beneficial, it has eradicate many disease</td>
<td>It is very important, it has made almost all the above mentioned disease to disappear</td>
<td>It prevents diseases in children and we should accept it. It is not against our religion (quotes the Quran).</td>
<td>It means disease prevention. It helps protect our children against polio, measles, chicken pox, pertusis, etc.</td>
<td>Prevents diseases</td>
<td>We do not know</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Are there other alternatives to immunization?

| None, we know only immunization. | None, we always go to the hospital for immunization | Herb called (fanalewa), laya and charms worn on the back for boys, front for girls. | Cleanliness, caraway-both oil and powder zamzam water, and in the past we used onion water, nguzo | Yes there are traditional ways of preventing diseases such as measles. | Yes, we use onions for measles-squeeze the juice and give child to drink. Garlic is used for malaria, prayers are also offered. | Yes, as listed above |

### Is immunization effective any of the diseases you mentioned earlier?

| Yes | Yes, it is effective | Yes, we are very grateful for it especially now that the weather is hotter than usual | Yes because most of deaths caused by these diseases have drastically reduced. Advocate for malaria vaccine. | Yes | Yes we do not know, they come and go without any good explanation of what they are doing. Our doctor is a good man, he is better. |

### Do you support immunization activity in your community?

| Yes | Yes, but the Hausa do not support it | Yes, all the villages take it. | Yes | Yes and most parents are accepting it. | Yes | Yes, but we need more explanation. |
Do you accept immunization? Yes Yes Yes Yes Yes Yes
Have all you children been immunized? Yes Yes Yes Yes Yes Yes
What do you think the benefits of immunization? It prevents diseases and less sickness in children. It has reduced fatality associated with non-immunization. It prevents diseases in our children. It prevents diseases in our children. Many children are now protected against these diseases. It prevents diseases and makes the eyes strong. It cures our children
What do you think should be done to improve acceptance of immunization? Essential drugs such as paracetamol should be made in clinic to encourage mothers to bring their children and people should be enlightened. Traditional rulers should be opinion leaders should be used. Incentives like soap, mosquito nets, drugs should be provided free to those who refuse. Most vaccinators are too young, not matured. More enlightenment. needs improvement. Some are not committed to the work. They tell lies. Allowances of health workers should be paid promptly, should be made available. Transportation should be provided to reach difficult terrain. More awareness, use of incentives such as sweets etc. Early detergent will be attractive to mothers. For example biscuits improved antenatal attendance sometimes ago but attendance reduced with its withdrawal. Anytime anyone is coming with drugs they must explain. The people you are treating the children treat the mother too. There is need for more enlightenment. Accident victims are left untreated yet they come to your house and force you to take drugs.
What of traditional/community leaders They should be involved and the government should penalize anyone who resists immunization. They should be actively involved. They should be properly involved. The traditional chain of command should be followed in executing immunization programme. Religious leaders should be involved. Some sect preach against immunization but this is not what the Quran says. All religious and community leaders should be involved.

Table 1: Response of the various rural groups on Immunization and childhood diseases.

that there is any alternative to immunization while, other rural groups mentioned what they considered as alternatives to immunization. These include herbs (fanalewa), laya and charms worn on the back for boys and on the back for girls (old fathers, Kaga), cleanliness and use of caraway (powder and oil), zumzam water, used onion in the past (young fathers Nganzai), onion for measles, garlic juice for malaria and prayers by old mothers in Magumeri, while old fathers in Mafa use what they described earlier as remedies.

Immunization is seen as effective by all the groups because they said that most deaths due to childhood diseases have reduced and also that even when infection occur, those who take the immunization often present with mild form of the disease. They support immunization in their various communities but old fathers in Mafa want to know more about immunization. They said the health workers just come and go without any enlightenment. All agreed that immunization prevents childhood diseases; some even said it cures them.

Provision of other essential drugs was deemed necessary to make parents to accept immunization to the desired level. The need for more enlightenment on the benefit of immunization and other forms of treatment was advocated by old fathers in Mafa they said ‘anytime anyone bring any drug they should explain it to us the people in the village resist because they think it will render their children sterile’. Involvement of traditional, community and opinion leaders is strongly advocated. Multiple treatment approach, that is, treating children as well as the mother and other members of the family, will further engender better acceptance of immunization.

Active involvement of traditional and religious leaders was called for by all the groups because they said ‘people listen to them’. Young fathers in Nganzai said the Quran did not say anything contrary to immunization while young mothers in Dikwa want defaulters to be penalized!

Table 2 describes the responses of various urban groups on immunization and childhood diseases.

Malaria, measles, chickenpox, diarrhea and vomiting, (dankanoma, chiwon damuna ,anal candidiasis) whooping cough, tetanus, bilharziasis, malnutrition, pneumonia and sickle cell are the childhood diseases identified by the various groups in their communities.

Malnutrition, malaria, anal candidiasis, pertussis, tetanus and diarrhea and vomiting are said to be most dangerous in the various communities. Pertussis and tetanus were the only two of the vaccine preventable diseases mentioned. Most of the groups resort to traditional medicine as the first level of treatment, however, young fathers in Jere use orthodox medicine for measles even though they sometimes use onion, traditional mixture called ‘baby race’ or teething mixture, sabara leaves or roots for dankanoma. Some use potash, herbs such as Kaashi, and mallans for prayer (Traditional leaders, Bama), while others use guava leaves and drugs from various plants (Young mothers MMC) and ‘tying of the disease’, offer of special prayer and special drugs for diarrhea and vomiting (TMP, Biu).

Most of the groups found these remedies very effective while young mothers in MMC said that they are not always effective at which time they then consult orthodox medicine. Traditional leaders hinge the effectiveness on Allah’s help. TMP in Biu are sure of the effectiveness of the remedy for vomiting, diarrhea and fever, while TMP in Gwoza are sure of the effectiveness of remedies for dankanoma and malnutrition.

All of the groups are aware of immunization and know the various types as injection and oral, except in the cases where response was not indicated (Traditional leaders, Bama) and TMP (Biu). They are all aware of the function of immunization as a preventive measure. However, all the groups except traditional leaders in Bama said that they have alternatives to immunization. All the alternatives are different forms of traditional medicine either as herbs or charms. They include use of
Common diseases affecting children

<table>
<thead>
<tr>
<th>Items</th>
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<th>Traditional leaders (Bama)</th>
<th>Tmp (Gwoza)</th>
<th>Tmp (Biu)</th>
</tr>
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<tbody>
<tr>
<td>Malaria, measles chickenpox, diarrhoea, vomiting, malnutrition, dankana or rana-anal candidiasis and abdominal distension.</td>
<td>Malaria, rashes, diarrhoea, vomiting, whooping cough, tuberculosis.</td>
<td>Measles, whooping cough, malaria, vomiting and diarrhoea, tetanus and bilharzias.</td>
<td>Fever, eclampsia, polio, diarrhoea and vomiting associated with teething. Anal candidiasis, cough, tonsillitis, malnutrition, abdominal pain with infants, malaria and pneumonia.</td>
<td>Measles, pertussis, diarrhoea and vomiting, sickle cell, chiwon damuna (candidiasis).</td>
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Which one of them is most serious, that leads to death?

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<th>Tmp (Biu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malnutrition and malaria, dankana, diarrhoea and vomiting</td>
<td>Malnutrition and malaria, dankana, diarrhoea and vomiting</td>
<td>Traditional medicine, guava leaves and drugs from various plants. Some are effective but not all. When they fail we consult orthodox medicine.</td>
<td>Resort to mallams, we also use potash with herbs like kaash.</td>
<td>Herbal mixture especially for dankana, measles, whooping cough etc</td>
<td>For measles, pertussis etc. by special means called ‘tying of the disease’ offer of special prayers, special drug for diarrhoea, vomiting and fever.</td>
</tr>
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Treatment remedies

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<tr>
<td>Orthodox medicine for diarrhoea, sabara leaves or root for dankana, for measles orthodox medicine mostly, but we sometimes use onions which is grounded and applied to the body. We also use purified traditional mixture called “baby race” or teething mixture.</td>
<td>Orthodox medicine for diarrhoea, sabara leaves or root for dankana, for measles orthodox medicine mostly, but we sometimes use onions which is grounded and applied to the body. We also use purified traditional mixture called “baby race” or teething mixture.</td>
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How effective are they?

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<th>Tmp (Biu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most are very effective.</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes with the help of Allah our problems are being solved.</td>
<td>Very effective especially for dankana, and malnutrition.</td>
<td>The one for diarrhoea, vomiting and fever is very effective.</td>
</tr>
</tbody>
</table>

Do you know about immunization?

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<tbody>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</table>

How many types do you know?

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<tr>
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<th>Tmp (Biu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measles, polio</td>
<td>Polio, measles, whooping cough, etc</td>
<td>-----------</td>
<td>Measles and polio.</td>
<td></td>
<td></td>
</tr>
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</table>
was seen as lackadaisical attitude of government which makes people so endeared to immunization. Likewise lack of proper disposal of refuse essential drugs in health facilities is given as reason why people are not treat measles, use of Quranic writing, incantation, etc. Unavailability of for immunization in many communities. They include use of onion, mixture of butter and garlic for fever and convulsion, also tying of the disease by TMP in Biu, which is done to prevent spread of the disease.

All the groups agreed that immunization is beneficial, therefore support it. They all attested to the reduction in the incidence and prevalence of childhood disease in their communities. TMP Gwoza said that they know that ‘the government will not bring anything that is not good’. TMP Biu even though accept and support immunization, complained of neglect by health workers during immunization.

 Provision of free drugs, improved sanitation, creation of more awareness especially among those who are unwilling to accept immunization, renovation of health care facilities and provision for more, encourage men to send their wives to attend antenatal clinic and provision of incentives to children and mothers are the various suggestions made for improving response to immunization by various groups. TMP in Biu particularly want to be appreciated by their orthodox counterpart and be integrated into the health care system.

Traditional, Community and Opinion leaders should be actively involved in immunization campaign. Traditional leaders in Bama said that the Shehu (King) of Bama called them and told them that any parent who refuses immunization for their children will be jailed for three years!

**Discussion**

The results of this study are quite revealing. Even though vaccine preventable diseases are considered as health problems in both urban and rural areas of Borno state, malaria, diarrhea and vomiting, malnutrition and anal prolapse were considered the most serious childhood illnesses affecting their children. These diseases were mentioned without prompting. The awareness of immunization among mothers and fathers, TMPs and of course health workers is very high and so is the level of acceptance as majority of respondents in the three groups indicated that they not only accept the programme but also present their children for immunization. They understand what advocacy is and help in the various aspects of advocacy. TMPs however indicated that they are left out in the process of immunization especially during the various immunization campaigns.

Health workers attitude was identified by mothers and fathers and TMPs as not encouraging during immunization campaign as they do not enlighten the people about what they are doing and its importance.

Many traditional medicine alternatives were given as substitute for immunization in many communities. They include use of onion and garlic to treat measles and whooping cough, honey and onions to treat measles, use of Quranic writing, incantation, etc. Unavailability of essential drugs in health facilities is given as reason why people are not so endeared to immunization. Likewise lack of proper disposal of refuse was seen as lackadaisical attitude of government which makes people not to want to accept immunization. These reasons make parents to become suspicious of immunization because they feel there must be some ‘catch’ to bringing vaccines to their homes unsolicited.

The belief that immunization programme is associated with fertility reduction, thus a mode of family planning, is the serious factors militating against the full acceptance of immunization in many communities. This misconception was mentioned by all the three groups. This is the area where intervention is seriously needed.

Recent reports indicate that some improvement has been recorded in the immunization coverage in Nigeria largely due to concerted efforts by multiple stakeholders including partner agencies who are implementing projects in tandem with the government of Nigeria aiming to strengthen routine immunization in the country, particularly across the northern states. Nigeria currently has a Diphtheria-Pertussis-Tetanus (DPT 3) vaccination rate of 57% [8], a measles vaccination rate of 68% [9] and a Tetanus Toxoid rate of 48.0% [10]. Ineffectiveness of the vaccine was the major reason for a child not receiving immunization (27.2%), while fear of side effects was the next and ineffectiveness of the vaccine was the least [11]. In addition only 1% of mothers believed that measles could be prevented by immunization, 16.2% that it is contagious, and 26.2% believe that it is caused by evil spirit while 25.4% have no idea about its cause [11].

Ambe et al. [12] also reported that 35.7% of households head associated evil spirits, eating bad things and lack of water as causes of poliomyelitis, while 26.4% did not know the cause in another rural community of Borno State. Lack of information (40.7%) was the major reason for not immunizing children while 47.8% did not complete their child’s immunization.

In Bangladesh, women with the highest wealth index were significantly more likely to fully immunize their children. Distance from health facility, parity, mother’s age, mass media, children’s sex and tetanus toxoid injection were also significantly positively associated with full vaccination [13]. In India, inability to correctly name or even identify diseases other than poliomyelitis and tuberculosis was reported among stakeholders [14]. This was not the case in our study as all stakeholders were able to correctly mention all the childhood preventable diseases covered under the national immunization programme and even have local names for them. The polio eradication programme suffered a great setback in northern Nigeria when a group of influential religious preachers raised questions on immunization and the safety of the Oral Polio Vaccine (OPV) in 2004. This led to the boycott which was implemented by some predominantly Muslim states in the north [15]. This issue was resolved by sending a team of experts, traditional and religious leaders to verify the safety of the vaccine. Their report showed that the vaccines were safe for use. It however took a long time for the damage that the earlier pronouncement had caused to be undone. In fact the effect is still lingering in Borno state!

The role of religious and community leaders in immunization campaign has been shown as inadequate, although one of them has been proactive threatening three months imprisonment for immunization defaulter in his domain. The role of women has also

<table>
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<th>They should be actively involved</th>
<th>The Shehu of Bama called all of us traditional leaders, Lawans and Bulamas to Warn them that any parents who refuse immunization will be jailed for three years</th>
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Table 2: Response of various urban groups on immunization and childhood diseases.

onions, mixture of butter and garlic for fever and convulsion, also tying of the disease by TMP in Biu, which is done to prevent spread of the disease.

All the groups agreed that immunization is beneficial, therefore support it. They all attested to the reduction in the incidence and prevalence of childhood disease in their communities. TMP Gwoza said that they know that ‘the government will not bring anything that is not good’. TMP Biu even though accept and support immunization, complained of neglect by health workers during immunization.

 Provision of free drugs, improved sanitation, creation of more awareness especially among those who are unwilling to accept immunization, renovation of health care facilities and provision for more, encourage men to send their wives to attend antenatal clinic and provision of incentives to children and mothers are the various suggestions made for improving response to immunization by various groups. TMP in Biu particularly want to be appreciated by their orthodox counterpart and be integrated into the health care system.

Traditional, Community and Opinion leaders should be actively involved in immunization campaign. Traditional leaders in Bama said that the Shehu (King) of Bama called them and told them that any parent who refuses immunization for their children will be jailed for three years!

**Discussion**

The results of this study are quite revealing. Even though vaccine preventable diseases are considered as health problems in both urban and rural areas of Borno state, malaria, diarrhea and vomiting, malnutrition and anal prolapse were considered the most serious childhood illnesses affecting their children. These diseases were mentioned without prompting. The awareness of immunization among mothers and fathers, TMPs and of course health workers is very high and so is the level of acceptance as majority of respondents in the three groups indicated that they not only accept the programme but also present their children for immunization. They understand what advocacy is and help in the various aspects of advocacy. TMPs however indicated that they are left out in the process of immunization especially during the various immunization campaigns.

Health workers attitude was identified by mothers and fathers and TMPs as not encouraging during immunization campaign as they do not enlighten the people about what they are doing and its importance.

Many traditional medicine alternatives were given as substitute for immunization in many communities. They include use of onion and garlic to treat measles and whooping cough, honey and onions to treat measles, use of Quranic writing, incantation, etc. Unavailability of essential drugs in health facilities is given as reason why people are not so endeared to immunization. Likewise lack of proper disposal of refuse was seen as lackadaisical attitude of government which makes people not to want to accept immunization. These reasons make parents to become suspicious of immunization because they feel there must be some ‘catch’ to bringing vaccines to their homes unsolicited.

The belief that immunization programme is associated with fertility reduction, thus a mode of family planning, is the serious factors militating against the full acceptance of immunization in many communities. This misconception was mentioned by all the three groups. This is the area where intervention is seriously needed.

Recent reports indicate that some improvement has been recorded in the immunization coverage in Nigeria largely due to concerted efforts by multiple stakeholders including partner agencies who are implementing projects in tandem with the government of Nigeria aiming to strengthen routine immunization in the country, particularly across the northern states. Nigeria currently has a Diphtheria-Pertussis-Tetanus (DPT 3) vaccination rate of 57% [8], a measles vaccination rate of 68% [9] and a Tetanus Toxoid rate of 48.0% [10]. Ineffectiveness of the vaccine was the major reason for a child not receiving immunization (27.2%), while fear of side effects was the next and ineffectiveness of the vaccine was the least [11]. In addition only 1% of mothers believed that measles could be prevented by immunization, 16.2% that it is contagious, and 26.2% believe that it is caused by evil spirit while 25.4% have no idea about its cause [11].

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The role of religious and community leaders in immunization campaign has been shown as inadequate, although one of them has been proactive threatening three months imprisonment for immunization defaulter in his domain. The role of women has also
been said to be abysmal in many of the communities. Women are at the front burners in this instance because they are the ones to present the children for immunization even though they need permission from their husbands. Husbands did not raise objection about their children being immunized. Incentives and reward are needed to improve the present level of immunization as indicated by mothers.

References