EVALUATION OF EPI COVERAGE IN THE NEW EDUBIASE SUBDISTRICT OF THE ADANSI EAST DISTRICT

BY

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SEPTEMBER, 2001
DECLARATION

I hereby declare that this dissertation is an original work produced by me under the supervision of Prof. Ebenezer Laing, Dr W.B. Owusu and Mr. David Kwasi Amankwah for the award of Master of Public Health (MPH) degree. This work has not been presented in part or whole to any other institution or board for the award of any degree.

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<th>ABBREVIATION</th>
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<tr>
<td>BCG</td>
<td>Bacillus Calmette Guerin</td>
</tr>
<tr>
<td>CBSV</td>
<td>Community Based Surveillance Volunteer</td>
</tr>
<tr>
<td>CHN</td>
<td>Community Health Nurse</td>
</tr>
<tr>
<td>CWC</td>
<td>Child Welfare Clinic</td>
</tr>
<tr>
<td>DDCO</td>
<td>District Disease Control Officer</td>
</tr>
<tr>
<td>DDHS</td>
<td>District Director of Health Services</td>
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<tr>
<td>DHMT</td>
<td>District Health Management Team</td>
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<tr>
<td>DHS</td>
<td>Demographic Health Survey</td>
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<tr>
<td>DPT</td>
<td>Diphtheria Polio and Tetanus</td>
</tr>
<tr>
<td>DPT1,2,3</td>
<td>First, second and third doses of DPT respectively</td>
</tr>
<tr>
<td>EPI</td>
<td>Expanded Programme on Immunization</td>
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<tr>
<td>GDHS</td>
<td>Ghana Demographic Health Survey</td>
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<tr>
<td>MOH</td>
<td>Ministry of Health</td>
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<tr>
<td>OPV</td>
<td>Oral Polio Vaccine</td>
</tr>
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<td>OPV1,2,3</td>
<td>First, second and third doses of OPV respectively</td>
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<tr>
<td>SDHT</td>
<td>Sub-district Health Team</td>
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<tr>
<td>TBA</td>
<td>Traditional Birth Attendant</td>
</tr>
<tr>
<td>TT</td>
<td>Tetanus Toxoid</td>
</tr>
<tr>
<td>TT1,2,3</td>
<td>First, second and third doses of TT respectively</td>
</tr>
<tr>
<td>TV</td>
<td>Television</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WIFA</td>
<td>Women In Fertile Age</td>
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ACKNOWLEDGEMENT

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ABSTRACT

Coverage evaluation survey was carried out in the New Edubiase Sub-District Adansi East District to evaluate the immunization coverage of the sub-district and determine how the coverage may be improved. The immunization status of children aged 12-24 months and those of their mothers’ for TT were determined. The WHO’s method for evaluating immunization was used. Thirty clusters (communities) were selected randomly from the sub-district. Seven children aged 12-24 months were randomly selected from each cluster. The sample size was thus 210. The study was a cross-sectional household survey using both quantitative and qualitative methods. Findings from the qualitative research (key informant interviews) were used to supplement the information obtained from the survey questionnaires administered to mothers of children aged 12-24 months.

The results of the study showed that 50% of children aged 12-24 months were fully immunised, and 45.4% of mothers of the children had received TT2. The dropout rate of immunisation was found to be 16.7% in the sub-district. For those who defaulted in childhood immunisation, several reasons were given. The monest reason was lack of money (16.9%). The rest were lack of time and decent places for attending CWC, travel, fear of side effects of vaccines and laziness, and others. The study also found that immunisation service providers were charging illegal fees ranging from ₵500 - ₵1000.

The main recommendations were that education on immunization should be intensified in the sub-district, training should be given to CBSV to lend support to the IIs during immunization and service providers who charge illegal fees should be e to stop immediately. It is hoped that the recommendations will be critically considered to improve immunization coverage in the New Edubiase sub-district.
OPERATIONAL DEFINITIONS OF TERMS

MISSED OPPORTUNITY: A child who has been to a health facility but could not receive a vaccine due to logistics problems.

DROP OUT: A child who has been registered to receive EPI vaccines and had defaulted in the schedules.

STATIC CLINIC: Clinic session held at the health centre for immunisation purposes.

OUTREACH CLINIC: Clinic session held within the community and outside the health centre for immunisation, usually with one immunisation team.

MASS IMMUNIZATION: Immunisation of a target group within a locality by multiple immunisation teams, within a specified time period.

EXPANDED PROGRAMME ON IMMUNIZATION: A programme schedule stating the type of vaccine and the age at which the vaccine should be given.

FULLY IMMUNIZED CHILD WITHIN ONE YEAR: A child who receives all EPI vaccines at the appropriate age and at an interval of at least one month (28 days) between the adjacent doses of the multiple vaccines before one year of age.

FULL IMMUNIZATION COVERAGE: The percentage of children who were fully immunised against each disease or group of diseases by one year. The recommended series of immunisation are BCG, DPT 1,2,3, OPV 1, 2,3 and measles.

MOTHER: Biological mother who usually takes her child for immunisation.

AGE APPROPRIATE FOR IMMUNIZATION: Children who are described as having received all scheduled immunization within 30 days of the recommended age.

INDICATOR VACCINES: Vaccines the DHMT uses to assess the EPI coverage of the district. These are BCG, OPV, DPT and measles vaccines.

HOUSEHOLD: A group of people sharing the same kitchen.
CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE PROBLEM

Measles, whooping cough, diphtheria, tuberculosis, poliomyelitis and tetanus have been described as the commonest childhood preventable diseases (1). These diseases had, until recently caused childhood morbidity and mortality all over the developing world. In view of this, international concerns have been raised to either control or eradicate these diseases from the world by a programme called Expanded Programme on Immunization (EPI).

The World Health Organisation (WHO) launched its EPI in 1974. At that time fewer than 5% of the world’s children had been immunized against the six vaccine-preventable diseases (2). In 1978, Ghana launched her EPI with the view to immunizing 80% of its children aged 0-23 months by 1983. This target has not been achieved. In 1999 the national immunization coverage was 72% (using DPT3 as proxy for all childhood immunizations). However, certain regions such as the Northern region recorded 97.5 %(3).

EPI coverage in the sub-district has been showing an increasing trend since 1995. The sub-district had coverage of 24% in 1995. This steadily increased to 75.9% in 2000. Even though this represents a significant increase of over 100% in a period of 5 years, it was below the national target of 90%. The remarkable improvement in EPI
coverage, particularly, in the year under review has been attributed to two mass immunizations carried out in the sub-district at the instance of the District Health Management Team (DHMT) of Adansi East, and staff motivation (4).

The EPI coverage of the sub-district, like many others in the country, may not be accurate since it came from records of satellite clinics and MCH/FP centres. One is always forced to rely on these records without coverage evaluation surveys. Coverage survey is one of the best ways for evaluating the operation of immunization programmes (5). This is because it does not use the estimated target population of children in the study area but directly assesses immunization status of children selected randomly from a community. Such evaluation surveys give accurate estimates of EPI coverage and also provide reliable information, which can be used to improve immunization coverage.

1.2 RATIONALE AND OBJECTIVES OF THE STUDY

The incidence of vaccine-preventable diseases, such as, measles could be used as a proxy in the measurement of the performance of EPI programmes. It is expected that as EPI coverage increases, the incidence of vaccine-preventable diseases should decrease. However, this is the converse in the New Edubiase sub-district. In 1997 for instance, the EPI coverage was 48.8% and the incidence of measles was 8 / 1000 children aged 0 to 5 years. In 1999, the coverage rose to 66% and the incidence of measles also rose to 17/ 1000 children. Similarly, in 2000 the EPI coverage rose further to 75.9% while the incidence of measles again increased to 25/ 1000 children. This is
unexpected since immunization is supposed to protect children against vaccine-preventable diseases including measles, and therefore reduce their incidence. One therefore expects an increase in immunization coverage to be associated with a reduction in the incidence of the diseases over time. In addition to wanting to know about the current coverage, the DHMT is also desirous of learning how immunization coverage may be increased in the sub-district. In the past, mop-ups have been the only means used to improve EPI coverage in the district.

Therefore, the objectives of the study were:
To evaluate the immunization coverage of the New Edubiase sub-district of the Adansi East district and determine how the coverage may be improved.

**Specific objectives were to:**

1. Determine the immunization status of children aged 12 to 24 months in the sub-district.
2. Determine the tetanus immunization status of mothers of children aged 12 to 24 months.
3. Calculate the dropout rate of immunization in the sub-district.
4. Determine reasons for defaulting in childhood immunization.
5. Assess the knowledge of mothers on immunization.
6. Propose pragmatic ways for improving the EPI coverage in the sub-district.
CHAPTER TWO

2.1 LITERATURE REVIEW

Simple, cheap, and effective health interventions that now exist and others that are being developed hold out the prospects of substantially reducing infant and child mortality in developing countries (6). Unfortunately, the access to, and utilization by children of health care services that could provide these interventions remain poor in many countries. For instance, it was estimated that 3.5 million children died from vaccine-preventable diseases in 1985 and that only 40% of children less than 5 years of age were then vaccinated against the six diseases targeted by WHO (6, 7).

Immunisations lead to immunity against a particular disease, which in turn leads to a reduction in morbidity and mortality. The accurate measurement of immunization coverage is therefore an essential step in determining expected reductions in morbidity and mortality from the vaccine preventable diseases (5).

In the 1980s Ghana’s immunisation coverage for children less than 1 year of age was BCG 9%, DPT 37%, OPV 7% and measles was 15%. This compared poorly with the average for Africa, which were then of BCG 29%, DPT3 27%, OPV3 19% and measles 33%, and showed that Ghana had a long way to go. However by 1991, coverage had improved with BCG recording 55%, DPT3 39%, OPV3 39% and measles 39%. This compared favourably with the average in Africa of BCG 61%, DPT3 45%, OPV3 45% and measles 45%. However, compared to the coverage for less developed countries; that is the world excluding Europe, North America Australia, New Zealand and Japan with BCG 89%, DPT3 82%, OPV3 84% and measles 79% it showed that Africa, and for that matter Ghana, needed to improve markedly (7,8).

Health workers have employed various strategies to improve coverage of vaccinations. Among these are mass immunization campaigns and health education. While mass campaigns may be
politically attractive and have provided high coverage, many problems have been encountered. These include low coverage among those most in need of attention (9).

In Ghana, mobilization of mothers for immunization activities was largely done by trained village health workers. This in part was responsible for the improvement in immunization coverage in the 1980s. However, there were problems. A review of EPI programmes in ten districts revealed that the problems were related to lack of remuneration of village health workers, poor supervision and abuse of functions on the part of the village health workers (7). It is a known fact that, for an immunization programme to succeed, there is the need for intensive education throughout the community or district in which the programme is to take place. In addition, mobilization of mothers needs to be done to ensure maximum success. This was used with great success in an immunization project in Mozambique. The project was able to reduce markedly the dropout rate between first and second vaccinations (10).

In a study in the Philippines, among the factors identified as important in achieving and maintaining high coverage are: adequate supply of vaccines, accessibility of vaccination sites, convenient hours for vaccination, short waiting times and low rates of missed opportunities for vaccination (11). In the same study, mass communication campaign on immunization was found to be responsible for a significant improvement in vaccination coverage. The authors conclude that if there is a high level of access to the media, especially radio and television, mass campaign can improve EPI coverage.

In villages of northeast Thailand the protection of children aged less than five years against vaccine-preventable diseases improved markedly following the retraining of village health workers so that they could lend greater effect to the EPI. What was done was that a one-week intensive training programme for some village health workers was conducted by research staff with the help of a manual prepared
specifically for this project. When the effect of the retraining was evaluated it showed that the proportion of mothers in the intervention villages got a high level of knowledge about infectious diseases, rising from 1% to 8%, whereas in the control villages there was virtually no change. The corresponding proportions with high level of knowledge about immunisation almost tripled and increased by half during the same period. The corresponding values in respect of immunisation were an increase of more than fourfold to over 80%. Both the frequency of contact between mothers and health workers, and mothers’ knowledge of infectious diseases and immunisation, were significantly correlated with immunisation status, although the first of these factors was the more important predictor (12).

Mini-immunisations and mass campaigns are some of the strategies used to increase coverage (13). The most routine and common EPI strategies used in most developing countries are static or outreach ones. However, in developing countries where coverage has been low, other strategies could be used to improve coverage. A study conducted in Mozambique showed that 90% immunisation coverage was achieved when house-to-house vaccinations were conducted (14).

Maximising immunisation coverage through home visits is a strategy, which could be used to achieve higher levels of coverage. This is known to be more effective in a town or community with low coverage where there is greater potential for improvement. Studies done in Ghana indicate that coverage in intervention group rose by 26.5% to 86% compared with a 6.0% rise in a control group (15). This is supported by studies done earlier on in Egypt, where a house-to-house delivery strategy achieved universal vaccine coverage of 100% as compared with 86% for fixed site delivery strategy (16).

Sometimes, the coverage may be high as a result of overestimation. A study in Nepal found that official report overestimated the immunization coverage in a study district (17). This is one of the reasons why coverage surveys are important.

Knowledge, perceptions and attitudes towards immunisation play important roles in the acceptance of vaccination, which ultimately affect immunisation
coverage. It has also been established that, there is a strong association between maternal education and children’s vaccination coverage. Surveys done in several countries in Africa, Asia, Latin America and the Caribbean indicated that vaccination coverage levels were highest among children whose mothers completed primary or secondary education. Additionally, differences in vaccination coverage levels by educated and uneducated were large ranging from 20% to over 40% (18).

It has been found in Italy that coverage rates were low owing to problems such as lack of knowledge and unfavorable attitudes and perceptions about immunization (19). Another study carried out in the Ashanti Akim North district of Ghana found shortage of vaccines, inadequate health staff, poor geographical access of communities and misconceptions of mothers about immunization, among others, as factors contributing to low coverage in the district (20).

Lack of a defined manpower development strategy for MCH/FP has been identified as one of the major problems affecting MCH/FP programme in the country (21). As far back as 1975, Cole-King, found in Malawi that when teams of health workers are used to provide basic health services, including EPI, to rural villages only 50% of eligible children were likely to attend (22).

In a KAP study (23), the following factors were identified as accounting for non-immunisation of children in Ghana.

- Fear of side effects of immunisation
- Preoccupation of the mother with work
- Financial constraints
- Long waiting time
- Discourteous treatment by health personnel
- Absence from home or town
- Forgetfulness
- Lack of information on the time and place of immunisation
- Previous experience with occurrence of any disease in older sibling after immunisation
- Long distance from home to the immunisation sites
Bosu and others in 1997, found that the major factors hindering attendance of EPI services were; poor knowledge about immunisation, lack of suitable venues and furniture at outreach clinics, financial difficulties, long waiting times, transport difficulties, poorly motivated service providers and weak inter-sectoral collaboration (24). Alisheke also found in 1998 that inability to resolve administrative and managerial issues to streamline EPI logistic supplies and non-adherence to MOH’s recommended EPI strategies for low coverage areas as factors that contributed to persistent low immunisation coverage in the Nkwanta district of Ghana (25).

For immunisation campaigns to be successful, it would require the availability of the necessary logistics and personnel. A study carried out in Nigeria identified constraints in achieving immunisation targets as poor and erratic supply of logistics, poor maintenance of the cold chain and inadequate capabilities (26).

Such problems mentioned earlier are mostly found in the developing world where apart from logistics and financial constraints, health workers have to deal with poor patronage of immunisation services as a result of parents’ ignorance, misconceptions and lack of access to immunisation site (27). Other reasons attributable to low immunisation coverage are long waiting time, charges for health cards and abscesses at injection sites (28). There are few absolute contraindications of EPI vaccines (29). However, false contraindications have denied children to receive vaccines thus, contributing to low coverage.

Cutts and Smith reported in 1994 that an evaluation of the Cameroon’s EPI, which began in 1975 for children under 3 years, with the goal of 80% coverage showed that the goal could not be reached. According to them, poor vaccination system that lacked a method for finding unvaccinated children, lack of information about immunisation, bad experiences with vaccinations and poor socio-economic factors were the main reasons for the failure to attain the goal (30).
It has been found in Ghana that there is little male-female difference in coverage but birth order is inversely related. For example, two in 3 children of birth order 1 and 2 are fully immunised compared to one in two children of birth order six and over. Urban EPI coverage is also higher than rural coverage: 72% versus 58%. The same publication asserts that the proportion of children fully vaccinated before their first birthdays has increased over the last 5 years, from 43% in 1993 to 51% in 1998. This increase was still not impressive, as only one in two Ghanain children aged 12 – 23 months was fully immunised by 12 months of age, while 9% received no vaccination before their first birthdays (31).

Studies in Kenya, based on DHS data have shown that children of never married and polygamous mothers had significantly higher probability of polio dropout and acute under nutrition than those of monogamous mothers. Although children were not disadvantaged nutritionally when their fathers have more than one wife, polygamy was also associated with a higher probability of polio dropout and lower probability of full immunisation. Higher socio-economic status was associated with a greater probability of full immunisation and lower probability of malnutrition (32).

Studies in USA have shown that when vaccinations are made mandatory and given freely parents ensure that their children get them (33). Could vaccinations be made mandatory and given freely in the New Edubiase sub-district in order to increase coverage? Field coverage surveys are capable of elucidating information such as those that have been found both far and near and have been outlined above. What will be the findings of the New Edubiase sub-district’s immunisation coverage survey and how may the coverage be improved?
CHAPTER THREE

METHOD

3.1 RESEARCH SETTING

The study was conducted within the Adansi East district which is one of the eighteen administrative districts in the Ashanti Region, having been created from the Adansi District in 1989. Lying on the southernmost part of the region, it is bordered by Adansi-West to the west, the Amansie East District to the north, the Assin District of the Central region to the south and the Birim North and South Districts of the Eastern Region to the east. The total land area of the district is 1347.38sq km (about 5.4% of total land area of Ashanti region), with 5 sub-districts. The five sub-districts are New Edubiase, Ataase, Asokwa, Aboabo and Akutreso. The district has a population of 162004 of which 12960 are children under 2 years.

The district is in the forest zone of Ashanti Region and has the largest forest cover in the region. This has resulted in a lot of ethnic groups like Ewes, Fantis, Akwapims and others moving into the district to engage in farming. The in-migration has resulted in the development of many hamlets, which are difficult to reach. There are about 186 communities in the district.

The study was conducted in the New Edubiase sub-district, which has a population of 34903 accounting for 27.7% of the total
population of the district. The sub-district is the largest of the five and located in the middle portion of the district. It shares boundaries with Aboabo sub-district at the North, the Ataase sub-district at the South, Akutreso sub-district and part of the Eastern region (Birim South District) at the East and the Asokwa sub-district and the Adansi West district of Ashanti to the West.

The sub-district has 47 communities. The town with the largest population of over 5000 is New Edubiase, which is also the district capital with the district hospital. Few of the main towns on the Kumasi-Cape Coast trunk road enjoy electricity from the national grid. Only New Edubiase has pipe borne water, the rest of the towns and most of the villages depend on boreholes and hand-dug wells. There are a total of 15 boreholes and 9 hand-dug wells in the sub-district (4).

The demographic characteristic of the sub-district is as follows:

<table>
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<th>Category</th>
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<tr>
<td>Total Population</td>
<td>34903</td>
</tr>
<tr>
<td>Children 0-23 months</td>
<td>1396</td>
</tr>
<tr>
<td>Children 0-5 years</td>
<td>6980</td>
</tr>
<tr>
<td>WIFA</td>
<td>6980</td>
</tr>
<tr>
<td>Expected pregnancies</td>
<td>1396</td>
</tr>
<tr>
<td>Expected Births</td>
<td>1396</td>
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Two static and 24 outreach clinics are held monthly by the MCH unit in the sub-district. The sub-district uses the vaccination schedule recommended by WHO which is as follows:
1. Tuberculosis: One injection of BCG (Bacterium Calmette-Guerin) vaccine, which is given at birth or at first contact with the child.

2. Diphtheria, Pertussis, Tetanus: Three doses with DPT vaccine before 1 year; the first dose is given at six weeks after birth follow by two more doses at 4 weeks’ interval.

3. Polio: At least three doses of oral polio vaccine (OPV) before age one; given 4 weeks apart. One very first dose (OPV0) is given at birth; follow by 3 more doses with OPV1 given at six weeks after birth, and the rest at 4 weeks’ interval.

4. Measles: One injection of measles vaccine given after nine months of age.

5. Yellow fever: One injection given at nine months of age.

6. Tetanus toxoid (TT) for pregnant women:
   TT1 At first contact or as early as possible during pregnancy.
   TT2 At least four weeks after TT1.
   TT3 At least six months after TT2, or during subsequent pregnancy.
   TT4 At least one year after TT3, or during subsequent pregnancy.
   TT5 At least one year after TT4, or during subsequent pregnancy.

There are two main ecological zones. These are the deciduous rain forest, which is predominant, and moist evergreen forest. Most of the land area is under tree and forest crop production. The annual rainfall is between 160 and 180 cm. The sub-district is a predominantly farming one with most of the farmers engaged in cocoa, rice and maize farming.
3.2 STUDY TYPE

The study was a cross-sectional household survey using both qualitative and quantitative methods. Mothers of children aged 12 to 24 months in the New Edubiase sub-district were randomly selected using WHO 30-cluster method.

3.3 SAMPLING STRATEGY

The World Health Organisation’s method for evaluating immunization coverage was used (5). This involved listing all communities in the sub-district and the individual population of each community. Cumulative population of each community was computed and a sampling interval calculated using 30 (clusters). A random number which was less than the sampling interval was obtained using the serial number of a 5000-cedi bill. This was used to identify the first community (cluster) in which the cumulative population just exceeded the random number. The sampling interval was then added to the population of the first, randomly selected community to identify the second community or cluster. This was continued until the 30th community was identified.

Seven (7) children aged 12 – 24 months were randomly selected from households within each cluster. The first household that was visited in each cluster was selected randomly by standing in the middle of the cluster, and balloting to choose which direction (north, south, east or west) to go until the first nearest house was selected. From the first house, the next nearest house whose main door was
closest to the first one was visited. This procedure was followed until 7 children with their mothers were selected.

In choosing the age range of 12 – 24 months, two factors were taken into consideration. These are the population density of the district (farming area) and the specific information that is required on immunization. The study was meant to find the proportion of the children who have been fully immunized. All these were captured within the age range. Again, the populations of farming communities tend to be sparse; hence a wider age range was required in order to make it easier to get 7 children within a cluster. In all, the immunization statuses of 210 children and that of their mothers', for tetanus, were determined.

3.4 DATA COLLECTION TECHNIQUE

Two main techniques used in collecting the data were:

1. Structured questionnaires (Appendix 1) were administered to the mothers to collect information on the following:

**Demography:**

- Names of mother and child
- Ages of mother and child
- Ethnicity of mother.

**Socio-economic:**

- Occupation of mother
- Mother's level of education
- Number of children of mother
- Order of index child among siblings
Immunization:

- Immunization status of child
- Knowledge of mother on immunization
- Date of immunization
- TT immunization status of mother
- Mother’s source of information on immunization

2. Interview guides (Appendix 2) were used to interview eight persons purposely selected for Key Informant Interviews. This included:

* Four mothers from the sub-district, two of whom had their children fully immunized and other two had not obtained any immunization at all for their children.
* Three health workers directly involved in administering immunizations in the sub-district. They were all Community Health Nurses.
* The District Disease Control Officer (DDCO).

3.5 ETHICAL CONSIDERATIONS

Ethical clearance for this research was obtained from the District Health Administration. All the communities were informed about the research and its purpose through the District Chief Executive, the District Assembly, and the chiefs and elders. Permission was sought from the heads of households. Consent of interviewees was sought before every interview.

All the communities would be informed about the research and its purpose through the District Chief Executive, the district assembly, and the chiefs and elders. Permission would be sought
from the heads of households. Consent of interviewees would be sought before every interview.

3.6 TRAINING AND PRETESTING

Fifteen Community-Based Surveillance Volunteers (CBSV) were recruited as research assistants. They were trained for a day on how to interpret the questions into the local language (Twi), community entry, how to select households in the clusters, seeking consent of household heads and respondents, assurance of confidentiality, and how to fill the questionnaire. Pre-testing was done on the same day and then the necessary modifications were made.

3.7 DATA QUALITY CHECKS, ENTRY AND ANALYSIS

Each research assistant was visited on the field, and spot checks carried out on some of the women who have been interviewed. Questionnaires were checked for completeness, and all inconsistencies were resolved before data entry. Epi Info version 6 was used for data entry. Logical and consistency checks were programmed in the data entry system. Each questionnaire was marked after entering its data on the computer. This was meant to avoid mixing data that have been entered and those yet to be entered on the computer. Epi Info version 6 was used to analyse the quantitative data from the questionnaires. The overall dropout rate on immunization was estimated by the difference between the number of children who received BCG and measles per the number who received BCG, multiply by 100: DROPOUT RATE = BCG - MEASLES x 100

BCG
CHAPTER FOUR

RESULTS

4.1 CHARACTERISTICS OF RESPONDENTS

Below is Table 4.1 containing the characteristics of the respondents.

Table 4.1 Socio-Demographic and Economic Characteristics of Respondents.

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>NUMBER(210)</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Akan</td>
<td>145</td>
<td>69</td>
</tr>
<tr>
<td>Ewe</td>
<td>35</td>
<td>16.7</td>
</tr>
<tr>
<td>Dagomba</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Other</td>
<td>27</td>
<td>12.9</td>
</tr>
<tr>
<td>b) Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>183</td>
<td>87.1</td>
</tr>
<tr>
<td>Single</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td>Widowed</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Divorced</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td>Separated</td>
<td>10</td>
<td>4.8</td>
</tr>
<tr>
<td>c) Age of Mothers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>24</td>
<td>11.4</td>
</tr>
<tr>
<td>21</td>
<td>144</td>
<td>68.6</td>
</tr>
<tr>
<td>36</td>
<td>42</td>
<td>20</td>
</tr>
<tr>
<td>d) Level of Education of mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>89</td>
<td>42.4</td>
</tr>
<tr>
<td>Primary</td>
<td>48</td>
<td>22.9</td>
</tr>
<tr>
<td>JSS/Middle</td>
<td>64</td>
<td>30.5</td>
</tr>
<tr>
<td>SSS/Secondary</td>
<td>9</td>
<td>4.3</td>
</tr>
<tr>
<td>e) Occupation of Mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaried worker</td>
<td>13</td>
<td>6.2</td>
</tr>
<tr>
<td>Trader</td>
<td>70</td>
<td>33.3</td>
</tr>
<tr>
<td>Farmer</td>
<td>86</td>
<td>41</td>
</tr>
<tr>
<td>Apprentice/Artisan</td>
<td>28</td>
<td>13.3</td>
</tr>
<tr>
<td>Unemployed</td>
<td>13</td>
<td>6.2</td>
</tr>
<tr>
<td>f) Religion of mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td>170</td>
<td>81</td>
</tr>
<tr>
<td>Islam</td>
<td>18</td>
<td>8.6</td>
</tr>
<tr>
<td>Traditional</td>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>Pagan</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>g) Number of children of mother</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 4</td>
<td>115</td>
<td>71.8</td>
</tr>
<tr>
<td>5 - 6</td>
<td>47</td>
<td>22.4</td>
</tr>
<tr>
<td>9 - 10</td>
<td>12</td>
<td>5.8</td>
</tr>
</tbody>
</table>
Majority of the respondents was Akan 145(69%). Ewes and Dagombas accounted for 18.1% of the respondents. The rest were from other tribes in Ghana and Benin. Most of the respondents were married 183(87.1%). Only seven (3.3%) were single while 10(4.8%) were separated. Seven (3.3%) and 3(1.4%) were divorced and widowed respectively. Respondents who have divorced had most of their children (85.7%) fully immunized. This is followed by single women (71.4%), widowed (66.7%), separated (60%) with married women bringing the rear with (47%).

Respondents cut across the fertility age. The majority 144(68.6%) of the mothers were between 21- 35 years. Those ranging between 36 - 48 years were 42(20%) while 17 - 20 year group accounted for 11.4%. Most of the respondents 151 (71.8%) had 1 4 children. Mothers with 5 7 and 8 10 were 47 (22.4%) and 12 (5.8%) respectively.

Respondents with no formal education and just primary education constituted the majority, 137 (65.3%). The rest 73 (34.7%) had formal education above the primary level. However, none of the respondents had tertiary education. Respondents’ levels of education correlated ($X^2 = 24.36$, df= 3, $p < 0.0001$) with full vaccination; ranging from 36% for those with no formal education to 89% for those with SSS/Secondary level of education. Figure 4.1 shows a graph of full vaccination against the level of education of respondents.
Most of the respondents were either farmers or traders 156 (74.3%) However, there were more farmers than traders. Salaried workers constituted 6.2% as well as those who were unemployed. Apprentices and artisans were 28 (13.3%). The majority of the respondents were Christians accounting for 170 (81%). Those who belonged to the Islamic religion were 18 (8.6%). Pagans were 19 (9.0%) while Traditional religion accounted for 3 (1.4%).

4.2 CHARACTERISTICS OF CHILDREN

The ages of children whose immunization statuses were evaluated ranged between 12-24 months. Children aged 12-15 months were 84
while, 16 - 20 months olds accounted for 69 (32.8%). Children aged 21 - 24 months were 57 (27.2%). Below is table 4.2 showing age and positions of children among siblings.

Table 4.2. Age and Positions of children among siblings

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>NUMBER (210)</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) Age of Child in months</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 15</td>
<td>84</td>
<td>40</td>
</tr>
<tr>
<td>16 20</td>
<td>69</td>
<td>32.8</td>
</tr>
<tr>
<td>21 24</td>
<td>57</td>
<td>27.2</td>
</tr>
<tr>
<td><strong>b) Positions of Children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 4</td>
<td>154</td>
<td>73.3</td>
</tr>
<tr>
<td>5 - 7</td>
<td>44</td>
<td>21</td>
</tr>
<tr>
<td>8 10</td>
<td>12</td>
<td>5.7</td>
</tr>
</tbody>
</table>

The majority of the children was first born 52 (24.8%). In all those who occupied position 1-5 were 175 (83.4%). Children who fell within positions 6-10 accounted for 35 (16.6%), two of whom were tenth born. Most of the children who fell between positions 1 and 4 were fully immunized (53.6%), while 42.2% and 30.8% were those falling between 5 and 7, and 8 - 10 respectively.

4.3 IMMUNIZATION

When respondents were asked if their children had received any immunization before most of them 198 (94.3%) answered in the affirmative. Only 12 (5.7%) said their children have not had any immunization before. Regarding places where respondents receive immunizations for their children, the commonest place indicated was hospital 73 (34.8%). This was followed by outreach points 57 (27.1%). Those who said they get immunization from Health Centre/Clinic for
their children were 39 (18.6%). Thirty-four women (16.2%) said they received immunization in their homes for their children (Table 4.3)

<table>
<thead>
<tr>
<th>PLACE OF IMMUNISATION</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>73</td>
<td>34.8</td>
</tr>
<tr>
<td>Private Clinic</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Health Center</td>
<td>39</td>
<td>18.6</td>
</tr>
<tr>
<td>Outreach</td>
<td>57</td>
<td>27.1</td>
</tr>
<tr>
<td>Home</td>
<td>34</td>
<td>16.2</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>7</td>
<td>3.3</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>210</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

4.4 COVERAGE OF VACCINES

Of the children that were surveyed 166 (79%) received BCG, 180 (85.7%) had received OPV1 while 164 (78.1%) and 153 (72.9%) had received OPV2 and OPV3 respectively. More children, (180), received OPV1 than BCG (166). This implies that there were missed opportunities since those who did not receive BCG could have been given at the time the OPV1 were being given. Figure 4.2 is a bar chart showing coverage of the third doses of OPV and DPT, as well as coverage of BCG, Measles and YF.
Coverage of DPT 1, 2 and 3 were 178 (84.8%) 162 (77.1%) and 150 (71.4%) respectively. The coverage for measles was 138 (65.7%) while that of yellow fever was 129 (61.4%), which again indicates some missed opportunities since measles and yellow fever vaccines are given at the same age.

Children who have received all the vaccines at one year of age irrespective of age and interval were 121 (57.6%). By applying the age appropriateness for immunization criteria, and the interval of at least 1 month (28 days) between the multiple dose vaccines, 105 (50%) of the children were found to have received all the vaccines correctly. This means that 16 (7.6%) of those who received all the vaccinations did not do so at the appropriate time.
4.5 DROPOUT RATE

Many children 180 (85.7%) received OPV1 than BCG, 166 (79%). However, there was increase in the number of children who defaulted on the vaccines from OPV2 and DPT2 to measles and yellow fever. The dropout rate of immunization in the New Edubiase subdistrict is 16.7%.

4.6 MATERNAL TETANUS TOXOID IMMUNIZATION COVERAGE

Figure 4.3 below shows the coverage of maternal tetanus toxoid immunisation.

![Fig. 4.3. Pie Chart of Maternal TT Coverage](image)

When respondents were asked if they received any immunizations when pregnant with the children being evaluated, most of them 175 (83.3%) answered positively. Thirty-one of them (14.8%) said they did not remember while only 4 (1.9%) said they did not receive any immunization. Of the 175 who indicated that they were immunized when pregnant, 66 of them had their antenatal cards with them. Of these 66 (37.7%) mothers, 42 (63.6%), 27 (40.9%) and 3 (4.5%) got
TT1 and TT2 only, and TT3 and others respectively. Hence 30 (45.4%) had received TT2.

4.7 REASONS FOR DEFAULTING IN CHILDHOOD IMMUNISATION

Respondents who had defaulted in childhood immunisation were asked to give reasons why they defaulted. Defaulters were asked to give as many reasons as they had (Table 4.4)

**Table 4.4 Reasons for defaulting in childhood immunization.**

<table>
<thead>
<tr>
<th>REASONS</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Unaware of need for immunizations</td>
<td>16</td>
<td>9.7</td>
</tr>
<tr>
<td>✓ Unaware that children were being immunized</td>
<td>3</td>
<td>1.8</td>
</tr>
<tr>
<td>✓ Rumours that immunization can harm children</td>
<td>8</td>
<td>4.8</td>
</tr>
<tr>
<td>✓ Was afraid of side effects of immunization</td>
<td>9</td>
<td>5.5</td>
</tr>
<tr>
<td>✓ Too busy to take child for immunization</td>
<td>22</td>
<td>13.3</td>
</tr>
<tr>
<td>✓ Laziness</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>✓ Place of immunization too far</td>
<td>18</td>
<td>10.9</td>
</tr>
<tr>
<td>✓ Did not have money for transport</td>
<td>19</td>
<td>11.5</td>
</tr>
<tr>
<td>✓ Did not have money to pay for immunization</td>
<td>28</td>
<td>16.9</td>
</tr>
<tr>
<td>✓ Religion prevents immunization</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>✓ Went but nurses did not give the immunization</td>
<td>15</td>
<td>9.1</td>
</tr>
<tr>
<td>✓ Lack of decent clothes for going for immunization</td>
<td>8</td>
<td>4.8</td>
</tr>
<tr>
<td>✓ Others</td>
<td>18</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>165</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
4.8 KNOWLEDGE ON IMMUNIZATION

Four questions on childhood immunization were posed to respondents. Three of the questions had possible answers from which respondents were to choose the right answers. The first question asked respondents when immunization for children starts. A little over half of the respondents 107 (51%) chose the correct answer (soon after birth). Fifty-four (25.7%), 6 (2.9%) and 43 (20.5) indicated four weeks after birth, four months after birth and don’t know respectively.

When asked about the interval at which mothers should take their children for the regular immunization, most of the respondents 153 (72.9%) answered correctly (every four weeks). The third question was about the recommended age by which children should have had all their vaccinations. To this question only 84 (40%) of the respondents answered correctly, and 69 (32.9%) did not know. Thirty-three (15.7%) and 24 (11.4%) chose 2 years and 3 years respectively.

The forth question asked respondents to mention the childhood diseases that can be prevented by vaccination. Respondents had a fair knowledge of these diseases as about 157 (68.7%) could mention two or more. Twenty-four (11.4%) could not mention even one of the disease and 29 (13.8%) could mention one.
4.9 SOURCE OF INFORMATION ON IMMUNIZATION

The table below shows respondents' common sources of information on immunization.

Table 4.5 Common source of information on immunization.

<table>
<thead>
<tr>
<th>SOURCES</th>
<th>NUMBER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>57</td>
<td>27.3</td>
</tr>
<tr>
<td>Television</td>
<td>9</td>
<td>4.3</td>
</tr>
<tr>
<td>Health Workers</td>
<td>80</td>
<td>38.3</td>
</tr>
<tr>
<td>Relatives</td>
<td>19</td>
<td>9.1</td>
</tr>
<tr>
<td>Friends</td>
<td>21</td>
<td>10.0</td>
</tr>
<tr>
<td>At Church</td>
<td>11</td>
<td>5.3</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>5.7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>210</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Television was the uncommonest source of information on immunisation 9(4.3%). There appears to be a relationship (p < 0.01) between the source of information and full immunisation of respondents' children. Below is a bar chart (Table 4.5) showing the source of information of respondents on immunisation and percentage of children that were fully immunised.
Table 4.5 Source of Information and full coverage

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>NUMBER</th>
<th>FULL IMMUNISATION</th>
<th></th>
<th>PERCENTAGE FULLY IMMUNISED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>YES</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>RADIO</td>
<td>57</td>
<td>34</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>TELEVISION</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>HEALTH WORKER</td>
<td>81</td>
<td>43</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>RELATIVES</td>
<td>19</td>
<td>5</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>FRIENDS</td>
<td>21</td>
<td>6</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>CHURCH</td>
<td>11</td>
<td>7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>OTHERS</td>
<td>12</td>
<td>3</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>210</td>
<td>105</td>
<td>105</td>
<td></td>
</tr>
</tbody>
</table>

4.10 IN-DEPTH INTERVIEW FINDINGS

Mothers

Respondents said immunizations are for prevention of diseases, and save mothers from the trouble of having to take children to hospital. They believed that immunizations help children to grow well and would help children prosper in future to take good care of their parents.

Mothers said they get information on immunization from health workers, radio, friends, husbands and mothers. All the respondents mentioned health workers and radio as sources of information on immunization. Problem respondents face at immunization sites is payment of fees for vaccination.

Respondents thought health workers could make each child get all its immunizations by going home to ask mothers to bring children for immunization and also teaching mothers about the usefulness of
immunization. They also said that if the immunizations and drugs sold during immunizations were given freely service providers would get all children for vaccination. Most mothers were aware of the days for routine immunizations. They felt the days were convenient, as they do not go to their farms on those days.

Problems in the home that prevent mothers from sending children for immunization are lack of money, being indisposed and house chores. Respondents said health workers could get parents to send their children for immunization if vaccines are administered freely. According to them, service providers charge between $500 and $1000 per child for every immunization session.

All the respondents agreed that childhood immunizations should be made mandatory. Reasons given were that immunizations are useful to both mothers and their children. They prevent children from diseases and save mothers the trouble of sending children to the hospital.

Health Personnel

None of the respondents was pleased with the EPI coverage of the sub-district. Reasons for their stand were that targets set are never met, and mothers do not attend immunization clinic. Immunization programmes are organized by sending letters to communities where the clinic is to be held, giving date and time. Mothers are told when the next clinic will come off every time they hold a clinic.

Respondents said what accounted for the steady increases in EPI over the years are house-to-house and mini-mass immunization (mop-ups) campaigns. Others
Health talks on immunization; CBSV informing mothers when the time for immunization is due and TBA's also gathering mothers who have delivered and bringing them and their children to CWC. Outreach points for immunizations have also been increased from 21 to 24.

Obstacles cited as preventing the district from achieving higher coverage than the current one were inadequate staff and means of transport, communities being widely dispersed and difficult to reach because of bad roads, and lack of staff motivation.

To overcome obstacles militating against higher coverage, health personnel suggested that the DDHS should advocate for more staff, and that health education should be stepped up using film shows in remote communities. According to the respondents, mothers are educated on immunization at outreach points. Those who get the information are asked to extend what they have heard to those who did not come. Respondents also indicated that information on EPI is disseminated by sending letters to community leaders, TBAs, CBSVs and churches. These persons then extend the information to community members. Sometimes health personnel follow up to ensure that the letters are acted upon. Health personnel indicated that they wish they could use film shows, role-plays and go on home visits very often to disseminate information on immunization.

The views of the health personnel on mandatory immunization for children were similar to what were expressed by the mothers. They favoured mandatory childhood immunization, citing the usefulness of immunization to both children and parents as reasons for their stand.
CHAPTER FIVE
DISCUSSION

5.1 CHARACTERISTICS

Ethnicity and age of respondents do not appear to have any effect on the full vaccination coverage. Similarly type of occupation and religion do not have any influence on full immunization coverage. However, marital status, education and position of child among siblings appear to have some influence on full coverage. Contrary to some findings in Kenya (32), mothers who have divorced have most of their children immunized (85.7%), while married women had the least (47%) of their children fully immunized. The study did not find the reason why fewer children of married women were immunized. Perhaps, lack of time as a result of other responsibilities of married women towards their husbands is responsible for this. The finding that the level of education of respondents correlates strongly with immunization uptake is not new (34,35).

Most of the children who fell between positions 1 and 4 (53.6%) were fully immunized compared with 30.8% of those within 8 to 10. This finding validates what the 1998 GDHS found in which two in three children of birth order 1 and 2 were fully immunized compared to 1 in 2 of birth order six and over (31).
5.2 **EPI COVERAGE**

The study established that the percentage of children between the ages of 12 to 24 months who have been fully immunized in the New Edubiase sub-district is 50%. If DPT3 is used as a proxy for full immunization coverage then the coverage of the sub-district is 71.4%. This is quite close to the 75.9% the sub-district obtained in 2000. The study found the percentage of children who received all the indicator vaccines irrespective of their ages and the intervals at which they received them as 57.6%. The inference that can be drawn from this is that some children received their vaccinations at wrong ages and intervals.

Many more children received OPV1 than BCG, 85.7% and 79% respectively. The difference (6.7%) may be due to missed opportunities. An opportunity for immunization is missed when a person who is eligible for immunization visits a health facility and does not receive the due vaccine(s). Studies have shown that logistical problems with immunization delivery, negative health worker attitude, failure to administer immunization simultaneously, false contraindications, parenteral refusal, and shortage of community health nurses to administer vaccination are some of the factors that bring about missed opportunities (36). In the case of this study the missed opportunities might have been due to logistical problem such as lack of vaccine or some false contraindication since a health worker met the children to administer OPV1 and could have administered BCG at the same time. Again missed opportunities and dropouts
might have been responsible for the large difference between the highest coverage of 85.7% for OPV1 and the lowest coverage of 61.4% for YF.

The coverage of measles vaccine in the sub-district is 65.7%. It is therefore not surprising that incidence of measles has been rising since 1997 (4) as this level of coverage do not give herd immunity for measles or any other vaccine preventable disease (37).

5.3 MATERNAL TT IMMUNIZATION

Most of the mothers (83.3%) indicated that they were given TT immunization when they were pregnant for the index children. However, only 37.7% of them could produce their antenatal cards. Among the 37.7% (66 women), the survey found that 63.6% had received TT1 and 45.4% had received TT2. The TT2 coverage in the sub-district for 2000 was 92.6% while that of the entire district was 65.4%. The high coverage of TT2 for 2000 in the sub-district could be due to the fact that the district hospital is cited at New Edubiase where some pregnant women from the other four sub-districts might have attended antenatal care. Since TT is often given to pregnant women during provision of antenatal services most of these women might have been captured in the New Edubiase sub-district. This undoubtedly increased their numerator while the denominator remained the same thereby, giving a high value for TT2 coverage of the sub-district. Credence is lent to the above assertion by the fact that TT2 coverage of the entire district for the same period was 65.4%.
5.4 DROPOUT RATE

The study established that the dropout rate on immunization for the New Edubiase sub-district is 16.7%. This is higher than what Sommerfelt and Piani found in their study, which indicated that the EPI dropout rate in Ghana is 11.3% among children aged 12 – 23 months (19). According to WHO there is a problem whenever the dropout rate of immunization programme exceeds 10%. With the dropout rate of 16.7% of the sub-district one could safely say that all is not well with the EPI programme of the New Edubiase sub-district. The sub-district will therefore have to work at improving its immunization programme.

5.5 REASONS FOR DEFAULTING IN CHILDHOOD IMMUNIZATIONS

The number of defaulting children increased gradually from OPV2 to DPT2 to OPV3 and DPT3, with a higher increase in defaulters for measles and yellow fever. The respondents gave several reasons as to why they defaulted. The commonest reasons were lack of money and time (16.9% and 13.3% respectively) to take child for immunization. Lack of decent clothes for attending CWC, travelling, fear of side effects, laziness, etc were some of the reasons given. These findings are validated by those of UNICEF (23), in which it found in 1988 among other things, fear of side effects of vaccines, lack of money, time and distance to be major influences on immunization uptake.
The findings from the study indicate that immunization service providers in the sub-district charge fees ranging from $500 to $1000 per child per immunization session, i.e. irrespective of the number of vaccines administered to the child. Respondents cited this as an obstacle to attendance at CWC for mothers who cannot afford. A collection of fees for immunization is illegal and very unacceptable. After all, children under 5 years of age are supposed to enjoy free medical service including immunizations.

5.6 KNOWLEDGE ON IMMUNIZATION

Respondents were aware of the usefulness of immunization to both children and parents. However, this did not seem to have been transferred into ensuring that their children got all their immunizations at the appropriate ages. A fair percentage (51%) of respondents knew when childhood immunization should start, and only 40% knew the recommended age for children to receive all vaccines. This does not augur well for vaccination uptake, since mothers may be tempted to postpone some of the last vaccines thinking that they could be given at a later date. Majority of respondents (68.7%) could mention two or more of the vaccine preventable diseases, and knew the intervals at which the routine immunizations are given. On the whole, mothers in the sub-district have just only fair knowledge on immunization. This level of knowledge is inadequate, and might have accounted for the 50% EPI coverage of the sub-district. This assertion is supported by other
studies (18,20). Most women are not reached with health education. Only the few who attend CWC get education on immunization.

The study found that health personnel are not pleased with the EPI coverage since targets (90%) set are never met. Modest increases in coverage in the sub-district are attributed to house-to-house and mini-mass immunization campaigns. House-to-house has been used in Egypt to achieve 100% coverage (16). It is thus no wonder that it improved coverage in the sub-district. Obstacles such as inadequate staff, lack of transportation coupled with bad roads and lack of motivation of staff militate against achievement of high EPI coverage in the sub-district. To improve coverage health personnel suggested adequate staff and health education as key to increasing the coverage. In the current situation of lack of staff in the health ministry the problem of adequate staff cannot be solved immediately, however, programmes can be put in place to help increase knowledge on immunization.

5.6 SOURCE OF INFORMATION

Most of the respondents whose source of information on immunisation is TV got most of their children fully immunised. The reason may be that this group of respondents is economically better off and could pay for all the immunisations without any difficulty. Those who get information from church also got 63.6% of their children fully immunised. If this is anything to go by then getting information on immunisation across at church services could help increase coverage of vaccination in the sub-district.
CHAPTER SIX
CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The main purpose of the study was to evaluate the EPI coverage of the New Edubiase sub-district and propose ways for improving the coverage.

Based on the findings of the study, the following conclusions are reached:

1. The percentage of the 210 children aged 12 – 24 months that have been fully immunised in the sub-district is 50.
2. The percentage of pregnant mothers that received TT2 is 45.4
3. Training of CBSV to lend support to the immunisation programme will help improve coverage.
4. The dropout rate of immunization in the sub-district is 16.7%.
5. Mothers who defaulted in childhood immunization were mostly married.
6. Monies ranging from $500 – $1000 are charged by MCH/Outreach staff for immunisation. This serves as obstacle to attendance at CWC.
7. Non-compliance to immunisation schedules are attributed to obstacles such as:
   - Lack of money
   - Immunisation site being far
• Refusal of nurses to immunise children for one reason or the other.
• Lack of information on immunisation
• Lack of decent clothes for attending CWC
• Mother being busy

8. Mini-mass and house-to-house immunisations could help increase coverage.

9. The staff level for MCH activities is low.

10. Low knowledge of mothers on when to begin immunisation and the recommendable age for children to complete is a contributory factor to the low EPI coverage

11. Lack of staff motivation adversely affects immunisation programme.

6.2 RECOMMENDATIONS

The study revealed that the EPI coverage was low in the New Edubiase sub-district. Therefore, the following recommendations are being made to enable the SDHMT in conjunction with the DHMT design and implement appropriate and relevant immunisation programmes that will help improve the EPI coverage in the sub-district:

1. Education on immunisation should be intensified in the sub-district. Special efforts should be made to reach parents in remote villages. The use of a form of entertainment such as video show could be employed to get parents to converge at vantage villages for education.
2. The illegal fees charged at outreaches should cease immediately. CHNs involved in this should be asked to stop it or face disciplinary action. Community members should be informed by the DHMT that parents are not to pay fees for vaccination.

3. Training should be given to CBSV to lend support to the CHN during immunization. The focus of the training should be on defaulter tracing. CHNs should also be trained on the true contra-indications for vaccinations, and how to minimize or prevent missed opportunities.

4. Mini-mass immunisation campaigns should be organised regularly to supplement the existing strategies. A strategy that allows service providers to stay overnight in the community to enable them reach all eligible children should be considered. Such service providers should be paid night allowance. DHMT should budget for these activities.

5. The DHMT should find a way to motivate immunisation service providers.

6. The DHMT must supervise EPI activities at the lower level regularly.

7. The DDHS should not relent in his efforts to get more CHNs to boost up the present staffing level in the district as a whole.

It is hoped that these recommendations will be critically considered to improve the EPI coverage in the sub-district.
REFERENCES


APPENDIX I

QUESTIONNAIRE FOR EPI COVERAGE SURVEY OF CHILDREN AGED 12-23 MONTHS AND THEIR MOTHERS

TITLE OF RESEARCH: Evaluation of EPI coverage in the New Edubiase Sub-district

Informed consent declaration

Dear Madam,

We are from the District Health Administration in New Edubiase. As part of our efforts to improve immunization coverage we would like to find out how many children have been immunized and how mothers think these services could be improved. We shall therefore be grateful if you could spend some time to talk to us.

Name of Interviewer ........................................... Interview date ..... ...... / 2001

Geographical information:

Town/Village ......................................................
Cluster Number ...................................................
House Number ....................................................

Background information:

1. Name of mother ..............................................

2. Ethnicity:

   Akan [ ]
   Ga [ ]
   Ewe [ ]
Dagomba [ ]
Other, [ ] please specify:............................

3. Age of mother ....................

4. Birth day of child (dd/mm/yy)..................................

5. Age of child..................

6. Number of children............

7. Order of index child among siblings..........

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>c. JSS/Middle.......[ ]</td>
<td>c. Farmer............[ ]</td>
<td>c. Traditional.......[ ]</td>
</tr>
<tr>
<td>d. SSS/Secondary...[ ]</td>
<td>d. Apprentice/Artisan[ ]</td>
<td>d. Pagan.............[ ]</td>
</tr>
<tr>
<td>e. Tertiary.........[ ]</td>
<td>e. Unemployed........[ ]</td>
<td>e. Other, please specify</td>
</tr>
<tr>
<td>f. Other, please specify</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IMMUNISATION**

1. Has your child received any immunization before?

   Yes [ ]

   No [ ]

   Don't know[ ]

2. Where did your child receive immunization?

   Hospital............................................ [ ]
Health centre/community clinic [ ]
Private/non-governmental...... [ ]
Outreach.............................. [ ]
Not applicable.......................... [ ]
Others, [ ] please specify..............................

3. Do you have an immunisation card for (name of child)?
   Yes [ ]
   Lost it [ ]
   Doesn’t have one [ ]

4. Assessment of the immunization card:

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Received</th>
<th>Date (dd/mm/yy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>OPV 1st</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>DPT 1st</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>Measles</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
<tr>
<td>Yellow fever</td>
<td>Yes [ ]</td>
<td>/.........../...........</td>
</tr>
<tr>
<td></td>
<td>No [ ]</td>
<td></td>
</tr>
</tbody>
</table>

All: BCG + OPV3 + DPT 3 + Measles: Yes [ ] No [ ].
Fully immunised before one year of age: Yes [ ] No [ ]
REASONS FOR FAILURE IN CHILDHOOD IMMUNIZATION.

For mothers whose children have not been immunized fully.

For this question tick as many as applicable.

5(a). Why was your child not fully immunized?

   i. Unaware of need to return for more immunizations.[  ]
   ii. Immunization site is far from here.[  ]
   iii. Did not have money for transport.[  ]
   iv. Did not have money to pay for immunization fees.[  ]
   v. Was too busy to take child for immunization.[  ]
   vi. Rumours that immunization can harm children.[  ]
   vii. Was afraid of side effects of immunization.[  ]
   viii. Went but nurses did not immunization because child was sick, vaccines were finished, etc.[  ]
   ix. Lack of decent clothes for going for immunization.[  ]
   x. Other(s), please specify.[  ]

For mothers whose children have not received any immunization.

For this question tick as many as applicable.

5(b). Why was the child not immunized?

   i. Unaware of need for immunizations.[  ]
   ii. Unaware that children are being immunized.[  ]
   iii. Immunization site is far from here.[  ]
   iv. Did not have money for transport.[  ]
   v. Did not have money to pay for immunization fees.[  ]
   vi. Was too busy to take child for immunization.[  ]
vii. Rumours that immunization can harm children..............[ ]
viii. Religion prevents immunization........................................[ ]
ix. Was afraid of side effects of immunization.......................[ ]
x. Went but nurses did not immunization because child was sick, vaccines were finished, etc............................[ ]
xi. Lack of decent clothes for going for immunization............[ ]
 xii. Other(s), please specify......................................................

6. Were you given any immunization when you were pregnant with (name of child)?
   Yes [ ]
   No [ ]

7. Do you have an antenatal card?
   Yes [ ]
   No [ ]
   Lost it [ ]

   Examination of antenatal card for tetanus immunization;
   TT1 Yes [ ] No [ ] Date.................................
   TT2 Yes [ ] No [ ] Date.................................
   TT3 and others: Yes [ ] No [ ] Date..............................

KNOWLEDGE ON IMMUNIZATION

1. When does immunization for children start?
   A] Soon after birth.
   B] 4 weeks after birth.
   C] 4 months after birth.
D] Don’t know.

2. At what interval should mothers take their children for the regular immunization?
   A] Every 2 weeks.
   B] Every 4 weeks.
   C] Every 6 weeks.
   D] Don’t know.

3. By what age is it recommendable that children have all their vaccinations?
   A] 1 year
   B] 2 years
   C] 3 years
   D] Don’t know.

4. Can you mention the childhood diseases that can be prevented through vaccination?
   [Measles, Yellow fever, Tuberculosis, Diphtheria, Pertussis, Polio, Tetanus]
   A] Couldn’t mention any
   B] Could mention 1
   C] Could mention 2 or 3
   D] Could mention 4 or more.
SOURCE OF INFORMATION ON IMMUNIZATION.

How do you commonly hear about immunization?

[Choose only one; your commonest source]

Radio ..................[  ]
Television ...........[  ]
Health workers [  ]
Relatives ..........[  ]
Friends ...... ....[  ]
At Church ........[  ]

Other, please specify..................................................

Please crosscheck to make sure all the questions have asked.

Thank the interviewee and tell her you may come back to ask for more information.
APPENDIX 2.

INDEPTH INTERVIEW GUIDES

Guide for Health Personnel.

1. Would you say your EPI coverage is satisfactory and why? ......
   ..........................................................................................................

2. How do you go about organising immunization programmes in your sub-district? ........................................................................
   ..........................................................................................................

3. What accounts for the steady increase in EPI coverage over the years? ..........................................................................................
   ..........................................................................................................

4. What are the obstacles to achieving higher coverage than the current one? ..........................................................................
   ..........................................................................................................

5. How can these obstacles be overcome? What suggestions do you have for dealing with them? ....................................................
   ..........................................................................................................

6. Tell me how you educate parents in the communities on immunization ..................................................................................
   ..........................................................................................................

7. How is information on EPI disseminated in the sub-district? ...........................................................................................................
8. Do you wish you could use other means? What are they?

........................................................................................................................................

........................................................................................................................................

9. What are your views on mandatory immunization for children?

........................................................................................................................................

........................................................................................................................................

Guide for Mothers

1. What are immunizations for?

........................................................................................................................................

........................................................................................................................................

2. How do you get information on immunization?

........................................................................................................................................

........................................................................................................................................

3. Do you face any problems when you take your child for immunizations? What are they?

........................................................................................................................................

........................................................................................................................................

4. What do you think health workers can do to enable each child get all its immunizations?

........................................................................................................................................

........................................................................................................................................

5. On which days are the routine immunizations given, and are the days convenient? Explain why? ..............................................
6. What problems in the house prevent you from taking your child for immunisation?

........................................................................................................

........................................................................................................

7. How can health workers get parents to send their children for immunisation?

........................................................................................................

........................................................................................................

8. Should parents be forced by law to take their children for immunisations? Explain your answer.

........................................................................................................

........................................................................................................