

SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

LEGON

ASSESSMENT OF THE INTEGRATED APPROACH  
TO DISEASE SURVEILLANCE IN  
EAST AKIM MUNICIPALITY OF THE EASTERN REGION

BY

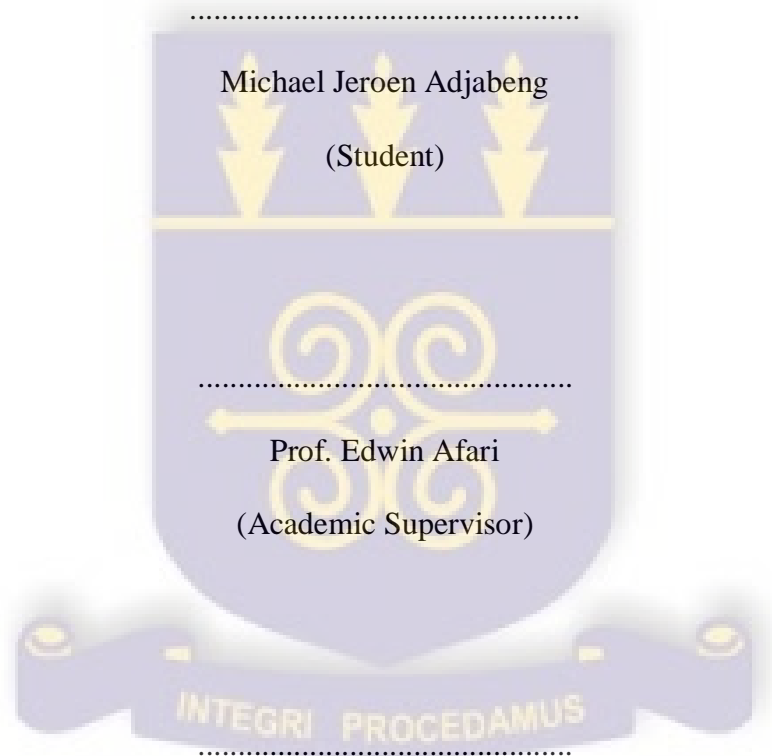
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A DISSERTATION SUBMITTED TO SCHOOL OF PUBLIC HEALTH IN  
PARTIAL FULFILLMENT FOR THE AWARD OF THE MASTER OF PUBLIC  
HEALTH (MPH) DEGREE

AUGUST, 2008

## DECLARATION

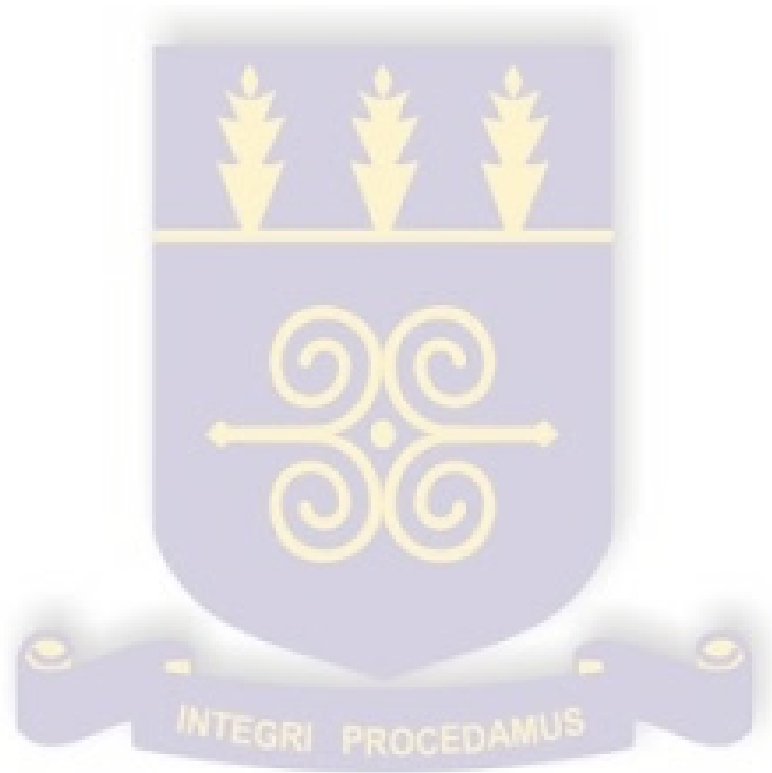
I, Michael Jeroen Adjabeng, declare that except for other people's investigations which have been duly acknowledged, this work is the result of my own original research, and that this dissertation, either in whole or in part has not been presented elsewhere for another degree.



Dr. Lawson Ahadzie  
(Field Supervisor)

## DEDICATION

This document is dedicated to my wife, Juliana Teiko Adjabeng for her tireless support in my pursuit to complete the MPH programme and all health workers who conduct their surveillance activities in the spirit of integration and through whose untiring efforts; Integrated Disease Surveillance & Response continues to make in-roads.



## ACKNOWLEDGEMENT

I thankfully acknowledge the entire staff of the School of Public Health of the University of Ghana for the diverse roles played which has led to the completion of this study. I further wish to express my special and profound gratitude to my supervisors, Professor Edwin Afari and Dr. Lawson Ahadzie for their time and patience in supervising this study.

To all the staff of the Ghana Health Service who spent time off their scheduled activities and interacted with me, I say a big thank you. The Community-Based Surveillance Volunteers who were part of the study deserve special commendations for sharing their candid opinions on Integrated Disease Surveillance and Response.

Invaluable suggestions offered by Dr. S.O. Sackey, Dr. K.O. Antwi-Agyei, Mr. Kwabena Opoku-Mensah and Dr. Simon Antara guided me tremendously. For Ms Priscilla Amoah who spent her valuable time to help transcribe the audio recordings, may God richly bless you.

My immense appreciation finally goes to the World Health Organization for the financial assistance given me to facilitate the study.

## ACRONYMS

<b>AFP</b>	– Acute Flaccid Paralysis
<b>CBS</b>	– Community Based Surveillance
<b>CBSV</b>	– Community Based Surveillance Volunteer
<b>CHIM</b>	– Centre for Health Information Management
<b>CHN</b>	– Community Health Nurse
<b>COMDAB</b>	– Communicable Diseases Analysis Book
<b>DSD</b>	– Disease Surveillance Department
<b>EPI</b>	– Expanded Programme on Immunization
<b>HMIS</b>	– Health Management Information System
<b>IDSR</b>	– Integrated Disease Surveillance and Response
<b>QHP</b>	– Quality Health Partners
<b>SCD</b>	– Standard Case Definition
<b>UNICEF</b>	– United Nations Children’s Fund
<b>WHO</b>	– World Health Organization
<b>YF</b>	– Yellow Fever

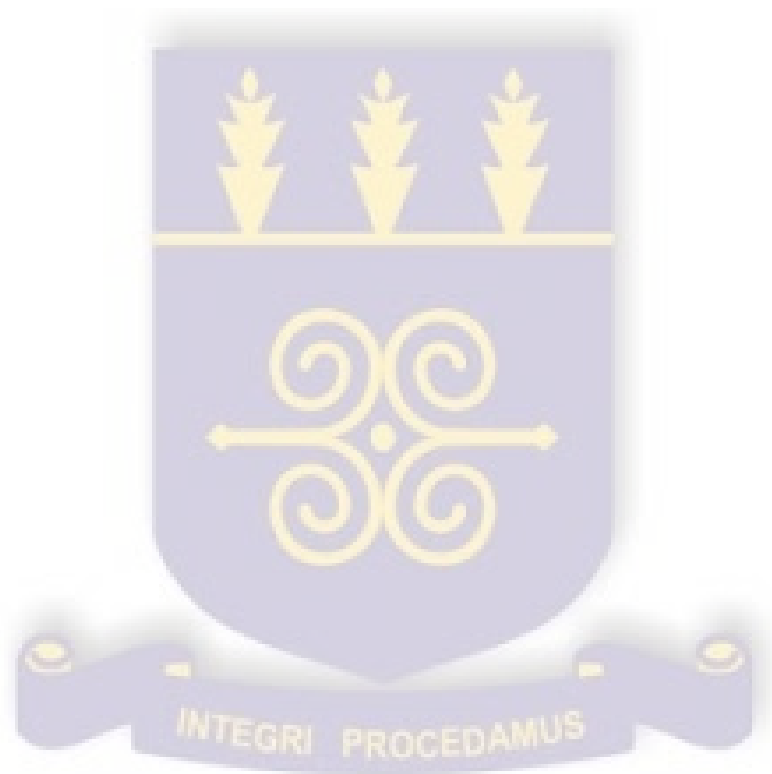
## ABSTRACT

Integrated Disease Surveillance and Response (IDSR) aims at integrating surveillance functions at all levels. Ghana as a country decided on 23 communicable diseases and conditions to be targeted as priority diseases for surveillance using the integrated approach. A qualitative research was conducted to assess the effectiveness of the integrated approach to disease surveillance and response strategy in East Akim Municipality of the Eastern Region.

A total of twenty (20) key respondents were purposively selected from the various administrative levels of the health system. An in-depth interview and review of records were the main methods employed for data collection.

The strategy of integrating disease surveillance activities was perceived differently depending on the administrative level of operation. Other important aspects of what integration meant were left out from the responses given; thus ‘collecting information from a single focal point’, ‘linking data to analysis and response mechanism’, and ‘responding with the most effective public health intervention’. Laboratory involvement in disease surveillance was acknowledged as very important and their roles very effective in facilitating IDSR. From the comments received, the IDSR system is not simple. The flexibility could be described as low as it depended on too many factors from respondents’ view point which are not readily available or feasible. Acceptability is quite high with regards to participation by other stakeholders, especially the WHO, QHP, UNICEF and most importantly by the community (CBSVs). The private sector participation has not been fully explored. Most respondents further indicated in outright terms that they were not pleased with the current surveillance system and reasons were largely attributed to lack of funds to carry out surveillance activities.

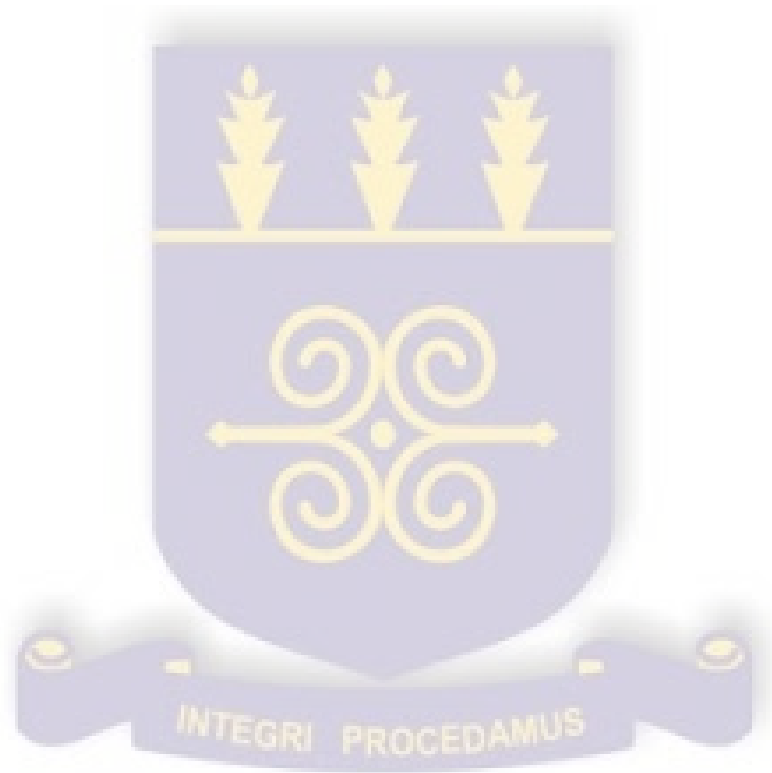
Much of the data remains unprocessed, or if processed, unanalyzed, or if analyzed, not read, or, if read, not used or acted upon. If the researcher is to take the measuring scale of one of the respondents and score the integration approach as a strategy within disease surveillance, a score of four (4) would be awarded on a scale of one (1) to ten (10) where ten is the highest. The development of human resource is essential in implementing recommendations made to improve IDSR. Reporting systems of diseases should be evaluated more frequently and decision made to improve on service delivery.



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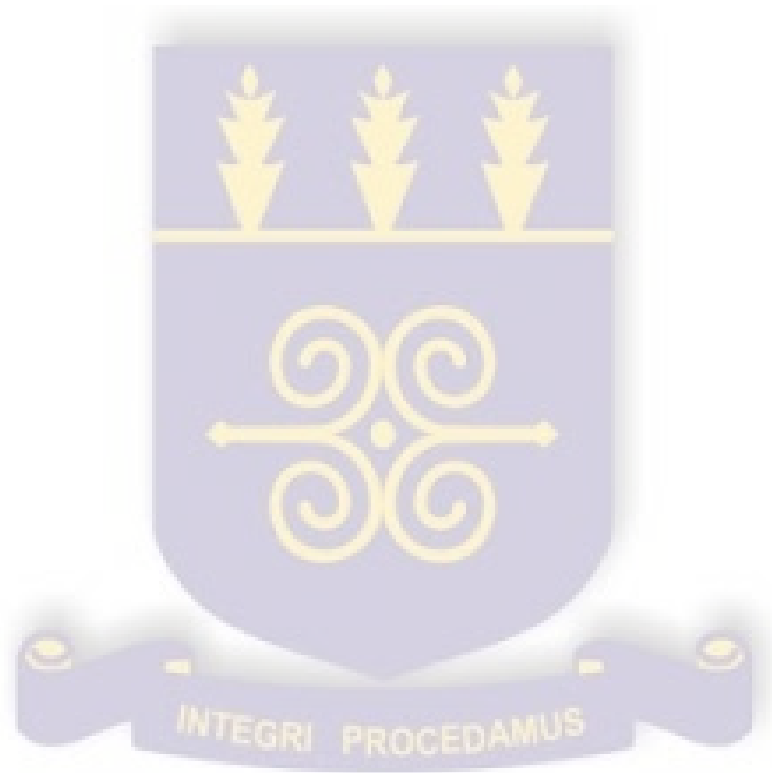
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## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background

Public Health Surveillance is the ongoing, systematic collection, analysis, and interpretation of data on specific health outcomes, closely linked with the timely dissemination of these results for prevention and control of diseases (Stroup & Thacker, 1992).

Disease surveillance being a subset of Public Health Surveillance is the systematic and regular collection of information on the occurrence, distribution and trends of a disease on an ongoing basis with sufficient accuracy and completeness to provide basis for action. Integrated Disease Surveillance and Response (IDSR) aims at integrating surveillance functions at all levels (GHS, 2002). The core functions are case detection, reporting, investigation & confirmation, analysis & interpretation, action/ response, feedback and evaluation. The support functions are development of standards/ guidelines, training, supervision, communication and provision of resources.

In Africa, infectious diseases (both endemic and epidemic-prone) are still the most common causes of morbidity and mortality. To effectively control these diseases, health systems require access to complete, accurate and timely information so they can target scarce resources in the most effective manner. Integrated disease surveillance and response (IDSR) is a strategy to ensure the generation and provision of this timely information to decision makers at all levels of the health system, and to ensure that health officials can take informed and appropriate action to reduce morbidity and mortality from priority infectious diseases.

In Ethiopia for instance, there has been efforts and coordination to improve integration between IDSR and vertical programmes. Disease control programmes for Expanded Programme for Immunization (EPI), Malaria and Tuberculosis share data, resources, transportation and communication facilities. In a further effort to integrate programmes, the AFP/ EPI bulletin was renamed by the national IDSR team as AFP/EPI/IDSR bulletin (WHO, 2003c).

In Ghana, surveillance data for communicable diseases is not always reported in a complete and timely manner. Data that were reported were not always analysed. These weaknesses in the system were brought into focus during the cerebro-spinal meningitis outbreak in the northern sector of the country in 1996/97 and contributed to Ghana adopting the IDSR strategy in 1998 (GHS, 2002).

The following generally necessitated the need for implementation of IDSR:

- Vertical surveillance systems resulting in duplication of efforts and resources;
- Failure to report on time first cases of epidemic prone diseases;
- Collection, analysis, utilization and dissemination of data at all levels being inadequate;
- Inadequate attention is given to evaluation of programmes using surveillance data;
- Involvement of laboratories and other stakeholders in surveillance system not adequate and
- Supervisory support, completeness and timeliness of reporting generally inadequate.

As part of the implementation of IDSR, the Ghana Health Service/ Ministry of Health in collaboration with the World Health Organization (WHO), Centres for Disease Control and

Prevention (CDC) and some health partners had to conduct a comprehensive assessment of the current surveillance, epidemic preparedness and response systems in August 2000.

Some of the major findings were that written Standard Case Definitions (SCD) for national priority diseases were not available at the health facility level where diagnosis occurred. Although clinical registers were available in almost all health facilities visited, the number of columns and type of information collected varied. Laboratory confirmation was found to be weak. Several gaps were found in the reporting system. The lack of documentation of receipt and transmission of reports to between the various levels prevented the verification of timeliness and completeness. Weekly reporting forms were often accumulated and sent together with monthly reports from the health facilities to the districts and from districts to the region. Shortage of staff, particularly at the sub-district and in some cases, at district level, contributed significantly to delays in reporting. Much of the same surveillance information was being collected and submitted on different reporting forms. Little or no analysis of data was carried out at the health facility level for identification of unusual occurrences of diseases.

However, where the leadership had the capacity, some analysis of the data was done. Analysis of surveillance data at the regional and district level was observed for 16 out of the 23 priority diseases. The display of surveillance data on maps was limited to the national, regional, and rarely at the district level. Communication and co-ordination of information did not exist between the following programmes at the regional and district level: Leprosy, Guinea Worm, HIV/AIDS and TB.

It was also found that the number of required supervisory visits was achieved rarely at any level except for the supervision of CBS volunteers. Hospital staff had not been trained in

surveillance activities. Basic training and post basic training in surveillance activities was required at health facility and district levels.

The majority of respondents were not satisfied with the then current surveillance system. Reasons listed for dissatisfaction across all levels included lack of training, inadequate communication, and the substantial workload involved with the system.

(GHS/MoH/WHO/CDC, 2000).

Ghana as a country decided on 23 communicable diseases and conditions to be targeted as priority diseases which needed to be reported on (GHS, 2002). These diseases were selected based on the criteria of high epidemic potential, targeted for eradication and elimination, special public health focus, and diseases of public health importance. However recent developments are necessitating the inclusion of Human Pandemic Influenza and Pertussis in the list of priority diseases.

IDSR is expected to enhance early detection, reporting and timely response to epidemic prone and other priority endemic diseases. The functions of detection, analysis, investigation, response, feedback and evaluation are interdependent and should always be linked. It is the integrated approach to this kind of disease surveillance that this study aims to investigate.

## **1.2 Problem Statement**

The challenges faced by Disease Surveillance in Ghana have been enormous. The vertical approach to surveillance, irrational use of resources, the lack of adequate timeliness and completeness of reporting, lack of data analysis and feedback on reports, are just a few amongst such challenges. These have culminated in a situation where there is inadequate

information for decision making. A typical example was the late detection of the 1996/ 97 meningitis outbreak in the country which resulted in over 19,000 cases.

On the other hand, duplication of roles, poor coordination amongst various system managers and heavier workload de-motivate staff and often result in non-availability of information or little use of requisite information for an appropriate response during routine public health activities or public health crisis. Also of importance is the fact that work load on health workers involved in surveillance is increasing and new interventions are being introduced without considering existing IDSR structures. Disparities exist in data reported for the same event in a district. A similar scenario can be observed for some reports received at the Disease Surveillance Department and the Centre for Health Information Management on the same health events.

In September 1998, the 48<sup>th</sup> meeting of the Regional Committee for Africa was held in Harare, Zimbabwe. Through resolution AFRO/RC48/R2, member states (including Ghana) adopted IDSR as a regional strategy to help establish an effective and functional surveillance system that will generate information for timely action, thus contributing to the reduction of mortality, disability and morbidity. Ghana's assessment of the implementation of IDSR in 2006 indicated that IDSR had not reached optimal levels and as a result data required to forecast, predict and control disease are incomplete and not timely. These resulted in missed opportunities to detect disease outbreaks.

This study therefore sought to assess the extent of integration of surveillance activities and find out the factors that militate against, as well as facilitate IDSR.

### **1.3 Rationale**

The need to strengthen disease surveillance and response systems is recognized globally. The revised International Health Regulations (IHR), adopted by the World Health Assembly in May 2005, gives further impetus to this issue.

This study offers an opportunity for the level of integration to be assessed after Ghana adopted IDSR in 1998. For East Akim Municipality, the study will help establish perceptions of integration within the context of IDSR and problems faced by health staff engaged in disease surveillance.

Findings from the study will aid in the provision of the needed information to redesign health interventions and make the work of health staff engaged in IDSR activities more efficient for better output.

There is limited information pertaining to the integration aspect of IDSR in Ghana and information emanating from this study would be invaluable in strengthening the implementation of IDSR in the district and in the country at large. A good implementation would allow districts to maintain a functional and effective surveillance and response system that is able to detect, investigate and respond to public health emergencies of national and international concern.

## **1.4 Objectives**

### **1.4.1 Main Objective**

The main objective of the study was to assess the effectiveness of the Integrated Disease Surveillance and Response strategy in East Akim Municipality of the Eastern Region.

### **1.4.2 Specific Objectives**

The study specifically tried to:

- 1) assess the perception of health workers on integration of disease surveillance activities;
- 2) determine the level of integration of reporting tools and resources for integrated disease surveillance and outbreak response;
- 3) describe the attributes of the IDSR system;
- 4) identify factors militating against the integration of surveillance activities under the IDSR strategy;
- 5) identify opportunities for integration of surveillance activities.

## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 The Perception of Integration of Disease Surveillance

For integrated approach to disease surveillance, several activities are combined to collect information from a single focal point at each level through the use of multipurpose/integrated data collection forms. It has emphasis on linking data to analysis and response mechanism through maximum participation of key stakeholders such as the laboratory, programme managers and the community. It takes advantage of similar surveillance functions, skills, resources and target populations and responds to situations with the most effective public health intervention based on hard evidence (GHS, 2002).

Very few studies exist in the area of perception of disease surveillance systems. A study of physicians' attitudes toward mandatory reporting of infectious diseases carried out showed that doctors' knowledge and compliance with notification systems is low, even in countries with well-funded health systems (Calain, 2006). Quist-Therson & Adatsi (2005) in their assessment of the IDSR system at Asuogyaman identified that the lack of knowledge in disease surveillance, results in inability to collect surveillance information and use that information in the control and prevention of outbreaks.

The IDSR approach is considered the most cost-effective, because it provides opportunities to reduce cost, ensures sustainability, upgrades and updates all the existing surveillance systems (WHO, 2003a). The thrust of IDSR still focuses on the early detection and reporting of epidemic prone diseases (GHS, 2002). A closer look at the integration component will also give an indication of the success or drive of IDSR.

## 2.2 Integration of Reporting Tools and Resources

The hallmark for IDSR is the integration component since that is what is going to harness all available resources to ensure an effective and efficient disease surveillance system. A major disadvantage is that certain programme details get lost as part of the integration process.

Although specific disease control programs require different surveillance data, they all require similar core activities (case detection, reporting, investigation, confirmation, analysis, interpretation and action) and support functions - monitoring and supervision, training, standards and guidelines, communications and laboratory support (GHS, 2002). Resources are combined to collect information from a single focal point at each level (Thakur, 2006).

An assessment in Burkina Faso after adopting IDSR in 1998 found a marked improvement in the co-ordination of epidemiological information centres at both the regional and district levels. Critical changes such as creation of a public health laboratory, a national epidemic response committee, posting of highly trained and motivated epidemiologists to various surveillance units and improving rapid response to epidemics at the community contributed to this improvement (WHO, 2003c).

In a similar kind of study conducted in United Republic of Tanzania, it was found that standardized case definitions were used for only 14% of 21 infectious diseases. Nineteen (73%) health facilities with HMIS had adequate supplies of forms; 35% reported on time; and 42% received supervision or feedback. Twenty-nine percent of medical offices with Health Management Information Systems had population denominators to use for data analysis; 86% were involved in outbreak investigations; and 79% had conducted community prevention activities (Nsubuga *et al*, 1998).

Good communication and coordination with other sectors in terms of sharing information and resources were observed in a study in Tanzania. The study added that it was important that districts' capacity on IDSR be strengthened to enable them monitor and evaluate their own performance using established indicators (Rumisha et al, 2001).

Laboratory confirmation of certain priority diseases is a key element of the IDSR strategy. The Technical Guidelines for IDSR in the African Region recommends that for epidemic-prone diseases, 5-10 suspected cases should be laboratory-confirmed once a disease-specific threshold has been reached (WHO & CDC, 2001). The involvement of the laboratory in disease surveillance is quite crucial. In the Karnataka State of India, peripheral laboratories provided services for 15% of diseases, district laboratory provided services for 70% of the diseases, state laboratory provided services for 5% of diseases, and reference laboratories provided services for 10% of diseases which are under existing surveillance. For response to outbreaks, the disease surveillance unit was alerted 16 times about the problem of different diseases in 12 months but was able to respond immediately on only 4 occasions. This shows that the health administrative set up of the district was not seriously viewing the problems which have been identified (Sathyanarayan, 2005).

WHO also collaborates with numerous institutions to maintain programmes to control non-eradicable infectious diseases such as HIV/AIDS, cholera, tuberculosis and malaria. These specific diseases are generally managed through separate programmes. Under certain circumstances for example, if a disease can be eradicated or if it poses a high risk of a global pandemic, it attracts broad support to result in comparatively effective surveillance systems (GAO, 2001). In the opinion of the researcher, although such focused surveillance systems

injects resources into the system, it has the potential to undermine the integration component of IDSR activities instead of providing opportunities to strengthen it.

An assessment of Ghana's surveillance system in year 2000 indicated several gaps in the reporting system. The lack of documentation of receipt and transmission of reports was one of them. Little or no analysis of data was carried out at the health facility level. However, where the leadership had the capacity, some analysis was observed. Analysis of surveillance data at the regional and district level was observed for 16 out of the 23 priority diseases (GHS/MoH/WHO/CDC, 2000). Malm *et al* (2008) found that analysis of data was virtually absent in an evaluation of Tuberculosis Surveillance programme in Ghana.

The majority of the laboratories did not transmit reports of isolated pathogens to relevant authorities such as the Diseases Control and Surveillance Units and the National Public Health and Reference Laboratory (NPHRL). Very little feedback was transmitted from the districts down to the health centres and communities. Most of the feedback given to the health centres and communities was verbal (GHS/MoH/WHO/CDC, 2000).

A similar assessment in Asuogyaman District, also of the Eastern Region by Quist-Therson & Adatsi (2005) revealed that no case definition or fact sheet was found anywhere in the district. No form of analysis was done at private health institutions. The district however had some laboratory capacity to confirm some diseases using laboratory procedures.

It should thus be possible to envisage a holistic approach which takes into consideration all core activities and support functions, in order to strengthen the national surveillance system through coordination, prioritization and streamlining of all surveillance activities (WHO, 2000).

### 2.3 Attributes of IDSR

Each surveillance system has characteristics or attributes (Romaguera *et al*, 2006). They are simplicity, flexibility, acceptability, sensitivity and timeliness among others. Efforts to improve certain attributes such as the ability of a system to detect a health event (sensitivity) may detract from other attributes, such as simplicity, flexibility, acceptability or timeliness. The combination of these attributes determines the strengths and weaknesses of the system (Romaguera *et al*, 2006).

The simplicity of a surveillance system refers to both its structure and ease of operation. Surveillance systems should be as simple as possible while still meeting their objectives. It may be useful to think of the simplicity of a surveillance system from two perspectives: the design of the system and the size of the system. An example of a system that is simple in design is one whose case definition is easy to apply and in which the person identifying the case will also be the one analyzing and using the information. A more complex system might involve special laboratory tests to confirm the case, telephone contact or a home visit by a public health nurse to collect detailed information and multiple levels of reporting. This second description was the exact scenario found as existing in disease surveillance systems assessed in Asuogyman District and Kassena Nankana Districts (Wiah & Kwadje, 2005). In a study by Nyarko *et al* (2008), the AFP surveillance system was also described as complex.

In Ethiopia, the Epidemiological Surveillance System was originally designed to collect data and provide information to specific programmes. However, it is known that data collection tools do not always meet the specific needs of such programmes. An example is the difference observed in the age classification of the Epidemiological Surveillance System and the AIDS system (WHO, 2001b).

On the other hand, a flexible surveillance system can adapt to changing information needs or operating conditions with little additional cost in time, personnel, or allocated funds.

Flexibility is probably best judged retrospectively, by observing how a system responded to a new demand. Unless efforts have been made to adapt a system to another disease, it may be difficult to assess the flexibility of that system. Generally, simpler systems will be more flexible. Fewer components will need to be modified when adapting the system for use with another disease. Nyarko *et al* (2008) found the AFP Surveillance system in operation at Greater Accra region of Ghana as flexible.

One of the attributes which is largely subjective is acceptability. It reflects the willingness of individuals and organizations to participate in the surveillance system. To assess acceptability, one must consider the points of interaction between the system and its participants. Indicators of acceptability include subject or agency participation rates, completeness of report forms, laboratory or hospital/facility reporting rates and timeliness of reporting. The assessment in Asuogyaman in 2005 again showed that private sector participation was poor because they were not having the needed tools for reporting (Quist-Therson & Adatsi, 2005). Further more Nyarko *et al* (2008) in the evaluation of the AFP Surveillance system observed that date of receipt of laboratory results was mostly not indicated.

The sensitivity of a surveillance system can be considered on two levels. First, at the level of case reporting which is the proportion of cases of a disease or health condition detected by the surveillance system and secondly its ability to detect epidemics.

Timeliness reflects the speed or delay between steps in a surveillance system. The time interval linking any two of the steps in this figure can be examined. The interval usually

considered first is the amount of time between the onset of an adverse health event and the report of the event to the public health agency responsible for instituting control and prevention measures. Another aspect of timeliness is the time required for the identification of trends, outbreaks, or the effect of control measures. With acute diseases, the onset of symptoms is usually used. Weekly reporting forms are often accumulated and sent together with monthly reports from the health facilities to the districts and from districts to the region. Shortage of staff, particularly at the sub-district and in some cases, at district level, contributes significantly to these delays in reporting (GHS/MoH/WHO/CDC, 2000).

For example, a study of a surveillance system for *Shigella* infections indicated that the typical case of shigellosis was brought to the attention of health officials 11 days after onset of symptoms, a period sufficient for the occurrence of secondary and tertiary transmission. This suggests that the level of timeliness was not satisfactory for effective disease control. In contrast, when there is a long period of latency between exposure and appearance of disease, the rapid identification of cases of illness may not be as important as the rapid availability of exposure data to provide a basis for interrupting and preventing exposures that lead to disease.

In Uganda, six months before an assessment, most surveillance activities conducted by health facilities had neither received a performance review (68%) nor received feedback (85%) from the district or national levels. Respondents at 32 (62%) health facilities had received training in the use of surveillance forms. Most health facilities had calculators (77%) and stationery (75%), and few had telephones (27%) or radio-call facilities (14%) (MMWR, 2000). Evaluation of surveillance systems ideally should be done on regular basis and should be closely integrated into the operations of the system (Romaguera *et al*, 2006).

The assessment did show majority of respondents were not satisfied with the surveillance system. Reasons listed for dissatisfaction across all levels included lack of training, inadequate communication, and the substantial workload involved with the current system (GHS/MoH/WHO/CDC, 2000).

## **2.4 Factors militating against IDSR**

Health care systems typically emphasize the care and treatment of sick people and that support systems such as surveillance are generally assigned a lower priority and receive comparatively few human and material resources (GAO, 2001). In a district health system where activities are undertaken by polyvalent staff, such data collection systems become quickly and severely overloaded. Also some concerns exist about the reliability of data collected by the same staffs that are in charge of programme planning and management. Experiences in Cameroon, Chad and Pakistan had shown that it takes serious and sustained efforts to convince vertical programme managers of the well founded basis of integrated data collection (WHO, 1994).

Timeliness is a key surveillance system metric and should be periodically evaluated because it can reflect the time delay between any number of response steps in the public health surveillance process (Jajosky & Groseclose, 2004). An assessment in Ethiopia showed that the completeness of reporting was 91% (10 out of 11) for the regional health bureaus, and 54% (6 out of 11) for the zonal health departments. Timeliness of reporting was 75% and 45% respectively (WHO, 2001b).

The weekly reports sent on time in a study in India shows that only 69% of reporting units had sent the diseases surveillance report on time. This disparity will hamper the quality of

work towards disease surveillance as the weekly reporting itself tells the sensitivity of surveillance system (Sathyanarayana, 2005).

During a 6-month period before an assessment in Uganda, most surveillance activities conducted by health facilities had neither received a performance review (68%) nor received feedback (85%) from the district or national levels (MMWR, 2000).

Indeed, health care system has many barriers to effective analysis and use of surveillance data for decision-making at local level. In resource poor countries, decentralization can leave districts with insufficient resources, which may seriously affect the ability to carry out IDSR. This was evident in Georgia and seems to be related to inadequate financing of IDSR with major gaps observed at the local level. The extensive decentralization that took place in Georgia may have adversely affected the IDSR system (Djibuti *et al*, 2006).

In some cases the surveillance function is far removed from any corresponding action such as disease control efforts, outbreak response, health resource allocation or national health policy. Outdated surveillance systems, in which new surveillance targets have been added but old ones never removed, often lead to central bodies collecting huge amounts of data with little or no analysis and use of the corresponding information. Feedback to the data collectors is rarely provided. The surveillance system becomes driven by the need to collect and move data while scant attention is given to using the data at each level of the health service for decision-making (PAHO, 2000).

The available human resource is limited both in epidemiological skills and numbers to effectively implement IDSR activities. In Uganda, for example, officials charged with assessing the national surveillance system found that a shortage of trained health care

workers at peripheral health units contributed to inadequate analysis and application of data for decision making, incomplete and untimely reports sent to higher levels and a lack of laboratory confirmation or accurately validated diagnoses (GAO, 2001). This scenario can equally be identified in Ghana.

Equipment shortages or the lack of it is also known to constrain surveillance activities. According to WHO, 60 percent or more of laboratory equipment in developing countries is outdated or not functioning. In addition, 16 of the 19 WHO-sponsored assessments of African national surveillance systems that were reviewed reported weaknesses in laboratory capacity, ranging from a lack of trained technicians to deteriorating buildings, and 9 specifically cited lack of laboratory equipment or poorly maintained equipment as reasons for difficulty in confirming cases.

Many people in developing countries live in remote areas that are not served by organized health care facilities. Weaknesses in transportation and communications infrastructure substantially impair surveillance in these areas (GAO, 2001).

Multiple reporting systems, enormous job load on peripheral workers, unclear lines of authority in the event of an outbreak, poor integration of laboratories into public health systems, and weak involvement of private health care providers have combined to further hamper surveillance efforts. The result is that, a system's ability to understand and control infectious disease threats of public health is reduced at every level (GAO, 2001). Much of the data remains unprocessed, or, if processed, unanalyzed, or, if analyzed, not read, or, if read, not used or acted upon (Chambers R, 1994).

## **2.5 Opportunities in facilitating the Integration component of IDSR**

At the WHO-AFRO Regional Committee meeting of September 1998, it was resolved that within ten years, all Member States will have established an effective and functional IDSR system that will generate information for timely action thus contributing to the reduction of mortality, disability and morbidity. The Director-General of WHO then issued a call to invest in healthy development, which should also translate into investing in disease surveillance in 1999 (PAHO, 2000).

Disease surveillance is a long-term effort that requires investment in national capacity-building, such as laboratory strengthening and field epidemiology training. Short-term and relatively low investment can rapidly have a visible impact in the specific area of epidemic surveillance and response. However, the overall strengthening and sophistication of routine surveillance systems is critical but necessarily more costly, and can only produce tangible results on a mid or long term basis (PAHO, 2000).

In most instances, surveillance is conducted under the aegis of state health laws passed by state legislatures or regulations developed by health departments or boards of health through an administrative process. In epidemic investigations, the field team is usually given oral approval for setting up emergency surveillance systems, but when long term surveillance systems are being considered it might be necessary to obtain written clearance from appropriate authorities (Thacker & Birkhead, 2006).

It is essential that feedback loops be built into national surveillance systems. This may be a regular epidemiological bulletin or website with tables and graphs showing trends, progress towards targets, and reports on the investigation and control of outbreaks. To maintain the momentum for the surveillance effort, it is crucial that the personnel involved in surveillance

activities regularly see the impact of their work, since at the peripheral level it is usually done in addition to a heavy clinical workload (PAHO, 2000). Before this could be easily achieved, data managers need to be trained because many of those assigned responsibility for analyzing disease information are able to produce accurate tables and graphs but cannot probe the data to identify discrepancies that demands that further investigations be made (GAO, 2001).

Participants in the surveillance system should be properly trained for their surveillance tasks, through both initial and ongoing in-service training. In an integrated multi-disease approach, field or intervention epidemiology training will provide general surveillance and response skills, which can be applied almost anywhere in the system and for any disease surveillance and response needs. General surveillance and response skills are crucial in the event of the emergence of diseases not anticipated by the surveillance system. Short-term and long-term training courses in field epidemiology should be available (PAHO, 2000).

Training in laboratory techniques should also take an integrated multidisease approach where the same or a similar technique (e.g. microscopy, serological assay) is used to diagnose various diseases. The integrated approach to training should also encourage basic laboratory training for epidemiologists and some epidemiology training for laboratory technicians, in order to ensure that both groups understand each other's needs and approach to surveillance (PAHO, 2000).

Critical to the usefulness of surveillance systems is the timely dissemination of surveillance data to those who need to know. Analyzed data should be disseminated on regular basis so that control and prevention measures can be implemented. It is also important to recognize in print persons who have contributed to the surveillance efforts. People like to see their names

in print and people like to belong. It helps justify their role in the prevention process and gives them a degree of responsibility as well. Insensitivity to persons involved in IDSR dooms it failure (Thacker & Birkhead, 2006).

## CHAPTER THREE

### 3.0 METHODS

#### 3.1 Type of Study

The study was a descriptive study. A qualitative approach was employed to collect information on the level of integration achieved by the IDSR being implemented in East Akim Municipality.

#### 3.2 Study Area

The study area was the East Akim Municipality. It is centrally located in the Eastern Region with Kyebi as its capital. Kyebi which is both the administrative and traditional capital with geographic coordinates of  $6^{\circ} 9' 39''$  N and  $0^{\circ} 33' 21''$  E is located about 56 kilometres from Koforidua, the regional capital. The East Akim Municipality is bounded on the North by Atiwa, North-East by Fanteakwa, West by Kwaebibirim, South by Suhum Kraboa Coaltar and East by Yilo Krobo Districts (Fig. 3.1). The Municipal covers an area of 950 square kilometres. The municipal is one of the 17 administrative districts in the Eastern Region. River Densu and River Pra have its source in the municipality. The main vegetation of the district is forest with traces of savanna in the North Eastern Sector.

The Municipality has 6 sub districts namely Tafo, Kyebi, Apedwa, Asafo, Bunso and Asiakwa. There are two hospitals at Kyebi and New Tafo, and a number of health centres in all the sub-districts. Maternal, Reproductive and Child Health Centres (RCH) also offer health services to the people. Private sector participation is evident with 2 private midwifery practitioners.

**Fig 3.1: Maps of Ghana and Eastern Region indicating East Akim Municipality**



There are 5 doctors operating in the district with a population of 111,688 (2008). Doctor: Population Ratio is 1: 22,338. In all, 91 nurses are at post in the district providing health services to the people, giving a Nurse: Population ratio of 1: 1,228. There are 5 Technical Officers and 3 Field Technicians responsible for disease surveillance in the whole district.

There are 22,338 persons for every Technical Officer. Other professionals including one pharmacist, 7 dispensary officers and one laboratory technician are inadequate to effectively meet the health needs of the people.

The main economic activities in the district are farming, petty trading, small-scale industries and employment in the formal sector.

These notwithstanding, there still exists a number of problems relating to diseases and geographical accessibility to health services. From communities such as Kwesi Komfo in the extreme south to Bunso towards the north which are located along the Accra-Kumasi road are found a number of health facilities.

### 3.3 Variables

**Table 3.1 Table of Factors influencing Integration and Variables**

No.	Factors influencing Integration	Variables
1	Use of parallel channels for reporting	Existence of parallel channels for reporting
2	Lack of regular IDSR meetings	Frequency of IDSR meetings
3	Weak feedback system	Number of feedbacks
4	Weak laboratory support	Number of laboratory support
5	Lack of reliable communication equipment	Availability of reliable communication equipment
6	Use of complicated data reporting tools	Availability of user friendly data reporting tools
7	Lack of integrated use of available resources	Utilization of available resources
8	Lack of the involvement of key stakeholders	Level of involvement of key stakeholders
9	Insufficient training of health staff	Training in IDSR
10	Lack of reporting tools	Availability of reporting tools
11	Untimely submission of report	Timelines in report submission
12	Incomplete submission of data	Completeness of report

13	Vertical programmes	No. of vertical programmes
14	Involvement of stakeholders	Proportion of stakeholders involved

### **3.4 Sampling**

#### **3.4.1 Study Population**

The study population was made up of health staff in the formal sector, private health practitioners and community based surveillance volunteers selected from various administrative levels.

#### **3.4.2 Sampling Method**

A total of twenty (20) respondents were selected from the various administrative levels of the health system including four (4) CBSVs. A purposive sampling method was adopted to select all the respondents with the exception of the CBSVs. The selection was done at the national, regional, district, sub-district and the community levels.

At the district level, two (2) sub-districts were randomly selected. The names of the six sub-districts were written on pieces of paper, folded and put in a container. The two sub-districts were then picked without replacement.

At the sub district level, two CBSVs within the sub district were selected through a simple random sampling technique. The names of 12 and 15 CBSVs for Asiakwa and Bunso sub-districts respectively were written on pieces of paper, folded, mixed, and selected without replacement till 2 CBSVs for each sub-district were picked.

At the national level, the following were selected; Head of Disease Surveillance Department, and one Disease Surveillance Officer at the DSD. Considering the fact that DSD had to

perform the disease surveillance functions of programmes, three (3) Programme Managers were purposively selected. Thus EPI, TB and Buruli Ulcer Control Programmes.

Three (3) respondents were purposively selected from the regional level and interviewed on disease surveillance activities. The Deputy Director of Public Health was selected because of the role as a manager for all public health activities in the region. The Regional Disease Control Officer was selected due to related responsibilities being close to disease surveillance. The third respondent at the regional level chosen was the Institutional Public Health Nurse to aid in assessing the functionality of the Public Health Unit of the Regional Hospital in the context of IDSR.

At the district level, a total of four (4) respondents were purposively selected. The District Director of Health Services was selected to respond to managerial questions relating to the implementation of IDSR. The District Disease Control Officer was included because they are the main implementers of disease surveillance. The District Public Health Nurse was also selected to assess the level of involvement of other cadre of staff apart from Disease Control Officers. Finally at this level, one (1) private practitioner was purposively selected to assess the public –private partnership in the implementation of IDSR.

In the selected sub-districts for the study, two respondents were purposively selected. The Medical Assistant at the sub-district was selected to give perspectives from a clinician point of view. The other respondent interviewed was the Disease Control Officer.

### 3.5 Data Collection Techniques & Tools

**Table 3.2 Data Collection Techniques & Tools**

No	Data Collection Technique	Data Collection Tool
1	In-Depth Interview	Interview Guide, Pen, Writing Pad, Digital Recorder
2	Record Review	Review Checklist, Eyes and Other Senses, Writing Pad, Pen

#### 3.5.1 Ethical Issues

The proposal was submitted to the Ethical Committee of the Ghana Health Service for review and subsequently approved to proceed with the study. Permission was sought from the various heads at the administrative levels as well as the individual respondents. Information was obtained from respondents after informed consent had been given by way of signing or thumb printing a consent form which was administered by the researcher.

#### 3.5.2 Pretesting & Review of Tools

A pre-test of the instruments was carried out at two of the administrative levels, thus the Akuapem South District of the Eastern Region and the national level. Findings from the pilot study greatly enhanced the validity of the data collection tools and estimated the time spent on data collection and analysis. The necessary revision of the data collection tools was made before the actual data collection for the study began.

#### 3.5.3 Data Collection

Data was collected through in-depth interviews of key informants. This method was utilized because the procedure allowed the researcher to explore and describe the integration process. The other method employed was record reviews which also allowed the verification of information obtained through the interviews. The weekly reporting form, the monthly reporting form, case-based investigation forms, minutes of meetings and supervisory reports were reviewed. One audio recorder was used and an interview schedule guided all the in-depth interviews. The interviews were recorded on a digital recorder and lasted for 35 minutes to 75 minutes, and were transcribed soon after the interview.

Prompts were used as sparingly as possible to help respondents think about actual issues as they existed. In addition to that whenever respondents provided answers which were unclear or complex, the researcher asked for clarification.

#### **3.5.4 Quality Control**

A meeting was held at the end of each data collection session with research assistants to check whether the notes taken compared favourably with the audio recordings. The recording was played back and where the sound was inaudible, respondents were made to clarify the same point the following day. In addition, each recording was given a file name to ensure correct identification of each respondent.

#### **3.6 Data Processing & Analysis**

The researcher collated the various data from the in-depth interviews. The data (transcriptions) were coded using the various objectives in the study as themes.

A computer software tool, Weft QDA developed in 2006, was used to support analysis of the data. Some manual analysis was also done to pick textual data of importance.

Data obtained were analyzed under various themes according to the working definition of integration within the IDSR context and described as such.

### **3.7 Limitation of Study**

Findings based on this purposive sampling approach can not be used to fairly represent the entire country. The data collection methods employed because of the exploratory nature of the study makes respondent bias a possibility.

## CHAPTER FOUR

### 4.0 RESULTS

#### 4.1 Perception of IDSR

##### Understanding of IDSR

Varied responses were obtained with regards to what is meant by IDSR. One respondent did not know what integrated disease surveillance and response is. Another understood it as *'Integrated Disease'* whereas there were more elaborate responses from the national level such as *"IDSR is an acronym for Integrated Disease Surveillance and Response, which is a strategy proposed by the WHO which was adopted by member states including Ghana in 1998 to strengthen the surveillance systems"*. Some respondents explained that it aims at strengthening all the surveillance functions in an integrated manner. The surveillance functions according to them include; *"both the core and support functions at all the various levels including the integration of forms, issues of training so that surveillance activities are performed in an efficient way"*.

Three respondents viewed IDSR as the utilization of shared few resources to achieve surveillance goals, in other words, maximizing the use of available resources. Another respondent put it this way;

*"It is applying the little that we have in terms of resources, both human and material resources to look at a wider range of communicable diseases, and also look at how we can identify them, report about them and also to improve the human life against these diseases. Those strategies can be applied against a range of diseases"*.

Another of a similar disposition at the regional level said;

*"... more or less it's a way of trying to maximize the use of resources and integrating our surveillance activities so that you don't 'verticalize' issues by going today to look*

*for this disease, tomorrow go that way ... but at least once you go for a disease you are able to combine”.*

The researcher observed that the inclusion of different staff attempting to carry out a similar role was seen as integration as one said;

*“formerly, the surveillance was a one line something but this time, other areas have gone in so when there is an outbreak other people get involved for success”.*

Another respondent at the district level shared a similar opinion;

*“...other staffs like CHNs are part of the whole process. They are able to collect data, report on data, analyze and also give response. So it’s not for a particular category of staff but it is integrated in such a way that everybody is part and parcel of it”.*

A few of the respondents saw IDSR as visiting communities to conduct case search for multiple diseases;

*“What I would say is IDSR is ...bringing together a lot of activities containing various diseases and then going out ...to search and to treat various diseases”.*

or conduct follow-ups of cases especially concerning communicable diseases to the homes in the communities.

So varied were responses that one looked at it in respect of how promptly outbreaks are responded to and effective interventions put in place. Thus;

*“... how we respond promptly to our diseases in terms of an outbreak and in terms of prevention how we put in place interventions to prevent unforeseen circumstances”.*

### **Importance of IDSR**

The common theme here was that IDSR “*was good*”; however there was an opinion of a respondent who added that “*we should build understanding*”. The same respondent cited a popular Twi proverb;

*“when the two of us set a trap, the two of us should go and check if it has caught something [amidst laughter from respondent and interviewer]...It doesn’t mean once it is integrated all functions now reside in the integrated agency...you see, but then if there is an activity, this is what is happening, what do we do, then we again in an integrated manner agree on strategies for response”. Another also cautioned that, “...you must also take into consideration certain things which can not be integrated and therefore we should not try to force to integrate them”.*

Another reason expressed for it being good was that IDSR facilitated the detection of outbreaks and priority diseases. This was shared by a number of respondents. To some respondents, it is a very laudable idea. It would aid in looking at the conditions in its totality rather than individualizing things and as it has been helpful in picking on those priority diseases for prompt action.

Some respondents were of the view that IDSR was better placed to help implement the functions of surveillance. One respondent observed that, “*...it is good because it is a total system which deals with data collection, data collation, analysis and giving response*”.

There were other expressions such as “*IDSR is a tool...a surveillance strategy which makes it possible to achieve the objectives in the surveillance system*”. For some, IDSR was seen as a guide for surveillance teams to know where to go and where not to.

## **Training**

The respondents mostly acknowledged they had been trained. However two of them stated they had not been trained, whereas one mentioned that though trained; *“...it wasn't an intensive something, it was just a brief”*.

## **IDSR and Control of Communicable Diseases**

As to how IDSR has helped in disease control, Some of the respondents described IDSR as contributing to the reduction in disease outbreaks, especially the Vaccine Preventable Diseases. This point was well recognized when one respondent stated this clearly;

*“... if we cast our minds back to the immediate past, how many of us even thought that Measles was something we could have brought down, but it is clear cut Measles is down now and we could attribute that to IDSR”*.

Similarly the success of the Polio Eradication Programme was partly attributed to AFP Surveillance as a respondent said *“The Polio Eradication, the AFP surveillance...it's been very good”*. Some believed IDSR had created an enabling environment for the early detection of cases before it spread.

The role played by IDSR was elaborated further as some respondents mentioned that through IDSR they have working case definitions which everybody understands and makes it possible for every clinician to do correct surveillance diagnosis. Some believed the needed awareness had been created by IDSR to control communicable diseases as one said, *“...it has created awareness because CBSVs were also trained and they also go out looking for diseases”*.

IDSR had contributed to diseases control in diverse ways. A typical remark with regards to this was that; *“...If you have resources on one disease, you can use it to support other*

*disease conditions...*” a respondent said at the regional level. The reason for integration is to make it more efficient. Some respondents believe one could use resources for YF to print fact sheets for other conditions. An example was given that Polio funds could be used to hold surveillance review meeting where surveillance for various conditions are discussed and reviewed. Another advantage given about IDSR was the fact that it was *“Very easy to apply the principles for Polio surveillance for Measles”*.

### **Integration in the context of IDSR**

The understanding of integration differed greatly among the respondents. This was vividly captured in the response of one of the respondents; *“I did a work on my MPH dissertation on intersectoral collaboration in Primary Health Care. I decided to define these words and I realized that they are almost the same; integration, collaboration and co-ordination. I realized that these words are very woolly”*. However more prominent in the responses was the fact that integration was likened more to the involvement of different cadres of staff. One respondent referred to it as *“team work”*. A response which exemplified this assertion was given as follows;

*“In our system when you talk about surveillance, it is basically a disease control activity. This is the case where we don’t have a lot of disease control staff in the system so it’s being integrated in such a way that other staffs like CHNs are part of the whole process. They are able to collect data, report on data, analyze and also give response. So it’s not for a particular category of staff but it is integrated in such a way that everybody is part and parcel of it”*.

Another respondent explained that integration means it is not a one line activity, others are involved. The involvement of staff was further buttressed by the fact that they help in each

others' work as the main indicator of integration. A response from the district level stated that;

*"... the staff are also helping in each others' work so you see the community health nurse going out to do surveillance..."*

Nevertheless some opinions differed as other respondents saw integration as applying the few resources, strategies and everything there is to a whole range of communicable diseases, not ignoring any of them".

There was concern regarding the process of integration itself becoming 'verticalized', considering the following comment; *"We work together at all stages. You should also make sure integrated means integrated and not taking over"* a respondent cautioned.

## **4.2 Integration of IDSR Activities**

### **4.2.1 Generic Forms**

Generic reporting forms were being used at the levels but it was limited to only case-based reports. The regions and districts never let them run out as one respondent put it;

*"...we don't let it get finished, we have a photocopier here"*

However, the national level was responsible for providing forms but this is done initially and *"the regions are supposed to reproduce the forms for the districts"*, a respondent at the national level stated.

### **4.2.2 Information collected from single focal point**

One of the cardinal signs of integration is the collection of data from a single data source for public health action. This was lacking at the regional and especially the national level as

typified in this expression by a respondent; “... *that is the objective or goal of IDSR, that is what it is supposed to be but then it is not happening....it is not happening yet*”. Akin to this assertion was the fact that there are two sources, the Surveillance Unit keeping some data and also the Regional Health Information Unit also keeping some data. There are attempts at merging the two at the regional level as one respondent stated. This was probably not the case at the peripheries as one officer stated; “*I am the only officer that generates all the data for the sub district*”.

The need for an authoritative data source was recognized by many respondents as one suggested that;

“... *you should have one central point where we have authoritative source so that if you get it from there you know that is the authoritative source*”.

#### **4.2.3 How resources are combined**

The integration approach to disease surveillance involves the sharing of resources for surveillance functions. One respondent mentioned that “*as for resources, they are in a general pool so there are no special earmarked resources for IDSR*”. Another mentioned that “*resources in terms of finance are in a general pool which is utilized for any planned activity, including IDSR related activities*”.

#### **4.2.4 Data analysis**

Records review did indicate that data analysis was done daily, weekly, monthly and occasions such as preparing for review meetings. In instances that analysis was done, it was largely due to the need for a report to be submitted yet populations at risk were sparingly used during analysis of disease surveillance activities. On some few occasions, it was done

for malaria and meningitis only because the reports demanded those indicators and epidemic/alert thresholds needed to be monitored. This was described as a weakness by one respondent who stated that; *“One of the short comings is that people are too fond of using the number of cases”*. Another respondent described further that *“People just say 20 cases of this and therefore the tendency is to say these people have 20 cases therefore there is a bigger burden on the community without looking at the rate”*.

#### **4.2.5 Response to Outbreaks/ Actions taken as a result of data analysis.**

Several responses did suggest that there was no conscious effort to perform data analysis to detect outbreaks apart from collation for onward submission to the next level. Even after the detection of a significant high number of Chicken Pox cases after data collation, one respondent stated;

*“They were not used to that figure so they were having 15 or so for that particular month and it was rare... they were having 5 to 7. For the 15, I saw it as something had to be done before it becomes an outbreak”*.

Nevertheless, there was a meeting of the Epidemic Management Team, *“...to find out how the situation could be curbed”* at the sub-district level.

It was also observed that EPI coverages were frequently analyzed as compared to disease surveillance data. This probably has led to what one respondent described after a supervisory visit;

*“It’s by chance...because the last time when we went on monitoring, some districts had reached the alert threshold but life goes on normal. They don’t even know when they reach the alert. Our early warning systems are not functioning... we are warned by the outbreak itself”*.

This was well described by Chamber R (1994) as; much of the data remains unprocessed, or, if processed, unanalyzed, or, if analyzed, not read, or, if read, not used or acted upon.

#### **4.2.6 Involvement of Laboratory**

All the respondents mentioned the existence of an epidemic response team with high participation of the laboratory. All the respondents indicated that the laboratory involvement was encouraging. *“I must say they are doing well because we have the regional lab technologist on the team...”*, a respondent acknowledged. The laboratory personnel were also involved in supervisory activities. One respondent describing the involvement added that in their checklist, the laboratory components are also on it and they see it as a very crucial link in disease surveillance.

Most of the respondents indicated the involvement of the laboratory in the confirmation of cases. *“Without a good laboratory you would not even know what you are doing so we use the laboratory a lot”*, one respondent explained, as another noted that; *“You can’t say with your mouth it is this condition or that condition”*. The laboratory involvement went beyond only confirmation of outbreaks, because they have been taking specimens of disease outbreak conditions.

#### **4.2.7 Satisfaction with current Disease Surveillance System**

Some respondents indicated they were satisfied with the current disease surveillance system. The reasons given varied among them and included prompt response to an outbreak situation. A respondent at the district level stated; *“Like the whooping cough I was expecting the Disease Control people to go there, so when I informed them, the next day they went there”*. Similarly the involvement of different cadre of trained staff in IDSR was found to be a contributory factor. A respondent at the district level explained this further; *“...at least we*

*have most of the staff trained...we have the CBS too trained, because of that they are alert and we are not getting outbreak of diseases*". This was enough reason why there was satisfaction with the Disease Surveillance System.

Other respondents however did indicate, they were not pleased with the current surveillance system and reasons were largely attributed to lack of funds. Typical of such reasons were;

*"...sometimes you have to go out whilst there is no money", "...sometimes you are a bit handicapped with this scanty financial flow" and "... they (CBSVs) are complaining that there is no money, the communities are not supporting them with anything..."*.

Another respondent mentioned that it needs financing of regions and districts to carry out active surveillance so that we do not wait until cases start reporting at the health facilities.

The opinion of one of the respondents focused on weak staff strength;

*"I think we need to do more about it. I think we need to build the capacity of staff. As much as we are integrating we still need technical people to handle certain things...They need a lot of monitoring, we have to monitor to see whether they are on course...."*

Staff strength was described by one respondent as; *"Quantity wise the numbers should be improved ...So there are some critical staff which we need to get which are not there. So staff I would say is inadequate in terms of quality and quantity"*. Other reasons given for dissatisfaction of the current surveillance system are found in the following comment by a respondent;

*"In running an immunization programme ... key diseases like Mumps, Rubella and Pertussis are left out when we are also immunizing against some of these conditions,*

*how do you measure your success, especially against Pertussis? We also say surveillance should precede introduction of any vaccine so that we are able to determine the disease burden so I also wish that things like H. Influenza type B surveillance, Pneumococcal Diseases surveillance, things for which we are planning vaccinations in future should be integrated into the surveillance action plan. When surveillance is planning, and is integrated then the concerns of all the programmes should be considered. The current thing is too much internationally influenced”.*

The general assertion was that there was more room for improvement which was vividly captured in these statements; *“If I am to grade between one and ten, I will give six, where ten is the highest”* and *“We are doing well but we should focus and know what we are about”*.

### **4.3 Attributes of IDSR**

#### **4.3.1 Simplicity**

Simplicity of a surveillance system refers to both its structure and ease of operation. From the community, reports are channelled through 3 different levels before reaching the national level.

Meetings play an important role in bringing key stakeholders together, but convening meetings was seen as a difficult task as *“the Assembly man resides in Accra and was mostly not available”* thereby compromising the involvement of key stakeholders at the community level.

Most respondents agreed that IDSR was easy to operate. They have trained CBSVs who can detect outbreaks early. A similar opinion indicated that *“it is not difficult to operate, just that*

*you need the people to go along*". Thus the respondents did not see why it should be difficult to operate.

Some respondents had the opinion that there was the need to make use of available resources and others were of the view that the available structures were simply inadequate. Some frustrations were shared in these comments at the sub-district level;

*"Transporting specimens to Koforidua is very difficult. As at now we don't even have fridge for ice-packs so you have to go to town to buy ice blocks or the capital for icepacks. Even transportation to the district for case reporting and submission of reports has not been easy"*.

This was reiterated in this comment that *"staffing and transportation is lacking"* by two respondents at the district level. Others were of the opinion that the existing systems were right and only needed to be strengthened to make use of existing resources before any complaints. Only two respondents stated that the structures were inadequate but acknowledged the areas of relative weakness as staffing, transportation and communication.

Communication infrastructure was commonly described as weak. Most of the districts in the region, including the study area are not hooked to internet connectivity. The only swift communication is via the mobile phone which comes with a cost.

#### **4.3.2 Flexibility**

The question of "Do you think IDSR can cope with the addition of new diseases?" was asked in attempt to illicit the flexibility of IDSR. Some respondents were of the opinion that the current system was flexible enough to *"cope"* or *"accommodate"* new diseases or conditions. This was expressed in statements such as;

*“I think we can accommodate as many as... just that you have to know what you are looking for”.*

Similarly other respondents mentioned that it could accommodate more diseases but it depended on the information one needed.

The flexibility was said to be dependent on the availability of personnel, information needed and what one is looking for as stated by different respondents.

There were others who were of the opinion that the system is not flexible. One respondent stated that *“Familiar diseases could be added but new (emerging) diseases must get separate forms”*. Another described it as a package; *“...looks like a package, adding on is very difficult”*.

Others indicated that the paper work is becoming too many and that sometimes the same data filled on the surveillance form to DSD is also filled on reports to CHIM. They saw this duplication as a de-motivating factor.

### **4.3.3 Acceptability**

Stakeholders in the implementation of IDSR were identified at all the various levels.

Organizations such as the World Health Organization and Quality Health Partners were the institutions mostly mentioned as associated with disease surveillance.

A few respondents mentioned the unique role played by the chiefs with regards to social mobilization;

*“An ‘nkorsuorhene’ (sub-chief) occasionally provides us with drip stand, delivery beds and other items”*, a sub-district officer mentioned.

The CBSVs were even described as “...*people in real action*”, referring to the recognition of the important role they are playing. In spite of their crucial role, some respondents had problems with the filling of routine reporting forms;

*“I would not say it is fully complete. For instance the monthly surveillance form, it is front and back but they (health workers) fill the front and the back would not be filled”. This was further supported by responses such as “Most forms are not filled properly”, “Almost each sheet has a variable left out” and “... now when they bring the report and some places are not filled, we alert them, sometimes we even call them back...”*

These statements describe the level of errors found in the filling of forms. After acknowledging that forms were not well filled, the respondent further attributed the situation to organizational culture and nothing to do with the filling of forms itself. *“It has to do with an inherent problem we have. It appears that it is more of a culture...”*, the respondent added.

It was observed that the Private Practitioners involved did not do any disease surveillance analysis but rather collated and submitted such data to the sub-district level.

#### **4.3.4 Timeliness**

The timeliness of report submission from the district to regional level over the past 6 months was found to be 100%, likewise that from the sub-district to the district level. Ability of IDSR to detect epidemics was also used as a proxy measurement for timeliness. The use of Standard Case Definition (SCDs) was acknowledged as contributing to the early detection of epidemics. Some respondents said it has helped to identify at-risk groups because the definitions described vividly the meaning of thresholds, the various stages of diseases and its

impact on human population. To them IDSR is in a better position to detect epidemics. The role of SCDs was stressed in the statement by a respondent at the regional level that; *“The case definitions must be very sensitive and I think we are using sensitive case definitions”*.

The role of CBSVs again could not be ignored in terms of timeliness. Currently the CBS can detect epidemics and this one of the reasons why the IDSR can detect epidemics early.

#### **4.4 Factors militating against IDSR**

##### **4.4.1 Supervisory Visits**

On supervisory visits, all the respondents did mention they had not been able to carry out all planned supervisory visits. Factors that had contributed to this situation were *“lack of time”*, *“lack of funds”*, *“competing demands and “inadequate human resource”* as mentioned by the respondents. The extent of these factors varied amongst respondents. Some believed it is *“Money, and nothing to do with time”* whereas another also acknowledged *“Money is an issue but it is not all that big as time”*. Other reasons given were clash of programmes which compelled them to reschedule supervisory visits.

On integrated monitoring and supervisory tools, some respondents mentioned that, *“we interview on disease control, maternal mortality, under five mortality...”*, as part of their activities carried out during supervisory visits, thus trying to depict some level of integration at the district level. None of the levels had shortage of surveillance forms during the last 6 months.

##### **4.4.2 Adequacy of staff and resources**

Staff and resources available for disease surveillance were generally described as inadequate. However it was the reasons for the inadequacy that varied. One respondent remarked that;

*“Hmm, we need more staff; everywhere, we don’t have disease control officers in some of the areas”.*

Some indicated they do not have technical men in all the facilities. What they require is more qualified and motivated staff to undertake surveillance activities which is quite demanding.

There were opinions that emphasized that inadequate staffing should be seen in the context of *“human resource problem for the whole country”* which can be described as inadequate.

The issue of other resources such as computers, printers and the communication system has a long way to go. A respondent noted that;

*“...communication system at times is a bit weak. Not many of them are hooked unto the internet so at times you need to communicate to them by phone, text my message to them or call”.*

#### **4.4.3 Collaboration between IDSR and other programmes**

Generally speaking, collaboration was more evident at the lower levels. A programme with *“strong collaboration”* is the EPI, in the words of one respondent;

*“...all the disease surveillance functions are done by DSD whilst they focus on the programmatic issues of EPI”.*

Other programmes such as TB and Buruli had relatively lower levels of collaboration with DSD. Most of them are still running their surveillance programmes. The biggest challenge is how DSD can be the focal point for IDSR to do the surveillance for all these conditions.

At the regional level, a respondent highlighted that; *“... talking about IDSR, once those diseases are all part of our 23 priority diseases, we still look at them”*. At the district level, a

respondent indicated that; *"...the integration has reached a very high level so you don't really see a vertical programme being run"*.

## **4.5 Opportunities to Improve IDSR**

### **4.5.1 Factors identified**

Improvement in the human resource was seen as one way of improving IDSR by some respondents *"as getting enough human resource to do the work"*. One respondent observed;

*"I think we need to be upgrading the skill, the knowledge of the people and we need also to be creating awareness in the communities"*.

The respondents believed the situation could be improved by involving more people including doctors.

The IDSR modules were described as *'plenty'* by some respondents who further suggested regular training on IDSR for various cadres of staff including those at the lower levels, such as the labourers so that they would all know what IDSR is all about.

*"it should even be extended to the lower levels, the labourers and so on so that they will also know what IDSR is..."*.

Other respondents recommended decreasing the work load in terms of the paper work. Even though it is said to be integrated, *"...there is still a lot of vertical things... vertical integration... that's the way I call it"*, a respondent said (amidst laughter).

Funds sent to support IDSR activities *"must not be labelled donor pooled funds"* said one respondent but rather *"the funds are labelled IDSR funds"*. There was the fear of using the pooled funds for only office equipment leaving nothing for outreach activities. The CBSVs

asked for motivation; “you should also try and motivate us a bit” as was suggested. An example of how they could be motivated took many forms including;

*“If there are some items to be distributed, it should be given to me to do it”.*

Some observed that the provision of logistics such as vehicles, communication equipment, computers at the districts and regions would improve IDSR.

Finally, some of the respondents were of the view that for IDSR to be well implemented at the peripheries, the concept of “*Multi Disease Surveillance*” should be promoted, “*That is why some people do not use the name IDSR...Even at Ouagadougou they call it Multi Disease Surveillance Centre*”, a respondent noted.

#### **4.5.2 Areas of further training**

Problems existed with the diagnosis or classification of cases. It was mentioned that there had been cases of suspected Measles which were based on wrong diagnosis. The need for training was emphasized in all the responses. Two respondents shared the opinion that the concept of IDSR “*has not been fully understood*” and “*well explained*”. One of them elucidated on this issue;

*“...from the reaction of our staff though they know there is something called an epidemic, they don't know what to do in terms of that”.*

Some respondents suggested that the training should cover all aspects of IDSR. Some suggested it must cover “*The whole disease surveillance*”. These trainees must be made to go through all the modules from case detection to feed back, with emphasis on “*case identification*”, “*data analysis*” and “*outbreak investigations*”.

#### 4.5.3 Legislative issues

From the view point of the researcher, the availability and knowledge of legislations backing the implementation of IDSR would greatly enhance surveillance activities. Talking about the legislations, one respondent said;

*“I know they are there but don’t think Ghanaians fear legislation”. The respondent observed that this could probably be attributed to no sanctions when persons fail to notify authorities on notifiable diseases.*

It was observed that for disease surveillance, as one respondent indicated;

*“...what we have is virtually the guideline...We have guidelines but not a policy”, the respondent added.*

## CHAPTER FIVE

### 5.0 DISCUSSIONS

#### 5.1 Perception of IDSR

More respondents showed they knew quite well about IDSR, but it was the perception of integration within the context of IDSR that varied. The word 'integration' looked unclear and meant differently to people depending on their level of operation. At the district and sub-district levels, the involvement of different cadres of staff in performing an activity was perceived as integration. The national and regional levels mostly shared their perceptions as the judicious use of available resources to accomplish surveillance objectives or goals.

Generally, IDSR was seen to be a good strategy to facilitate the detection of outbreaks. However, sentiments were expressed by certain stakeholders on difficulties encountered in attempt to implement IDSR. There was the need for closer collaboration as not every thing could be considered for integration.

However the aspects of collecting information from a single focal point, linking data to analysis and response mechanism, and responding with the most effective public health intervention based on hard evidence were left out of how IDSR was perceived.

#### 5.2 Integration of Reporting Tools and Resources

Generic reporting forms were being used at various levels but it was limited to only case-based reports. The collection of data from a single data source for public health action was lacking at the regional and especially the national levels. The regions and districts never let the forms run out.

Record reviews did indicate that what some of the respondents referred to as data analysis were in fact data collations. It was done daily, weekly, monthly, quarterly, half yearly and on annual basis. On instances that analysis was done, it was largely due to the need for a report to be submitted, yet populations at risk were sparingly used during analysis of disease surveillance activities. This was a major weakness identified in data analysis. Though present, the COMDAB which was supposed to facilitate data analysis was not in use. This corroborates the study by Malm *et al* (2008) where analysis and use of TB surveillance data was found to be poor.

Unlike Burkina Faso where highly trained and motivated epidemiologists had been posted to the various surveillance units (WHO, 2003c), same can not be mentioned for Ghana. The DSD should train regional and district health staff in the use of population denominators and analyze data by locations to compare disease burdens.

There was evidence that the district had responded to one outbreak of Chicken Pox. However, several responses did suggest that there was no conscious effort to perform data analysis to detect outbreaks apart from collation for onward submission to the next level. The early warning systems are not functioning as one respondent noted; “*we are warned by the outbreak itself*”. This finding is similar to a study by Sathyanarayan (2005) which indicated that even where the Disease Surveillance Unit had been alerted 16 times about possible disease outbreaks, they managed to respond only on 4 occasions. There is a phenomenon of not seriously responding to warning systems. The process of integration which also emphasizes the linkage between data to analysis and a subsequent response through maximum participation was found to be weak.

All the respondents mentioned the existence of an epidemic response team with high participation of the laboratory. The laboratory personnel participated in traditional laboratory activities as well as field work. The contributions of the laboratory did indicate a conscious effort to confirm indicated priority diseases as suggested by the Technical Guidelines for IDSR (WHO & CDC, 2001), because specimens were readily shipped to the next higher laboratory. It was a marked improvement as compared with observations documented in the assessment report by GHS/MoH/WHO/CDC (2000).

Most respondents however did indicate in outright terms that they were not pleased with the current surveillance system and reasons were largely attributed to lack of funds to carry out surveillance activities. On occasions that funds did arrive, it was described as scanty. The CBSVs also complained that community support for their work as well as that of the health sector was dwindling.

Collaboration was more evident at the lower levels due to probably almost the same staff doing everything. One respondent did indicate, *“Without us they can’t do everything and without them we cannot do everything”*. It should thus be possible to adopt a holistic approach which would consider core and support functions to strengthen disease surveillance (WHO, 2000).

One other remote reason for dissatisfaction of the current surveillance system at the national level and which is having a trickling effect to the lower levels observed was the non-synchronization of at least portions of action plans belonging to the DSD and other programmes. Strategic and action plans of DSD and various programmes must be complementary. From the words of one respondent, *“... if it is integrated then the concerns of*

*all the programmes should be considered. The current thing is too much internationally influenced*". The potential danger in this statement lies in another made by GAO (2001) which indicates that such broad support given to some diseases of international importance lead to too much focus on those, to the detriment of surveillance on other conditions.

Some respondents recognized that the available structures (earlier referred to by others as inadequate) have been under utilized hence there was no justification to request for further support. Resources are in a general pool, especially at the district and sub-district levels, which makes it possible for other programmes to benefit. The general assertion on IDSR was that it had more room for improvement, but there was the need to focus and have clear objectives for our surveillance system.

### **5.3 Attributes of IDSR**

The attributes were studied with regards to the level of integration within IDSR context and not with regards to specific disease surveillance systems. The attributes that could feasibly be discussed were simplicity, flexibility, acceptability and timeliness.

Simplicity looked at the structure and ease of operation. Problems associated with simplicity included case detection and was attributed to some prescribers not adhering to the SCDs.

Some assertions were that IDSR was easy to operate. In that regard, a respondent stated that *"We have trained CBSVs who can detect outbreaks early"*, thereby acknowledging the contributions by CBSVs to disease surveillance. Case definitions were described as easy to apply but laboratory investigations were not always performed at the level of collection of

specimen and persons identifying the cases were not the same performing the analysis. This introduces some complexities in operationalizing IDSR and therefore less simple as described by Romaguera *et al* (2006). Nyarko *et al* (2008) also found the AFP surveillance system being operated in Ghana as complex.

The current IDSR system can be described as not flexible. The flexibility in terms of addition of new diseases depended on the availability of personnel, the information one wants, and knowing what one is looking for, as suggested by different respondents. The researcher is of the view that it would be difficult attaining these dependencies for it to be flexible. IDSR was even described by some respondents as a package and that adding on is very difficult. The researcher is of the opinion that IDSR is not well flexible. This was contrary to the description of Nyarko *et al* (2008) given to the AFP Surveillance system as flexible.

Romaguera *et al* (2006) describes acceptability as very subjective. Stakeholders supporting in the implementation of IDSR were identified at all the levels. The World Health Organization and Quality Health Partners were the institutions mostly mentioned as associated with disease surveillance. Chiefs and CBSVs were also observed as key stakeholders. The involvement of private sector health practitioners was encouraging as compared to findings in an assessment report at Asuogyaman by Quist-Therson & Adatsi (2005). This could be attributed to efforts made over the years to improve their involvement.

Forms not well filled by health workers could indicate low acceptance levels. Generally IDSR could be described as having relatively higher acceptability levels. This was in agreement with findings from Nyarko *et al* (2008) where AFP case investigation forms were not properly filled with date of receipt of laboratory results left blank. From observations, it

is worth noting that other forms outside the context of IDSR are also not well filled. The importance of data collection needs to be stressed.

The use of Standard Case Definition (SCDs) was an important reason why epidemics could be detected early. It was acknowledged that SCDs have played an important role and case definitions existed for all the priority conditions, thus in contrast with the assessment in Ghana by GHS/MoH/WHO/CDC (2000) where only 16 (70%) out of the 23 priority conditions had standard case definitions. Further disagreement was observed in a study by Nsubuga *et al* (1998), where only 3 (14%) of 21 priority conditions had SCDs in the United Republic of Tanzania.

The case detection role of CBSVs has also improved the potential of detecting outbreaks and reporting early.

#### **5.4 Factors Militating against IDSR**

IDSR implementation is faced with the same detrimental factors facing the health system and that of IDSR may not be peculiar. Factors initially envisaged as detrimental were later on not described as such in the study. They included lack of surveillance forms and non-use of an integrated monitoring and evaluation check list tool.

Timeliness of submission of report was not being monitored below the district level. This was against the backdrop that timeliness is a key surveillance metric and should be periodically evaluated because it can reflect the time delay between any numbers of response steps in the public health surveillance process (Jajosky & Groseclose, 2004). The lack of monitoring at that level would hamper the quality of work towards disease surveillance as depicted in a study by Sathyanarayana (2005).

Resources such as computers, printers and that for communication are not readily available. This leads to a scenario illustrated by GAO (2001) that surveillance is substantially impaired where there are weaknesses in transportation and communication infrastructure. In another study by WHO (1994), it corroborated the fact that equipment shortage or the lack of it was known to constrain disease surveillance. The CBSVs also complained that community support as well as that of the health sector for their work was dwindling. This situation has the potential to affect effective surveillance activities.

The areas of relative weakness included staffing, transportation and communication. More respondents gave their opinion on the adequacy of structures as weak. There was emphasis on the need to build staff strength. Staff strength in terms of quantity and quality was found to be weak. Such staff need close supervision to ensure disease surveillance functions are done in an integrated manner, but the general opinion from the study has been that planned supervisory visits have been quite difficult to carry out. The suggestions of Rumisha *et al* (2001) may equally apply to this situation that districts' capacity on IDSR be strengthened to enable them monitor and evaluate their own performance using established indicators.

It was observed that surveillance functions are far removed from any corresponding action such as outbreak response, health resource allocation and data analysis. On instances that analysis was done, it was largely due to the need for a report to be submitted yet populations at risk were sparingly used during analysis of disease surveillance data. The surveillance is being driven by the need to collect and move data while scant attention is given to using the data at each level of the health service for decision-making which is similar to a literature by PAHO (2000). Just as found in Uganda in a study by GAO (2001), the shortage in trained

health workers at the peripheries contributed to inadequate analysis and application of data for decision making.

None of the respondents had been able to conduct all planned supervisory visits. The factors that were identified as being responsible were lack of time, lack of funds, competing demands and inadequate human resource. “*Competing demands*” was the most significant amongst them and time as a factor always came in.

Collaboration was more evident at the lower levels and might be attributed to the same health staff performing all the disease surveillance functions. On the inclusion of other cadres performing surveillance activities, there is the need for further studies to find out how efficient that system might be.

There was a caution to players involved in disease surveillance to ensure the process of integration itself does not also become ‘verticalized’.

## **5.5 Opportunities to improve IDSR**

It is worth noting that the ways activities are labelled and communicated to peripheries go a long way to inform health staff as to how funds sent for instance should be utilized. Instances were cited from respondents that it should not be labelled Guinea Worm (GW) fund because at a point it would be said that there is even no GW disease and the funds would be used for other activities. But if the funds are labelled IDSR funds, all the priority disease conditions would be taken care of.

For the CBSVs, motivation is crucial for sustenance. The difficulty is to find out which form the motivation would take and how that motivation could be sustained for it to continue. What may serve as motivation today may no longer be so tomorrow. However the underlying issue under all the motivational factors is recognition given to CBSVs.

From the view point of respondents, the provision of resources (vehicle, communication equipment and computers) at the districts and regions would improve IDSR. Such resources are crucial for effective surveillance activities. The levels of these investments are yet to reach appreciable levels described by the Director-General of WHO (PAHO, 2000).

The concept of “Multi Disease Surveillance” (MDS) may be new in Ghana but not to other countries even in the West African sub region. The main thrust of IDSR is the disease surveillance being done in an integrated manner. However, it was observed that what was being implemented at most of the levels could be described as integrated service delivery. The researcher again observed that the integrated service delivery has come about as a result of weaknesses in staff strength. The suggestion to change the terminology of IDSR to MDS would go a long way to guide health staff focus on Integrated Disease Surveillance and not Integrated Service Delivery.

Health workers involved in disease surveillance should be given orientation on existing health laws or policies to support disease surveillance activities in the absence of specific policies for IDSR.

## CHAPTER SIX

### 6.0 CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Conclusions

a) The strategy of integrating disease surveillance activities was perceived differently depending on the administrative level. Most respondents had an idea about what IDSR was albeit with variations in their responses. It was perceived that the use of available resources for surveillance activities implied the practice of integration. Similarly, when the same staff performs multiple roles it was regarded as integration. However other important aspects of what integration meant were left out from the responses given; thus ‘collecting information from a single focal point’, ‘linking data to analysis and response mechanism’, and ‘responding with the most effective public health intervention’. One common perception that ran through the responses was that, IDSR is a good strategy.

b) Case-based generic forms were widely available and in use. Laboratory involvement in disease surveillance was acknowledged as very important and their roles very effective in facilitating IDSR. Resources had been pooled at the district and sub-district levels, yet there were reservations as to how these resources were available for disease surveillance activities.

c) From the comments received, the IDSR system is not simple. The flexibility could be described as low, as it depended on too many factors which are not readily available or feasible from respondents’ view point. Acceptability is quite high with regards to participation by other stakeholders, especially the WHO, QHP, UNICEF and most importantly by the community (CBSVs). The private sector participation has not been fully explored. The use of SCDs was encouraging to facilitate the early detection of outbreaks, likewise the contributions of CBSVs in case detection.

d) Resources such as vehicles, computers, printers and internet connectivity are not available. Funds for IDSR are not adequate to carry out planned activities. The monitoring of timeliness of submission of reports below the district level was virtually non-existent. Most respondents however did indicate that they were not pleased with the current surveillance system and reasons were largely attributed to lack of funds to carry out disease surveillance activities. It is therefore important for the Ghana Health Service to take a second look at the availability of funds, especially at the district and sub-district levels to ensure effective and efficient operations within the concept of integration.

e) Finally, if the researcher is to take the measuring scale of one of the respondents and score the integration approach as a strategy within disease surveillance, a score of four (4) would be awarded on a scale of one (1) to ten (10) where ten is the highest. In the opinion of the researcher, the current IDSR being operated could be a victim of its own success as we continue to overburden the system with more priority conditions. As some of the respondents mentioned, the system should be focused.

## **6.2 Recommendations**

### **A) National Level**

- The concept of IDSR has not been fully understood and well explained in the opinion of many respondents. The DSD should endeavour to train the different cadre of health staff in all the IDSR training modules at the various levels. This should include case identification, data analysis and outbreak investigations. The development of required human resources must be paramount in any future plans to strengthen IDSR
- In order to avoid duplication of efforts during reporting, epidemic prone diseases targeted for elimination and eradication should be reported to the DSD whilst the rest

are reported to CHIM. This view should be given a serious consideration as IDSR system attempts to take on board more priority conditions

- The DSD in collaboration with major key stakeholders such as the national programme managers of various diseases must synchronize portions of strategic and action plans. This would help to channel available resources to districts for disease surveillance activities
- The DSD together with the Guinea Worm Eradication Programme should hold a stakeholders' meeting to explore the possible ways of motivating CBS volunteers to conduct surveillance, especially on diseases targeted for eradication. Provision of resources such as wellington boots and rain coats would be important in the quest to motivate the CBSVs
- The generic case notification form which has been developed should be made available to regions by DSD to aid in case investigations.

#### B) Regional Level

- The Eastern Regional Health Administration should endeavour to share the case notification forms sent by the DSD to districts and health facilities. The region must encourage districts and health facilities to utilize them. This could lead to a reduction in time between case identification and initial investigations
- On occasions that feedback was given it did arrive quite late. The Regional Surveillance Unit should assess the timeliness of receipt of feedback by standardizing deadlines and documenting the date of receipts

C) District Level

- The East Akim Municipal Disease Control or Surveillance Officer should monitor the timeliness of feedback from the regional level and provide quarterly report to them. This could help maintain a prompt feedback cycle
- The East Akim Municipal Health Administration must ensure the availability and accessibility of internet connectivity to all key staff related to disease surveillance. However where still lacking, the Municipal Health Administration must explore possible ways of using mobile phones for text messaging and voice calls to conduct disease surveillance
- A half yearly training session on IDSR should be held for health staff (both government and private) and the DSD invited to help facilitate such training sessions

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## APPENDICES

### APPENDIX ONE: INTERVIEW GUIDE FOR ALL RESPONDENTS

ASSESSMENT OF THE INTEGRATED APPROACH  
OF DISEASE SURVEILLANCE IN  
EAST AKIM MUNICIPALITY OF THE EASTERN REGION

Date of Interview: \_\_\_\_\_  
Name of Interviewer: \_\_\_\_\_  
Administrative Level: \_\_\_\_\_ Name of Respondent \_\_\_\_\_  
Institution: \_\_\_\_\_ Position of Respondent: \_\_\_\_\_  
Years of duration at current position \_\_\_\_\_ Educational Qualification \_\_\_\_\_

---

#### Perception of Integration

1. Can you explain in your own words what IDSR is?

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

2. What is your opinion about IDSR as a surveillance strategy?

.....  
.....

3a. Have all the technical staff been trained in disease surveillance activities? Yes                  No

3b. If No, why?

.....  
.....

4a. If Yes, was IDSR inclusive?    Yes                  No

4b. If No, why?

.....  
.....

5. How has IDSR helped in the control of communicable diseases?

.....  
.....

#### Integration of IDSR Activities

6. Your understanding of integration in the context of IDSR:

.....  
.....

7a. Are generic reporting forms in use? Yes  No

7b. If No why,  
.....

8a. Is the national level responsible for providing surveillance forms to health facilities? Yes  No

8b. If No why,  
.....

9a. Have you lacked appropriate surveillance forms at any time during the last 6 months? Yes  No

9b. If Yes why,  
.....

10a. Has national level ever supplied this level with standard case definitions? Yes  No

10b. If No why,  
.....

11a. Is information collected from a single focal point at this level? Yes  No

11b. If No why,  
.....

12. How are resources combined to collect information from a single focal point?  
.....  
.....

13. How regular is data analysis?  
.....  
.....

14. Comment on the use of population denominators for data analysis:  
.....  
.....

15. No. and description of actions/ response undertaken as a result of data analysis  
.....  
.....

16. No. of outbreaks reported to this level in the past 12 months \_\_\_\_\_

17. No. of outbreaks this level supported to investigate in the past 12 months \_\_\_\_\_

18. Description of the composition of the response team:

.....  
19a. Is there an epidemic response team? Yes No

19b. If No, mention reasons.  
.....  
.....

20. How will you describe the involvement of the laboratory in disease surveillance?  
.....  
.....

21. Are you satisfied with your current disease surveillance system? Yes No  
Specify why:  
.....  
.....

**Attributes of IDSR**

22. How easy or difficult is it to operate IDSR at this level (simplicity)?  
.....  
.....

23. How will you describe the existing structures in terms of adequacy in operating IDSR at this level (simplicity)?  
.....  
.....

24. What is your impression of how the IDSR has adapted to changing information needs or operating conditions in the past (like addition of new diseases etc- flexibility)?  
.....  
.....

25. Do you have stakeholders supporting in implementing IDSR (acceptability)? Mention them.  
.....  
.....

26. How complete is the filling of reporting forms by laboratory and health facility (acceptability)?  
.....  
.....  
.....

27. Describe the ability of IDSR to detect epidemics (timeliness)  
.....

.....  
28a. Is there a procedure for verifying diagnosis of cases detected through IDSR strategy?  
Yes No

28b. If No, why?  
.....  
.....

29a. Is the surveillance system capable of describing the occurrence of a health event over time and its distribution in the population by place and person (representativeness)?  
Yes No

29b. If no, why? .....

30a. Have you lacked appropriate surveillance forms at any time during the last 6 months?  
Yes No

30b. If no, why? .....

**Factors militating against IDSR**

31. What are the most usual reasons for not making all required supervisory visits to lower administrative levels?

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

32. Comment on the adequacy of staff and resources available for disease surveillance

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

33. Comment on the collaboration between IDSR and various disease control programmes:

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

34. Coverage of data collected and its utilization

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

35. How many times have you received technical support visits in the last 6 months?  
\_\_\_\_\_ (Provide number)

36. Feedback to stakeholders:

Regularity:

Scope/ stakeholders:

Challenges:

37. Comment on the accessibility of target populations

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

**Opportunities to improve upon IDSR**

38. In your opinion, how do you think the implementation of IDSR could be improved?

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

39. Identifiable institutions you could collaborate with in relation to IDSR and areas of collaboration.

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

40. In which areas do you think further training is required for staff?

.....  
.....

41. Discuss legislative issues pertaining to IDSR

.....  
.....

## APPENDIX TWO: INTERVIEW GUIDE FOR PROGRAMME MANAGERS

### ASSESSMENT OF THE INTEGRATED APPROACH OF DISEASE SURVEILLANCE IN EAST AKIM MUNICIPALITY OF THE EASTERN REGION

Date of Interview: \_\_\_\_\_  
Name of Interviewer: \_\_\_\_\_  
Administrative Level: National (Programme Officers) Name of Respondent \_\_\_\_\_  
Institution: \_\_\_\_\_ Position of Respondent: \_\_\_\_\_  
Years of duration at current position \_\_\_\_\_ Educational Qualification \_\_\_\_\_

---

#### Perception of Integration

1. Can you explain what IDSR is?

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

2. What is your opinion about IDSR as a surveillance strategy?

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

3a. Have all the technical staff been trained in disease surveillance activities? Yes No

3b. If No, why?

.....  
.....

4a. If Yes to 3a, was IDSR inclusive? Yes No

4b. If No to 4a, why?

.....  
.....

5. How has IDSR helped in the control of communicable diseases?

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

6. Your understanding of integration in the context of IDSR:

.....  
.....

**Integration of IDSR Activities**

7a. Do you rely on the Disease Surveillance Department for surveillance information? Yes                      No

7b. If No why,  
.....

7c. If Yes, do they share disease surveillance information with you? Yes                      No

8a. Do you have your own disease surveillance system? Yes                      No

8b. If Yes, do you share disease surveillance reports with the Disease Surveillance Department? Yes                      No

9. How regular is data analysis? (Comment on the use of population denominators for data analysis as well)  
.....  
.....

10. Number and description of actions/ response undertaken as a result of data analysis over past one year.  
.....  
.....

11a. Is there a standing response team? Yes                      No

11b. If No, mention reasons.  
.....  
.....

11c If Yes, description of the composition of the response team:  
.....  
.....  
.....

12. How will you describe the involvement of the laboratory in disease surveillance?  
.....  
.....  
.....

13. Are you satisfied with your current disease surveillance system? Yes                      No  
Specify why:  
.....  
.....  
.....

**Attributes of Surveillance**

14. How easy or difficult is it to operate/ relate to IDSR at this level (simplicity)?

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

15. What is your impression of how the IDSR has adapted to changing information needs or operating conditions in the past (like addition of new diseases etc- flexibility)?

.....  
.....

**Factors militating against Disease Surveillance Activities**

16. Are you able to make all planned supervisory visits?                      Yes                      No

17. What are the most usual reasons for not making all required supervisory visits to the lower levels?

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

18. Comment on the adequacy of staff and resources available for disease surveillance

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

19. Comment on the collaboration between IDSR and various disease control programmes:

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

20. Coverage of data collected and its utilization

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

21. Feedback to stakeholders:

- Regularity:
- Scope/ stakeholders:
- Challenges:

22. What in your opinion are the challenges generally facing disease surveillance activities?  
.....  
.....  
.....

**Opportunities to improve upon IDSR**

23. In your opinion, how do you think the implementation of IDSR could be improved?  
.....  
.....  
.....

24. In which areas do you think further training is required for staff?  
.....  
.....  
.....  
.....  
.....

25. Are there any comments?  
.....  
.....

**APPENDIX THREE: OBSERVATION & REVIEW CHECKLIST**

**ASSESSMENT OF THE INTEGRATED APPROACH  
OF DISEASE SURVEILLANCE IN  
EAST AKIM MUNICIPALITY OF THE EASTERN REGION**

Date: \_\_\_\_\_  
 Name of Observer: \_\_\_\_\_  
 Administrative Level: \_\_\_\_\_  
 Institution: \_\_\_\_\_

**Perception of IDSR**

1. Do they have access to guidelines for IDSR Yes                  No

**Level of Integration**

2. Are there standard case definitions for the country's priority diseases? Yes                  No

3. Is the facility using the recommended data collection tools? Yes                  No

4. Is there routine analysis of data? Yes                  No

5. Do the various surveillance activities share the same resources? Yes                  No

6. Is there timely data submission? Yes                  No

7. Is there a single source of the same data at a particular level? Yes                  No

8. Is all the data analyzed at a single source? Yes                  No

9. Are IDSR activities discussed at meetings? Yes                  No

10. Number and Percentage of reports derived from private health care providers \_\_\_\_\_

11. Number and percentage of reports derived from private laboratories \_\_\_\_\_

**Attributes of IDSR**

12. Observe for signs of ease or difficulty in operating IDSR at this level (simplicity)?  
 .....  
 .....

13. Observe for minutes of meetings held during first half of 2008 with IDSR as one of the agenda.  
 .....

14. Observe case based forms for accuracy in filling (circle one) Adequate      Inadequate

15. Observe the timeliness and completeness for reporting for last year (2007) and first half of 2008.  
 .....

16. Are epidemics detected by chance or through data analysis?  
 .....

17. During the past 6 months, what proportion (%) of expected reports have you received from the levels of the health system that should report completely to you?

18a. Weekly (CD1 Form) = \_\_\_\_\_ %

18b. Monthly (CD2 Form, Monthly Morbidity Report) = \_\_\_\_\_ %

18c. Quarterly (Reporting on selected diseases) = \_\_\_\_\_ %

19. During the past 6 months, what proportion (%) of expected reports have you received on time from the levels of the health system that should report timely to you?

20a. Weekly (CD1 Form by Friday of the following week) = \_\_\_\_\_ %

20b. Monthly (CD2 and Morbidity Report by 25<sup>th</sup> of the following month) = \_\_\_\_\_ %

20c. Quarterly (e.g. reports on HIV and TB by one month after the end of the quarter) = \_\_\_\_\_ %

21a. Does this level share data with other stakeholders? (check for evidence) Yes No

21b. If yes, how is data shared? (E-mail, Fax, Courier etc.) .....

22. Observed description of data by age and or sex (particularly for case-based, outbreaks, sentinel)? Yes No

23. Observed description of data by district (tables, maps)? Yes No

24. Observed description of data by time? Yes No

25. Observed line graph of cases by time? Yes No

26. Do you have an action threshold for any diseases targeted for eradication or elimination? Yes No

27. Is there any surveillance co-ordination body at this level? Yes No

28a. Observed written administrative evidence of existence of this body? Yes No

28b. If yes, describe its composition and function. ....  
.....

29. Proportion of identified health facilities involved in reporting (> 90%) \_\_\_\_\_

30. Number and % of surveillance information relating to various vertical disease control programs that has been integrated \_\_\_\_\_

31. Number and percentage of feedback given to health facilities, sub districts and other stakeholders \_\_\_\_\_

32. Observed written plan of epidemic preparedness & response? Yes No

- |  |     |    |
|--|-----|----|
| 33. Observed the existence of a written case management protocol for at least <b>one</b> priority disease? | Yes | No |
| 34. Observed any evidence of technical support in last 6 months?   | Yes | No |
| 35. Observed supervisory report or any evidence for appropriate review of surveillance practices?          | Yes | No |
| 36. Observed any written feedback from the supervisor after any supervisory visit in the last 6 months?    | Yes | No |

**Factors militating against integration of IDSR activities**

- |   |     |                       |
|---|-----|-----------------------|
| 37. Availability of supervisory tools                               | Yes | No                    |
| 38. Observed reports for supervisory visits                         | Yes | No                    |
| 39. Is there a budget line for surveillance in the District budget? | Yes | No                    |
| 40. Are there any difficulties in accessing funds?                  | Yes | No                    |
| 41. How many days on the average does it take to access funds?      |     | _____                 |
| 42. Are these present to facilitate data management                 |     | (Number if available) |
| 43a. Computer(s)?   | Yes | No _____              |
| 43b. Statistical package(s)   | Yes | No _____              |
| 43c. Data manager(s)  | Yes | No _____              |
| 43d. Telephone service  | Yes | No _____              |
| 43e. Fax  | Yes | No _____              |
| 43f. Radio call   | Yes | No _____              |
| 43g. E-mail   | Yes | No _____              |
| 43i. Internet connection  | Yes | No _____              |



9. Has the Community conducted any disease prevention and control activities during the past 3 months based on local information? Yes No

10a. How many times have you been supervised for disease surveillance in the last 3 months? \_\_\_\_\_ (Provide number)

10b. If yes, by whom?  
.....

10c. What do they do (ask)?.....

11a. Do community members support you in your work? Yes No

11b. If no why? .....

**Attributes for IDSR**

12. How many reports have been submitted to the next level in the past 6 months? Yes No

13. Did you receive any feedback from the supervisor after any of the supervisory visit in the last 6 months? Yes No

**Opportunities to improve upon IDSR**

14a. Are you satisfied with your work as CBS volunteers? Yes No

14b. Give reasons for your answer.  
.....

15. How long have you been a volunteer? (Number of months) \_\_\_\_\_

16. What motivates you to work as a volunteer? .....

17. What are some of your challenges?  
.....  
.....

18. How can the work of a CBS volunteer be enhanced?  
.....  
.....

## **APPENDIX FIVE: CONSENT FORM**

### **Project Title:**

Assessment of the Integrated Approach to Disease Surveillance in East Akim Municipality of the Eastern Region

### **Institutional Affiliation:**

School of Public Health,  
College of Health Sciences  
University of Ghana  
Legon

### **Background**

#### **Personal Introduction:**

The principal investigator is Michael Jeroen Adjabeng, and currently a student of the School of Public Health, Legon and conducting a study on Assessment of the Integrated Approach to Disease Surveillance in East Akim Municipality of the Eastern Region. This study is for academic purposes and a requirement for the award of Master of Public Health Degree.

### **Procedure:**

The information that will be collected includes position of respondent, educational background, name of respondent and perception of integration within the Integrated Disease Surveillance and Response (IDSR) strategy context.

### **Risks and Benefits:**

This research seeks to assess the effectiveness of IDSR strategy in East Akim Municipality of the Eastern Region. There is no known human risk attached to the study protocols.

### **Right to Refuse:**

Although there are no known risk associated with the research protocols, notwithstanding, if you feel uneasy and uncomfortable you have the liberty to opt out; and by giving consent to participate in this study is absolutely voluntary and not under any coercion or obligation. You are also at liberty to withdraw your participation if you desire to do so.

**Anonymity and Confidentiality:**

You are assured that the information collected will be handled with the strictest confidentiality and will be used purely for academic purposes. Be assured that all your information will not be shared with third parties not directly involved in the research.

**Before taking Consent:**

Do you have any questions that you wish to ask? If yes, questions to be noted.

If you have questions you wish to ask later, or if there is anything you wish to seek clarification on regarding the research, please do not hesitate to contact the principal investigator (Michael Jeroen Adjabeng) on;

Tel.: 020 8157618

Email: [golejeroen@yahoo.com](mailto:golejeroen@yahoo.com)

**Consent:**

I..... having understood the study, after having the consent form thoroughly explained to me in a dialect I thoroughly understand (English/Twi/Dagbani/Hausa etc.) I do hereby agree to enrol to this study.

Signature/ Thumbprint of Respondent .....

Date.....

**Interviewer's Statement:**

I have explained the procedure to be followed in this study and the risks and benefits involved to the client in the language that he/she understands best and he/she has agreed to participate in the study.

Signature of interviewer .....

Date .....