

SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA, LEGON

ABSTRACT

ASSESSMENT OF INJECTION SAFETY PRACTICES IN HEALTH FACILITIES IN BONGO AND TALENSI DISTRICTS IN THE UPPER EAST REGION

A DISSERTATION SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MPH HEALTH POLICY, PLANNING AND MANAGEMENT DEGREE



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DECLARATION

I do hereby declare that except for references to the work of others and textbooks that have been cited and appropriately acknowledged, this work is the result of my own original research and it has not been previously submitted elsewhere either in whole or in part for the award of any degree.

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DEDICATION

To my wife Jamila (Helena Abena Amponsah) and our lovely sons, Mohammed Fareed, Abdul Salaam and Abdul Majeed for their love, patience and support.

To my parents, Alhaji Alhassan Abdulai and Hajia Zeliatu Saeed Abdulai, for the opportunities given me in life.

I love you all.



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My sincere appreciation also goes to my supervisors Dr. Reuben Essena and Prof. Irene Agyepong.



I am also grateful to Alliance for Health Policy and Systems Research for providing financial support for the fieldwork.

I cannot forget the invaluable contribution of the Regional Director of Health Services, Dr. Koku Awoonor Williams, District Directors of Health Services for Bongo and Talensi Nabdam and their staff in the Upper East Region, my colleagues and everyone who in diverse ways contributed to the success of this work. **ALLAH BLESS YOU ALL!!!**

ABSTRACT

Injections are one of the most common health care procedures, with some 16 billion injections administered world-wide each year. Most injections (90% to 95%) are given for therapeutic purposes, and only 5% to 10% are given for immunization. (Immunization essentials, a practical field guide. 2003)

Among other things, injection safety assessment includes; Competence of the staff on injection practice, the availability of injection equipment, logistics and supplies, Injection waste disposal system of the facilities and the availability of injection safety and waste disposal plans and systems.

A good injection practice in health facilities is a reflection of adequate resource allocation, adequate supportive supervision and good technical support.



The main objective of the study was to assess the injection safety practice and management system that promotes injection safety in health facilities in Bongo and Talensi Nabdam districts in the Upper East region.

A cross-sectional study was conducted in the two districts. Personnel who were giving injections in the prevention and curative sections as well as the heads of the facilities were observed and interviewed. These include Community Health Nurses, Midwives, Medical assistants (Mostly in

charges) and General Nurses. The waste disposal systems and disposal sites of the facilities were also assessed.

A total of thirty-one (31) staff were observed and interviewed in 8 health facilities. In all twenty-one (21) were observed and interviewed in Bongo and ten (10) in Talensi Nabdam districts.

Twenty-two (78.6%) prepared injections on clean table and tray. Fourteen (50%) of respondents reused mixing syringes for reconstitution. Eight (17.9%) had shortage of cotton wool.

Community Health Nurses who experienced shortage of cotton wool used syringe wrappers in place of cotton wool after injection. Two hand recapping was observed in 10.7% of respondents.

Two (25%) of facilities had sharps scattered at the disposal site. Other two facilities that have incinerators were not using them at the time of the visit.

The weaknesses seen on injection practice such as use of improvised items, reuse of syringes for reconstitution, shortage of logistics and supplies, unattended, open and unrestricted disposal sites leading to sharps scattered around disposal site and non-use of incinerators were clearly a problem of weak and apathetic management style of facility heads.

National EPI office should consider holding a national review of EPI logistics management and waste disposal system to enable complete overhaul of the system through facility strengthening and staff capacity building to avoid shortage resulting in dangerous practices that puts the provider, the recipient and the community at risk

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LIST OF ABBREVIATIONS

AD	Auto Disable
ANC	Antenatal Clinic
BCG	Bacille Calmette Guérin
CHN	Community Health Nurse
CHPS	Community Based Health Planning and Services
CWC	Child welfare Clinic
DHMT	District Health Management Team
EPI	Expanded Programme on Immunization
GHS	Ghana Health Service
HBV	Hepatitis B Virus
HCW	Health Care Waste
HCV	Hepatitis C Virus
HIV/AIDS	Human Immuno Deficiency Virus/ Acquired Immune Deficiency Syndrome

MOH	Ministry of Health
OPD	out Patient Department
PENTA	Pentavalent Vaccine
RCH	Reproductive and Child Health
RHMT	Regional Health Management Team
SBs	Safety Boxes
SIGN	Safe Injections Global Network
WHO	World Health Organization
WIFA	Women in Fertile Age

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Injections are one of the most common health care procedures, with some 16 billion injections administered world-wide each year. Most injections (90% to 95%) are given for therapeutic purposes, and only 5 to 10% are given for immunization. (WHO,2003)

Injections are often unnecessary and are frequently unsafe. Unsafe injections are responsible for millions of cases of Hepatitis B and C, and an estimated one-quarter of a million cases of HIV annually. Re-use of injection equipment without sterilization is frequently a key problem.

Diseases that unsafe injections and injection waste disposal can cause:

Hepatitis B virus – Hepatitis B (HBV) is well-known as a highly infectious disease. Unsafe injections account for about one-third of new HBV infections in developing countries, equal to an estimated total of nearly 21 million people infected each year.

Hepatitis C virus - Unsafe injections are the most common cause of Hepatitis C (HCV) infection in the developing world, causing two million new infections each year, over 40% of HCV cases. In some countries (e.g., Egypt and Pakistan), evidence suggests that HCV has reached high levels due to unsafe injection practices.

HIV/AIDS – The World Health Organization (W.H.O) estimates that unsafe injections cause an estimated 250,000 new HIV infections each year, about 5% of all new HIV infections. Research

indicates that most of the HIV infections that are caused by unsafe injections occur in South Asia and Africa.

Most vaccines currently available are given by injection and global concern about unsafe injections has compelled immunization managers and providers to address safety issues more seriously than ever.

(Hauri et al, 2003)

Safe Injection Policies

Governments have the primary responsibility for ensuring that injections are safe. At a minimum, policies are needed to address the following key issues; Reduction of the total number of unnecessary injections, Promotion of safe injection practices, Provision of sufficient quantities of appropriate injection equipment and infection control supplies and Management of sharp waste

Against the above comes with a budget that must meet Needles and syringes, Safety boxes, Training, Incinerator equipment and spare parts, Fuel for incinerators, Sterilizing equipment, spare parts and fuel in places where sterilizeable injection equipment continues to be used.

(WHO, 2003)

Injection Safety Assessment

Among other things, injection safety assessment includes; Competence of the staff on injection practice, the availability of injection equipment, logistics and supplies, Injection waste disposal system of the facilities, the availability of injection safety and waste disposal plans and systems.

1.2 Conceptual framework

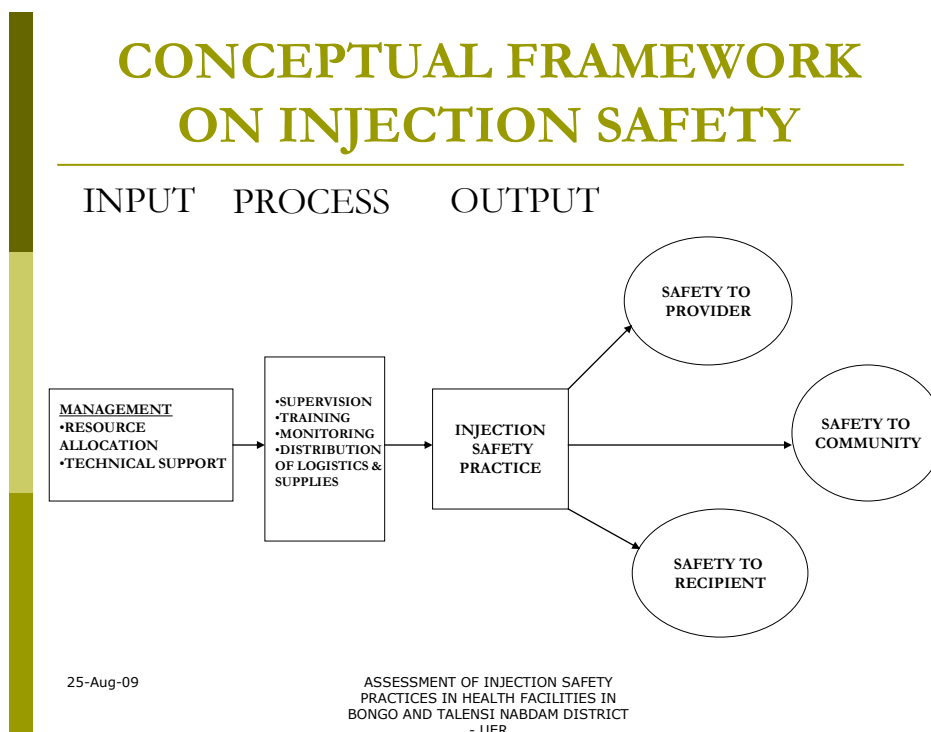


Figure 1: Conceptual Framework

The implementation of injection safety policy in every health facility is geared towards the provision of quality and safe injections and safe disposal of the injection wastes.

Injection safety practice could be looked at from three angles, input, process and output.

Adequate resource allocation, technical support and trained personnel and some of the managerial inputs that are required for good injection practice. If any of these inputs are not adequately made available, it affects injection safety practice.

With the right inputs in place there is the need for good monitoring and supervision, periodic training, regular distribution of logistics and supplies among others. These factors are referred to as the process factors necessary for the attainment of the desired safety measures. That is to say that without these factors the inputs may not be utilized properly to the fullest for desired result.

When the input and process issues are well addressed, it is expected that safe injection practice would be achieved.

What can be done to promote safe and appropriate use of injections?

National governments, WHO, and others working with the Safe Injection Global Network (SIGN) continue to collect compelling evidence of infections associated with medical injections, and actively work to promote safe injection practices and policies. Introducing an injection safety component at the design phase of relevant projects is a useful way to initiate a national safe injection plan in a systematic way.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Injection safety

A safe injection as defined by the World Health Organization (W.H.O) is an injection that does not harm the recipient, does not expose the health care worker to any avoidable risks and does not result in any waste that is dangerous to the people. (W.H.O, 2003)

Injection safety policy for Ghana

“The Ghana health service pursues the policy that 100% of injections given in the public and private sectors for any purpose must be safe. This means that every injection must be given using a single sterile syringe and needle combination which is then safely disposed of after use.”
(GHS EPI 2002-2003, injection safety policy for Ghana,)

This policy has been adopted by almost all countries in the world for Immunizations.

Standards for achieving adequate injection safety measures in Ghana

The highest standard of injection safety is achieved with a single use disposal syringe and needle (ideally an auto disposable type) which is, sterile prior to being packaged and sealed by the syringe manufacturer and opened immediately prior to injection, used to give one injection to one individual using the correct medication or vaccine, disposed of

without being recapped in a designated safety box or sharps puncture-proof container after the injection is completed and When full, the safety box is burned (without content being emptied or dumped) either in a dug pit or incinerator, and the burned waste buried.

(GHS/EPI,2002-2003)

Ghana Health Care waste management policy prescribes the Storage and prevention of spillage or loss, Segregation, Label waste to identify source, Engagement of authorize persons in passing and receiving waste and Description of waste, (GHS, 2003)

The World Health Organization strategy

The strategy for achieving safe and appropriate use of injections worldwide have four objectives. These include formulating national policies and plans for the safe and appropriate use of injections, ensuring quality and safety of injection equipment, facilitating equitable access to injection equipment and achieving appropriate, rational and cost effective use of injections.

Some injection practice problems in health facilities

Among others some other injection problems in health facilities include; use of unsterile injection equipment, Unsafe collection of Sharps, Unsafe management of waste, Unsafe injection practices,

Injection equipment

Injection equipment that can be used to administer injectable vaccines and other medicines include: auto-disable syringes, standard disposable syringes, pre-filled and single dose non-reusable devices.

Management of sharps waste

As the use of A-D syringes increased so has the need for all injection supplies to be disposed of properly.

Used syringes and other injection waste are not to be dumped in open places where people might, step on them or come in contact with them in any other way.

Disposal of sharps could take the forms of Disposal of the whole syringe with needle attached – here the whole syringe with needle attached is dropped in a safety box for onward incineration, Separation of needles from plastic syringes – here the needles are removed from the syringe with a simple device with a receptacle that receives the needles. The needles are either encapsulated and buried in a protected burial in an onsite pit or disposed off in a sharp pit. The syringes are either shredded before burial in an onsite pit or they are treated with 0.5% chlorine solution for 30 minutes or boiled for 20 minutes and then offsite disposal or recycled.

The need to better manage contaminated sharps has prompted the development of tools to assist countries with planning and policy development. These tools include an assessment tool for health care waste management that examines current practices, level of awareness of risks

and the country regulatory framework in order to provide essential information for designing an action plan.

Safety Boxes

Safety boxes or sharp containers are puncture-resistant containers into which A-D syringes and needles are placed immediately after use temporarily stored until they can be destroyed. They should be supplied in sufficient quantity such that they are always within reach of a vaccinator, even during outreach sessions.

Volume of safety boxes

Approximately 100 2ml syringes and needles fill a five liter safety box. 5ml and 10 ml syringes take up more space.

Waste disposal and destruction

Filled Safety boxes are supposed to be incinerated. If an incinerator is not available, a much less desirable but effective alternative is to use kerosene to burn them.

In planning waste disposal in a health facility, managers should consult medical waste policies and environmental regulations for the national and local levels. The plans must include; Location of disposal facilities, Disposal of filled safety boxes, Schedule and budget for destruction of safety boxes, Logistics, Training, Incineration equipment

(WHO, 2003)

Injection safety Assessment in four countries

Injection safety assessment reports for Burkina faso, Nigeria, Ghana and Cambodia were studied and reports presented below.

Methods and tools used in conducting assessments

All the studies conducted on injection safety assessment used the WHO/SIGN Tool kit and the studies were all cross-sectional observational studies.

Findings

Below is a summary findings from the assessment conducted in the four countries studied

Table 1: Summary findings of assessments conducted in four countries

Countries and year	Two hand recapping	Needles Stick injuries	Overflowing or pierced boxes/ used needles discarded in open containers	Used needles scattered around the facilities/ non use of incinerators
Burkina Faso 2000	44% of facilities had staff recapped needles using two hands	95% of facilities staff had needle sticks	83% of facilities had used needles discarded in open containers	57% of facilities had used needles were scattered in the surroundings
Cambodia 2002	58% of providers recapped needles after use	53% of providers reported needle sticks		

		injuries		
Nigeria 2004	75.8% of the staff recapped after injection	44.9% of providers had needle sticks injuries	65% of the facilities had sharps scattered in the surroundings	96% of the facilities did not have incinerators
Ghana 2003	Two hand recapping existed in 8.7% and 16.67% among immunization and curative staff	11.2% of the facilities had safety boxes at the area where injections were given	3.0% of the facilities had presence of overflowing, pierced or opened boxes	10% of them had evidence of Health Care Waste (HCW) scattered around the health centres and or disposal site

Conclusions

All studies concluded that negative practices were still observed that could expose patients, health care workers, and communities to risks, and that required specific interventions.

2.2 Problem Statement

The last National Injection safety assessment carried out in 2003 in Ghana reported that only 14% of facilities across the country had wet swabs for skin preparation, 8.8 % had no sharps boxes in stock, two hand recapping existed in 8.7% and 16.67% among immunization and curative staff; only 11.2% of the facilities had safety boxes at the area where injections were given. Furthermore, 3.0% of the facilities had presence of overflowing, pierced or opened boxes

and 10% of them had evidence of Health Care Waste (HCW) scattered around the health centres and or disposal site.

The report further stated that Low temperature burning remains most frequent method of waste treatment and inappropriate treatment or disposal of sharps imposing threats to the community also existed. (Antwi-Agyei et al, 2003 - unpublished)

In Bongo and Talensi Nabdam districts, facilities with incinerators are not using them to dispose of sharps while some other health facilities do not have a well managed disposal sites with evidence of partially burnt injection wastes and sharps around the sites.

There have been increased Out Patients (OPD) attendants and admissions which poses a challenge to the facilities in maintaining good injection safety measures and waste disposal.

Malaria OPD attendance and admissions in health facilities in Bongo district increased from 20,027 (34.7% of all OPD attendance) and admissions from 1,300 (43.5% of all admissions) to 28,197 (48.5% of all OPD attendance) and 2,045 (53.6%) in 2008. Talensi Nabdam district recorded OPD attendance increased from 22,787 in 2007 to 34,955 in 2008.

Increased injections posed risk of needle sticks injuries and also managerial challenge in the provision of adequate resources, supervision, training and management of injection wastes.

2.3 Research Question

To what extent is injection safety practice influenced by management system of planning, resource allocation, technical support and supportive supervision?

2.4 Justification

Injection safety practices in the health care institutions are a reflection of the quality of supervision, resource allocation and provision of technical support.

There is therefore the need to update the records on injection safety practices in the health care institutions in the district through periodic assessment

Findings from this study shall be used to inform policy formulation and implementation for strengthening the capacity of facilities in ensuring good injection safety practice.

2.5 General Objective

To assess the injection safety practice and management system that promotes injection safety in health facilities in Bongo and Talensi Nabdam districts in the Upper East region

2.6 Specific Objectives

1. To assess the injection safety practice among staff.
2. To assess the availability of injection logistics and supplies

3. To assess the waste disposal system of the facilities
4. To describe management system that promotes injection safety practice: planning, resource allocation, technical support and supervision.

CHAPTER THREE

3.0 METHODS

3.1 Type of study

A descriptive cross sectional study was carried out in health facilities involving staff providing injections and management.

3.2 Study location

The study took place in Bongo and Talensi Nabdam districts, Upper East region.

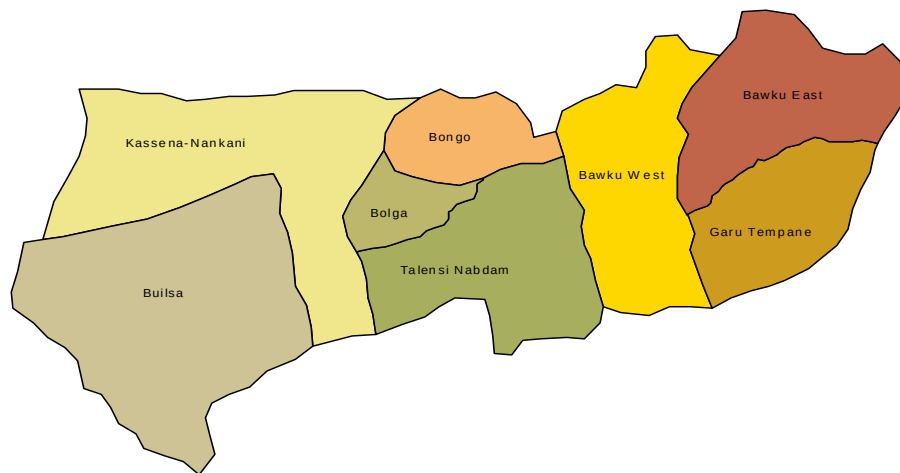


Figure 2: Map of Upper East region showing the location of Bongo and Talensi

Nabdam districts

Bongo District profile

Bongo District is one of the 9 districts in the Upper East region with Bongo as the capital.

It lies between longitude 0.45° W and latitudes 10.50° N to 0.09° N within the onchocerciasis zone.

It has a land area of 459.5 square kilometers and one of the most densely populated districts in the country with 185 inhabitants per square kilometer.

The district was carved out of Bolgatanga district in 1998 and shares boundaries with Burkina Faso to the North and East, Kassena Nankana district to the west and Bolgatanga district to the south.

There are 132 communities in dispersed settlements. The land terrain is mostly rocky.

The district is divided into 6 sub-district health area with a total population of 85,009. Below is the break down of the population by sub districts

Table 2: Sub districts, population, and some vital indices, Bongo

No.	SUB-DISTRICT	TOTAL POP.(2008)	WIFA	EXP. PREGNANCY	CHN 0-11 MTHS
1	Central	19,900	4776	796	796
2	Bongo Soe	12,881	3091	515	515
3	Valley Zone	10,252	2460	410	410
4	Bongo Beo	15,093	3622	604	604
5	Zorko	16,220	3893	649	649
6	Namoo	10,663	2559	427	427
TOTAL		85,009	20402	3401	3401

Table 3: District indicators, Bongo

	2008	2007	2006
OPD attendance malaria	28,197 - 48.5%	20,027 - 34.5%	
Malaria admissions	2045 - 53.6%	1300 - 43.5%	
Under 5 OPD attendance	16,720	9,402	
Under 5 OPD attendance (Malaria)	9,361 (56%)	6,603 (70.2%)	
Under five admissions	1,154	703	
Under five admissions due to Malaria	972 (84.2%)	547 (77.8%)	
Tetanus vaccination for pregnant women (TT2+)	2774 (79%)	4328 (128.7%)	4221 (85.2%)
Family (injectables)			
Norigynon	(actual)45.6	2.5	28.5
Depo provera	(actual)1854.3	1695.2	1093.3
CWC vaccinations			
BCG	3,482 (102%)		
PENTA 3	3,137 (92.2%)		
Measles	3,240 (95.3%)		
Yellow Fever	3,024 (89%)		

Table 4: Health Facilities, their locations and their status, Bongo

SUB-DISTRICT	H/Centre	RCH centre	CHPS compound	District Hospital
Central	0	1	3	1
Bongo Soe	1	0	3	0
Vea - Valley Zone	1	0	2	0
Bongo Beo	0	1	2	0
Zorko	1	0	2	0
Namoo	1	0	1	0
Total	4	2	13	1

Talensi Nabdam District Profile

Talensi Nabdam district is a newly created district which was carved from Bolgatanga

Municipality in 2004. It covers an area 918 sq km and is bordered to the North by Bolgatanga, south by West and East Mamprusi districts in the Northern region, Kassena Nankana to the west and Bawku west to the East.

The occupation of the people is mainly peasant farming, small scale mining and petty trading.

The 2008 projected population was 97,672 living in 105 communities.

The topography of the district is dominated by relatively undulation lowlands and gentle slopes ranging from 1% to 5% gradient with some isolated rocks, hills and upland slopes at Tongo and Nangodi. They fall within the Birimian, Tarwaian and Voltarian rocks of Ghana. There is evidence of minerals especially gold. The district is drained by the red and white Volta and their tributaries.

Target populations

• WIFA	-	241019
• 0-11	-	40170
• 0-59	-	2008490
• Exp. Preg	-	40170

Health Infrastructure

• Sub districts	-	6
• Health facilities	-	17
• Health centres	-	3
• Clinics	-	5
• Proposed CHPS compounds -	18	
• Functional CHPS compounds	-	9
• Outreach clinics	-	6
• Nutrition Rehabilitation centre	-	1

Table 5: District indicators, Talensi Nabdam

	2008	2007	2006
OPD attendance malaria	34,955	22,787	
Tetanus vaccination for pregnant women (TT2+)	3468	4151	3490
CWC vaccinations			
BCG	3958	4811	4479
PENTA 3	4049	4624	4077
Measles	3731	4383	3996
Yellow Fever	3725	4309	3943

3.3 Sampling and Sample size

A convenient sampling was done to select the two districts and in each facility, two staff from preventive section, two from the curative section and the heads of the facilities were conveniently selected and interviewed.

3.3.1 Facilities:

All health facilities in the two districts that provide both curative and preventive services were to be included in the study. As a result seven health centres and one hospital were finally selected according to the criteria. Seventeen staff were interviewed and observed in all the facilities for curative sessions.

3.3.2 Outreach and Static sites:

Since the maternal and child units conduct immunizations both on outreach and static basis, observations and provider interviews were extended to these places as the situation demanded. Interviews and observations were done for six staff at three outreach sites while six staff were interviewed and observed at three static sites.

3.3.3 Observations:

In each facility observations were done in the injection rooms of the out patients departments, the wards, maternal and child health unit, the stores and the waste disposal sites.

3.3.4 Interviews:

In each facility, the Medical Superintendent or medical assistant in-charge, the administrator or the matron were purposively interviewed mainly on management issues affecting injection safety. Nurses who provide injections were also interviewed on injection practices and logistics.

3.4.0 Variables

1. Background characteristics of respondents:

Respondents included Community Health Nurses, Midwives, Medical assistants (Mostly in charges) and General Nurses.

2. Characteristics of facilities:

Facilities included in the research were those that offered both preventive and curative services. They included seven health centers and one hospital.

3. Competence in injection safety practice:

Data was collected on the employment of basic safety practices by staff that eliminates risk to the recipient and the provider

4. Availability of logistics and supplies: data was collected on the logistics for used for collection and preservation of injection waste that helps to eliminate exposure to risk to recipients and providers.

5. Availability of waste disposal facilities and system:

Data was collected on elements of injection safety practices on injection waste disposal that eliminates risk to the community.

6. Existence of management systems: data was collected on management practices of Planning, technical support and supervision that promotes injection safety practices in the facilities.

3.5 Data collection tools and technique

The standardized WHO/SIGN tool (Tool C) for assessing injection practice was adapted and used to collect data. The tool was used to conduct structured observations and provider interviews.

3.6 Data processing

Data processing was done using EPI info version 3.4.1(July 2007). Check codes were used to avoid double entries. Pre-testing of the tools was done to eliminate inconsistencies and made the questions relate to the local settings.

Data cleaning was done to account for missing values in a bid to ensure integrity and reliability.

3.7 Data Analysis

Frequencies, cross tabulations of variables and graphs were used to do the data analysis and presentations.

3.8 Limitations

1. Observation of practice may be biased through observer-induced changes in practice
2. Information was not readily on the amount of funds that are spent annually on injection safety practice and waste disposal

3. There was the possibility of selection bias of the districts and staff
4. Responses from the service providers may not reflect the true situation of what pertains on the ground
5. There was a possibility of Recall bias among the staff
6. sample size for the study is relatively small so might affect analysis during comparison

3.9 Ethical considerations

1. Ethical review board/GHS.
2. Letter requesting for permission form RHMT/DHMT/Health facilities
3. Letter of Consent – respondents
4. Acknowledgement of minimal discomfort – invasive technique
5. The consent of the respondents and that of the authorities shall be firmly obtained before the observations and interviews are done.
6. The confidentiality of the responses from the respondents shall be assured by explaining how the information shall be recorded and used.
7. May intervene to prevent potential harm to recipient in the event of an unsafe injection practice. Eg. Re-use of syringes and/or use of injection equipment without sterilization.
8. Where necessary support will be provided to facilities on injection safety policy and improvement of waste disposal system.

9. Feedback on findings will be guaranteed

CHAPTER FOUR

4.0 RESULTS

4.1 BACKGROUND CHARACTERISTICS

Distribution of facilities and number of staff by district

A total of 31 staff were observed and interviewed in 8 health facilities. There were 5 (21 staff) facilities in Bongo and 3 (10 staff) in Talensi Nabdam districts. Bongo district therefore had twice the number of facilities and staff than Talensi Nabdam. This is illustrated in table 6 below.

Table 6: Distribution of facilities and number of staff by district

Districts	Facility Name	Number persons Interviewed/observed
Bongo	Bongo Hospital	4
	Namoo Health Centre	4
	Soe Health Centre	4
	Vea Health Centre	4
	Zorko Health Centre	5
Talensi Nabdam	Tongo Health Centre	3
	Pwalugu Health Centre	3
	Nangodi Health centre	4

Total	8	31
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Distribution of respondents by category and number of years of practice

Community Health Nurses (CHNs) formed the largest number of staff who were observed and interviewed. They formed 45.2% of the total staff. However all of them have not been in active service for more than 5 years. The other categories even though in the minority have staff who have been at post for more than five years. This is illustrated in table 7 below.

Table 7: Distribution of respondents by category and number of years of practice

STAFF CATEGORY	NO. OF YEARS OF PRACTICE			Frequency	Percent
	Less Than 1 year	Between 2 & 5 years	More than 5 years		
Community Health Nurse	7	7	0	14	45.2%
General Nurse	2	2	1	5	16.1%
Medical Assistant	2	1	2	5	16.1%

Midwife	0	2	2	4	12.9%
Other	0	1	2	3	9.7%
TOTAL	11	13	7	31	100.0%

Distribution of injection sections by number of responses

There were 17(54.8%) of observations and interviews done for the curative sections of the facilities while 14(45.2%) were made up of 6 (19.4%) outreach and 8(25.8%) static vaccination centres. This is illustrated in table 8 below.

Table 8: Distribution of injection sessions by number of responses

Injection sessions	Frequency	Percent	Cum Percent
Curative	17	54.8%	54.8%

Outreach	6	19.4%	74.2%
Vaccination (static)	8	25.8%	100.0%
Total	31	100.0%	100.0%

ASSESSMENT OF INJECTION SAFETY PRACTICE AMONG STAFF WHO CONDUCT INJECTIONS

4.2.1 Information elements on practice reflecting risk to the recipient

The information gathered on practice of staff reflecting risk to recipient showed that 22(78.6%) of the staff observed prepared injections on clean table and tray. Twenty one (75.0%) used sterile syringes and needles for reconstitution. Fourteen (50%) of them reused mixing syringes for reconstitution and 4(17.9%) of them used gloves for injection procedure. This can be found in Table 9 below.

Table 9: Information elements on practice reflecting risk to the recipient

OBSERVATIONS	Frequency	Percent
Preparation of Injections on Clean Table or Tray	22	78.6%
Use of sterile syringe and needle for reconstitution	21	75.0%

Use of AD or Disposable syringes for injections	28	100.0%
Non use of syringe and needle for multiple patients	28	100.0%
Staff who do not boil needles and syringes	28	100.0%
Staff who do not change needles and use same syringe	28	100.0%
Reuse of mixing syringe	14	50.0%
Use of Gloves for injection procedure	4	17.9%

Table 10 below shows the information on practice of staff reflecting risk to the recipient by district. Generally the staff from the two districts performed well with the exception of reuse of mixing syringe and use of gloves. In Bongo district, 9(47%) of the staff observed reused mixing syringe and only 2(10.5%) used gloves. In Talensi Nabdam, 5(55%) of the staff observed reused mixing syringes while 2(22%) used gloves.

Table 10: Information elements on practice reflecting risk to the recipient by district

OBSERVATIONS/	Bongo (19)	Talensi Nabdam (9)	Total (28)
Preparation of Injections on Clean Table or Tray	14(73.7%)	8(88.9%)	22(78.5%)
Use of sterile syringe and needle for reconstitution	14(73.7%)	7(77.8%)	21(75.0%)
Use of AD or Disposable syringes for injections	19(100%)	9(100%)	28(100%)

Non use of syringe and needle for multiple patients	19(100%)	9(100%)	28(100%)
Staff who do not boil needles and syringes	19(100%)	9(100%)	28(100%)
Staff who do not change needles and use same syringe	19(100%)	9(100%)	28(100%)
Reuse of mixing syringe	9(47.4%)	5(55.6%)	14(50%)
Use of Gloves for injection procedure	2(10.5%)	2(22.2%)	4(14.2%)

Reuse of mixing syringe

Table 11 below shows that all the 14(50%) of the respondents who reused mixing syringes are from the preventive section.

Table 11: Type of injection section and reuse of mixing syringe

TYPE OF INJECTION SESSION				
Reuse of mixing syringe	Curative	Outreach	Vaccination (static)	TOTAL

YES	0	6	8	14
NO	14	0	0	14
TOTAL	14	6	8	28

4.2.2 Information elements on practice reflecting risk to the provider

Table 12 below shows 3(10.7%) of respondents did two hand recapping of needles after injections, 27(96.4%) collected sharps in SBs immediately after injection and 27(96.4%) had no sharps in open containers.

Table 12: Information elements on practice reflecting risk to the provider by district

OBSERVATIONS	Bongo (19)	Talensi Nabdam (9)	Total (28)
Recapping of needle after injection	1(5.3%)	2(22.2%)	3(10.7%)
Collection of sharps in SBs after injection	18(94.7%)	9(100%)	27(96.4%)
sharps in open containers	0(0%)	0(0%)	0(0%)

4.3 AVAILABILITY OF INJECTION LOGISTICS AND SUPPLIES

4.3.1 Information elements on logistics and supplies reflecting risk to the recipient

Out of the 28 respondents, 3(10.6%) had swabs for skin preparations either, dirty, stained or bloody. 26(92.9%) of them from all facilities had one week supply of disposable or AD syringes. Five (17.9%) had occasional mismatch between vaccines/injectables and AD/disposable syringes and also had shortage of injection logistics (cotton wool and mixing syringes). This can be found in figure 3 below.

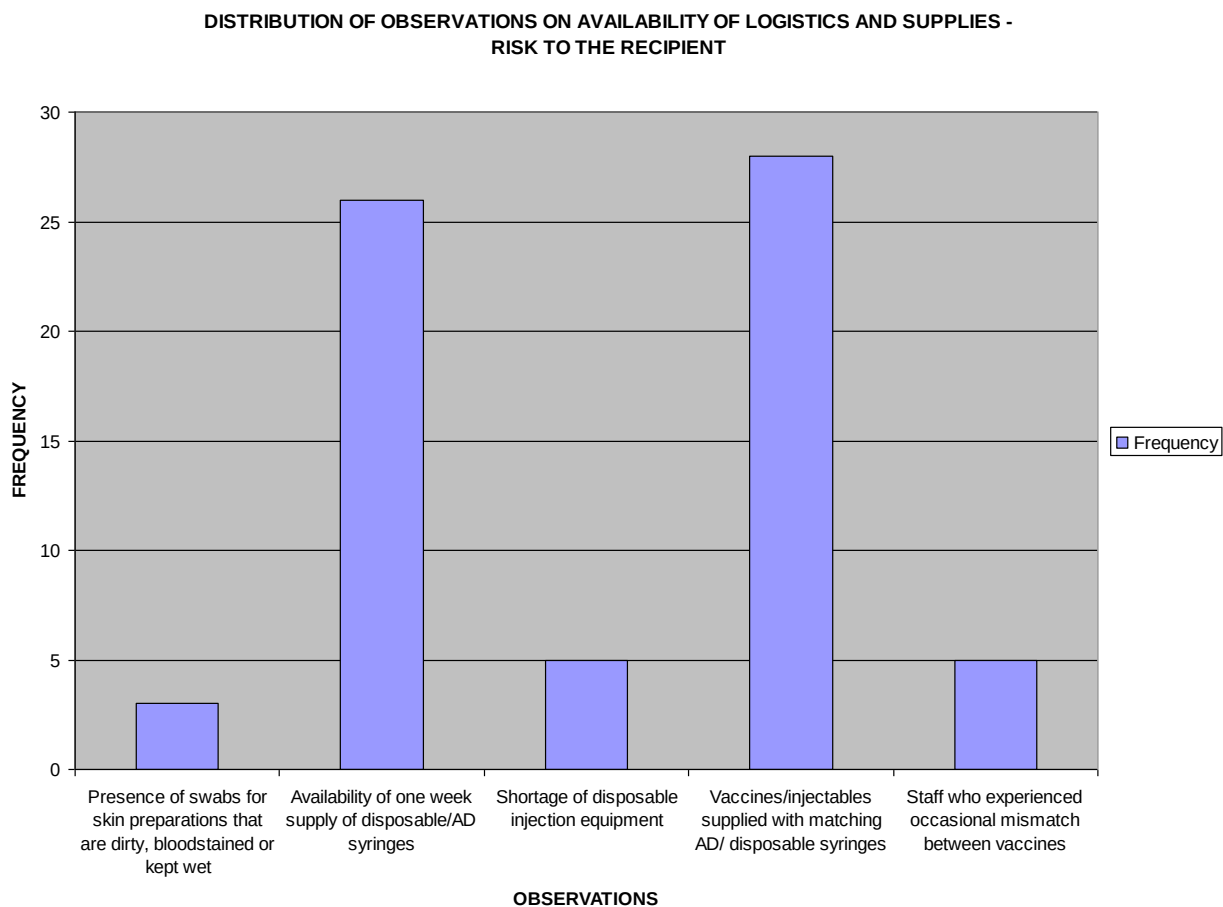


Figure 3: Availability of logistics and supplies reflecting risk to the recipient

4.3.2 Information elements on logistics and supplies reflecting risk to the provider

It was evident that even though there was no acute shortage of SBs in any of the facilities, there were inadequate supplies in some of the facilities. Seven (25%) of the respondents confirmed that they had less than 10 SBs at the time of the visit. Needle sticks injuries do occur among the providers even though not frequently. Nine (32.1%) of respondents had one or more needle stick injuries.

There were shortages of cotton wool in some facilities as confirmed by 5(17.9%) of the respondents.

Certain crude innovations occur during shortages of cotton wool. Four (80%) of the respondents who had shortages said they used syringe wrappers in place of cotton wool after injections. Five (17.9%) of the respondents said there were shortages of syringes and needles for reconstitution in the past three months.

4.3.3. Information elements on logistic and supplies reflecting risk to the provider by district.

In table 12 below, 1(5.3%) of respondents in Bongo and 6(66.6%) in Talensi Nabdam said there are less than 10 SBs in place, 6(31.6%) in Bongo and 3(33.3%) in Talensi Nabdam had needle stick injuries. Only Bongo district had 5(6.9%) of respondents complain of shortage cotton wool. The use of syringe wrappers as substitute for cotton wool were reported in among 4(21%) of respondents in Bongo district. Thirteen (68.4%) of respondents in Bongo and 5(55.5%) of respondents in Talensi Nabdam said they had adequate supply of syringes and needles. Three (15.8%) of respondents in Bongo and 2(22.2%) in Talensi Nabdam had shortages of syringes and needles for reconstitution in the past three months.

Table 12: Information elements on logistic and supplies reflecting risk to the provider by district

OBSERVATIONS	Bongo (19)	Talensi Nabdam (9)	TOTAL (28)
Presence of less than 10 SBs N= 28	1(5.3%)	6(66.6%)	7(25.0%)
Facilities without pierced, overflowing or open sharps containers N= 28	19(100%)	9(100%)	28(100%)
Occurrence of needle stick injuries (one or more) N= 28	6(31.6%)	3(33.3%)	9(32.1%)
Needle stick injury before injections N= 9	5(6.9%)	3(3.3%)	8(88.9%)
Facilities with no shortage of Sharp containers N= 28	19(100%)	9(100)	28(100%)

Availability of cotton wool for curative and vaccinations N= 28	14(73.7%)	9(100%)	23(82.1%)
Shortage of cotton wool within the past 3 months N= 28	5(6.9%)	0	5(17.9%)
Use of syringe wrappers in place of cotton wool N= 5	4(21%)	0	4(80.0%)
Adequate supply syringes and needles N= 28	13(68.4%)	5(55.5%)	18(64.3%)
Shortage of syringe and needle for reconstitution in the past three months N= 28	3(15.8%)	2(22.2%)	5(17.9%)

4.4 ASSESSMENT OF WASTE DISPOSAL SYSTEM OF THE FACILITIES

Eight facilities were assessed in the two districts. There were 2(25%) facilities that had sharps around the facilities. Also all of them used low temperature burning for the sharps. There was no use of incinerators in the districts.

The two facilities in Bongo and Talensi Nabdam who had incinerators were not using them at the time of the survey.

However, all the facilities had regular collection of SBs, full sharp containers in unsupervised areas, have. All the facilities apply low temperature burning either on the ground or in a hole.

4.4.1 Information elements on management and disposal of injection waste by district reflecting risk to the community

Table 13 below shows that both districts have 1(20%) facility in Bongo and 1(33.3%) in Talensi had sharps around them. All the facilities in the two districts had no full sharps containers in unsupervised area; had regular collection systems and all sections providing injections had SBs in place. Two (40%) facilities in Bongo only had low temperature burning on open ground whiles 3(60%) and 3(100%) in Bongo and Talensi Nabdam respectively had low temperature burning in holes. None of the districts used their incinerators at the time of the survey.

Table 13: Information elements on management and disposal of injection waste by district reflecting risk to the community

OBSERVATIONS	Bongo 5(100%)	Talensi Nabdam 3(100%)	TOTAL
Presence of sharps around the facilities N= 8	1(20%)	1(33.3%)	2(25.0%)
No full sharp containers in unsupervised area N= 8	5(100%)	3(100%)	8(100%)
Presence of regular collection system N= 8	5(100%)	3(100%)	8(100%)
All sections providing injections have SBs	5(100%)	3(100%)	8(100%)

N= 8			
Open burning on the ground N= 8	2(40%)	0	2(25%)
Open burning in a hole N= 8	3(60%)	3(100%)	6(75%)
Use of incinerator N= 8	0	0	0(0.0%)

4.5 MANAGEMENT SYSTEMS THAT PROMOTE INJECTION SAFETY PRACTICE

4.5.1 Description of management system that promote injection safety at the

Facilities

On management system that promotes injection safety at the facilities, it came out that none of the facilities had written plans for injection safety activities. Moreover, none of them had good waste disposal system for the sharps. There was also no copy of injection safety policy document in the facilities.

Even though they could not provide documentary evidence, they claim they provide adequate resources for injection safety activities.

Table 14 below is a representation of the management system of facilities by district that promotes injection safety. The facilities in the two districts had no good waste disposal system and they could not provide documentary evidence of allocation of injection safety items.

Table 14: Description of management system that promote injection safety at the facilities by district

OBSERAVATIONS	Bongo 5(100%)	Talensi Nabdam 3(100%)	TOTAL
No written plans for injection safety activities N= 8	5(100%)	3(100%)	8(100%)
Presence of a good waste disposal system	0	0	0(0.0%)
Involvement of injection providers on procurement of logistics	3(60%)	2(66.7%)	5(62.5%)
Allocation of adequate resources for injection safety activities	5(100%)	3(100%)	8(100%)
Availability of all health care waste logistics and supplies	5(100%)	3(100%)	8(100%)
Proportion of resources spent on injection safety	0	0	0
Never had training on injection safety	2(40%)	3(100%)	5(62.5%)
Facilities visited by superiors on monthly basis	4(80%)	2(66.7%)	6(75.0%)

4.6 PLANNING, TECHNICAL SUPPORT AND SUPERVISION

4.6.1 Elements of planning, technical support and supervision

Figure 4 below indicates that 3(10.7%) of the staff said they are consulted on logistics and supplies provided to them, 19(67.9%) said they provide feedback on the injection supplies, 20(71.4%) of them said they benefit from period technical support on injection safety, 17(60.7%) of them said they have been trained on injection safety. 25(89.3%) of them demonstrated knowledge on injection safety policy. Nineteen (67.9%) of the respondents said they benefited from periodic supervision from superiors.

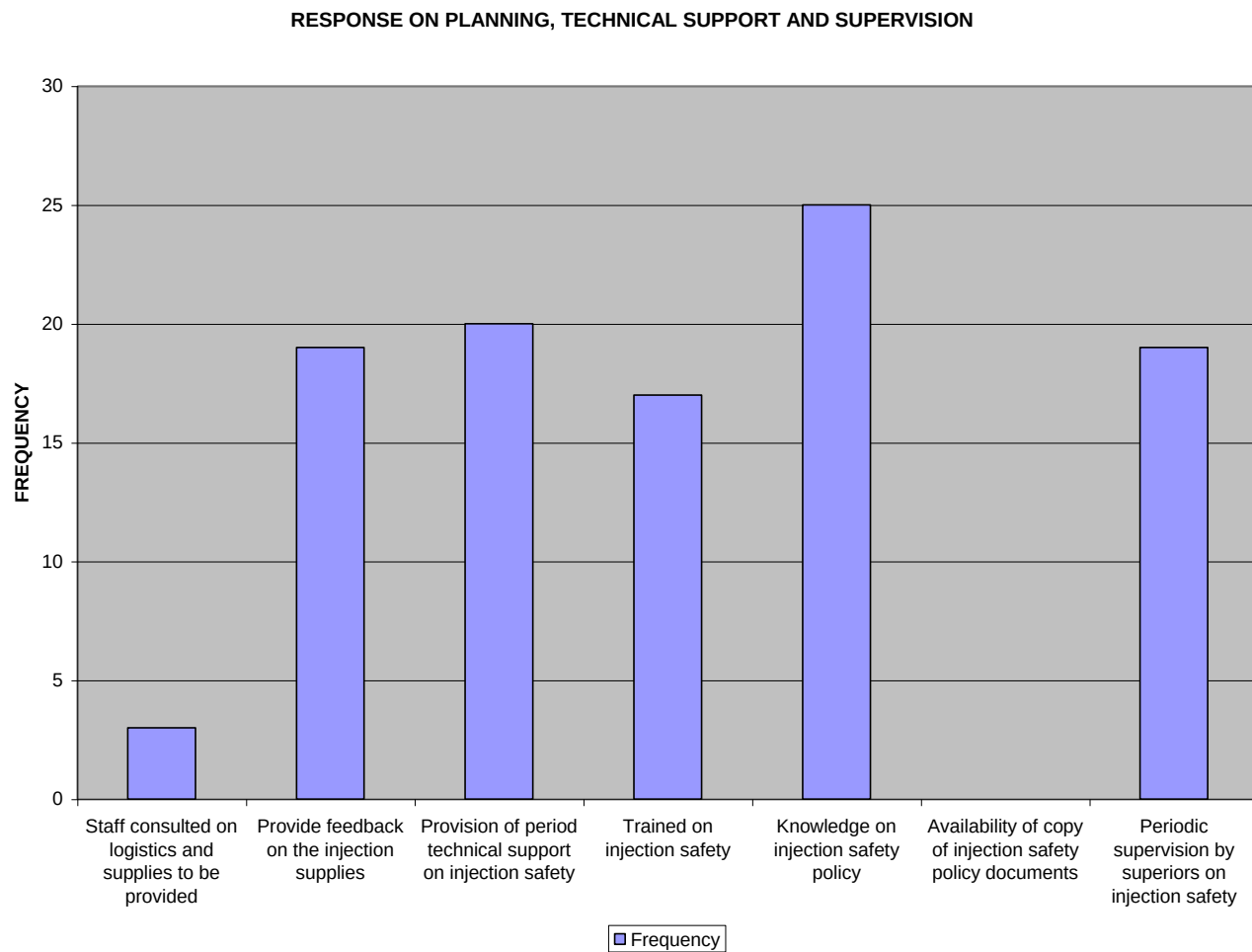


Figure 4: Response on Planning, Technical support and Supervision

CHAPTER FIVE

5.0 DISCUSSIONS

5.1 Background characteristics

The assessment was designed to include all facilities in the two districts which were randomly selected. The total number of facilities in the two districts was twelve health centres and one hospital. After administering the inclusion criteria it ended up with seven health centres and one hospital. The criteria for inclusion was facilities that offered both curative and preventive services

This was done to afford the opportunity to assess the safety practices for both curative and preventive sections.

A total of thirty-one (31) staff were observed and interviewed. In all twenty-one (21) were observed and interviewed in Bongo and ten (10) in Talensi Nabdam districts. Five facilities were selected in Bongo and 3 were selected in Talensi Nabdam.

Community health nurses formed the largest number, 45.2% of staff who were observed and interviewed. This was possible because the required number were available in all the facilities for observation and interview. The other categories of staff were not as many in every facility as the community health nurses.

5.2 Safety practice

Risk to the recipient

The safety practices that measured risk to the recipient showed very encouraging results. In the survey, 78.6% of the staff observed prepared injections on clean tables and trays. In the Nigeria survey conducted in 2004, 57.5 % of staff who conducted injections used clean tray and tables. In the survey 75.0% used sterile syringes and needles for reconstitution while for the Nigeria survey they recorded 15.4%. Fifty percent (50%) of them reused mixing syringes for reconstitution. However, all the respondents observed conducted injections with AD or disposable syringe did not use syringe and needle for multiple patients. This is also the case in all the studies conducted in Burkina Faso in year 2000, Nigeria I 2003, Ghana 2003 and Cambodia in 2002.

Risk to the Provider

On safety of the providers of injection services, two hand recapping was observed in 10.7% of respondents. This compares with 25.37% observed in the national survey in 2003 in Ghana. In Nigeria, the 2004 survey revealed a frightening 75.8% of recapping after injections, 44% was recorded in Burkina Faso in 2000 and 58% in Cambodia. This registers a comfortable situation in Ghana with the current results in this survey.

Of great importance relative to infection prevention is the use of gloves during administration of injectables. In the survey, 17.9% of staff observed performed injections without the use of gloves. The use of gloves was mainly observed at the curative section as it was made clear to the

researcher that it is not a policy for curative nurses to use gloves during immunization.

Therefore all injection observed at immunization clinics were performed by staff who did not wear gloves to protect themselves. In the Nigeria study in 2004, 88.5% of staff did not use gloves for injections. The issue of non-use of Gloves for injection is a critical issue for concern by policy makers.

Also, In the survey, 96.4% placed sharps in SBs immediately after injections and there were no sharps in open containers. This compares with 84.1% 2003 survey in Ghana. In Nigeria, 37.5% of the staff placed sharps in SBs immediately after injections. Only 6 % were observed in Burkina Faso. However, used needles and syringes were found in open containers, 83% in Burkina Faso, 65% in Nigeria and 3% in Ghana in 2003. Again, this situation is also very encouraging for Ghana with an improvement from the 2003 survey.

Needle-sticks injuries recorded among injection staff was 32.1% in the survey among injection providers. Needle-sticks injuries in 2003 survey was 38.3%, while in Cambodia 53%, Burkina Faso 95% and Nigeria 44.9%.

With the exception a few who did two hand recapping generally the safety of the providers in this regards is adequately met in all the facilities and outreach sites.

5.3 Injection Logistics and supplies

On supply and use of logistics that affects the safety of the recipient, 10.6% of the injections observed had swabs for skin preparations that were dirty, bloodstained or kept wet. All of this came from the curative section of the facilities. In the last survey conducted in 2003 by Antwi

Agyei et al, found that 3.5% of this situation was observed at immunizations while 15.5% were observed at the curative. It is notable that this situation was not observed at the preventive section as happened in the 2003 survey, but it is worrying though the proportion had reduced in the current survey.

It was observed that 92% of the facilities had one week supply of disposable or AD syringes. Also 17.9% of the respondents confirmed that they had occasional mismatch between vaccines/injectables and AD/disposable syringes. For most of the facilities, one week supply can be critical depending on their ability to reach for fresh stock. This will depend on the availability of funds, distance and appropriate transport. One or more of these could result in delay in replenishing stock thereby resulting in possible acute shortages.

On availability of cotton wool, 82.1% had cotton wool available for curative and preventive services; however, 17.9% of the respondents said they had shortage of cotton wool within the last three months out of which 80% used syringe wrappers in place of cotton wool during the shortage. These respondents who resulted in the use of the syringe wrappers were from the preventive section.

A situation where there are shortages and mismatches in logistics supply is a recipe for compromise on safe practices among staff.

This situation is very disturbing because the preventive section of the facilities provide the bulk of the immunization services for children under one and pregnant women and therefore require adequate supply of logistics to be able to carry out safe injections. It appears as though the staff at the preventive section get some resources such as cotton wool and syringe and needles for reconstitution only when the preventive section has enough to share. This makes them to hold

on to the little they are given and therefore stretch them to the limit exposing themselves as well as the recipients to high risk of infections.

This situation is very critical when the preventive section is seen as not generating any revenue and therefore do not have right for certain logistics. This group of staff in this circumstance describe themselves as “orphans” within their health centres.

The use of syringe wrappers in place of cotton wool is a crude innovation by the preventive nurses. They use the paper part of the sterile packet housing the syringe and needle in place of cotton wool after injection to stop bleeding at the site of injection. Mothers or pregnant women are made to use their fingers to press on the site to stop bleeding after injection in the absence of cotton wool.

Some of the community health nurses interviewed who confirmed the practice rather said they came to meet their seniors practicing those innovations and therefore they also have to follow. This presupposes that they are not likely to take any steps at requesting for needed logistics like cotton since they see that situation as normal.

There were clearly logistics supply challenges in the two districts. The DHMTs are using the demand pull approach in supplies to all the facilities and CHPS centres where they are required to make request for logistics as and when needed but due to distance, work load, transportation

and other difficulties the facilities delay in going for additional stocks from the district stores causing shortages.

5.5 Risk to the community

The disposal of injection waste from the health facility is a final and critical component of injection safety activities. The disposal of the sharps and other injection waste supposed to be done in such a manner that would insulate the community from harm through exposure to sharps.

Assessing the waste disposal system involved eight facilities, 2(25%) of them had sharps at the disposal site. However, none of the facilities had full sharp containers in unsupervised areas and they all had regular collection of SBs from the injection rooms and outreach sites to the disposal sites. At the disposal sites of these 2 facilities, there were massive deposit of used sharps which were left unattended and unprotected. It therefore brings into contrast the good collection system at the injection rooms and the use of SBs since these sharps were without SBs and appeared to have been dumped from open containers. Coincidentally, these two facilities have incinerators but were not in use at the time of the visit. The disposal of the syringes appeared to be a routine endeavour because the sharps were poured into a public waste collection bin sited in the facility.

The problem of waste disposal brings into focus the attention given to the disposal of sharps from the injection rooms which is better than what happens at the disposal sites. Supervision of disposal sites appeared relegated and therefore challenges that occur at the sites do not get resolved.

All the facilities apply low temperature burning either on the ground or in a hole.

5.6 Management issues

It came out that none of the facilities had written plans for injection safety activities. Facilities were to show evidence of action plan that included among other activities the maintenance of safety in injection procedures, the collection and final disposal of injection waste..

Obviously, without safety plans in place, the facility had very poor waste disposal system. The state of the disposal sites portrayed the level of attention and seriousness attached to the place. This was evident in the manner in which massive sharps were dumped without SBs, unattended and unsecured. Some of the facilities have other waste mixed up with sharps that are not yet burnt. The sites were clearly not supervised routinely.

There was no injection safety policy as well as Healthcare waste management policy documents in the facilities.

On the involvement of injection providers in procurement, 5(62.5%) of the facilities involve injection providers in procuring logistics. This is to ensure that the right equipment and quantity are procured.

All the facilities could not show documentary evidence of allocation of resources for injection safety activities; however they mentioned the purchase of energy for burning injection waste and the provision of healthcare waste logistics and supplies. This situation is very debatable given the level of neglect at the disposal sites with lots of sharps and other injection waste left unincinerated, unattended and unsecured. Infact, it would take a substantial amount of resources to maintain the disposal sites.

62.5% out of the facilities said they had never organized or had any training on injection safety, but what really came out was the fact that almost all the staff have had one form of training that had a component of it dealing with injection safety and infection control.

Even though 75% of the facilities mentioned that they are visited by their superiors from the districts and regions on monthly basis, it is difficult to understand that such visits targeted among other things the issues of injection safety. It brought into sharp focus the comprehensiveness of the monitoring and supervisory visits from the district level.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Safety practices

Generally, but for the limitation in the sample size, lack of adequate resources available to the researcher, it widely believed that the indicators for injection safety relating to the recipient and providers are very encouraging.

Policies are being adhered to on injections and use of appropriate devices but the shortfall in infection prevention such as non- use of clean tables and trays and reuse of mixing syringes appeared an issue of lack of supervision and inadequate resource allocation.

The use of gloves is equally critical for the nurses.

Despite the measures put in place after the 2003 national injection safety survey, there were very fundamental problems waste disposal observed in Bongo and Talensi Nabdam districts.

Logistics availability and supplies that affects safety to recipient requires a lot of attention.

There were evidence of inadequate and outright shortages of injection logistics and supplies. Of major concerns were cotton wool, syringes and needles for reconstitution causing the staff to adopt some dangerous innovations which no doubt put recipients at risk.

Low temperature burning existed in all facilities and non use of incinerators for sharp disposal also existed as well as crude and improper disposal of sharps.

Collection of injection materials from the injection room and outreach clinics is very good but the final disposal remains a critical issue as disposal sites are not adequately catered for living sharps and other injection materials in shallow and overflowing pits which are unattended to and unsecured.

The weaknesses observed on injection practice such as use of improvised items, reuse of syringes for reconstitution, shortage of logistics and supplies, unattended, open and unrestricted disposal sites leading to sharps scattered around disposal site and non-use of incinerators were clearly a problem of weak management system in the facilities.

Periodic supportive supervision by facility heads and district staff appeared to be relaxed leading to shortages of logistics to especially the public health section, lack of routine Distribution of logistics from the district level to the facilities, lack of technical support from DHMT and RHMT level especially on waste disposal

6.2 RECOMMENDATIONS

Based on the above findings, below are some suggested recommendations:

1. National EPI Programme office should ensure continuous and effective monitoring and supportive supervision at regional, district and facility levels.
2. National EPI office should consider holding a national review of EPI logistics management and waste disposal system to enable complete overhaul of the system through facility strengthening and staff capacity building to avoid shortage resulting in dangerous practices that puts the provider, the recipient and the community at risk
3. There will be the need to reappraise the injection safety policy especially for the EPI Programme in the field to conform to standard infection and control and prevention among the community health nurses.

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APPENDIX 1: SCHEDULE OF ACTIVITIES

TASK TO BE PERFORMED	PERS. RESP	2008		2009								
		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT
Selection and submission of research topic		X	X									
Preparation and discussion of proposal with supervisors				X	X	X						
Presentation of draft proposal to Supervisors				X	X	X						
Presentation of draft proposal at school forum						X						
Presentation of final proposal and tools to the school of Public Health for ethical clearance						X						
Review of proposal and tools for final							X					

TASK TO BE PERFORMED	PERS. RESP	2008		2009								
		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT
printing												
Printing of tools for pre-testing							X					
Collection of introductory letters and documentation								X				
Training of field assistants for pre-testing of tools									X			
Pre-testing of tools									X			
Review and printing of tools for data collection									X			
Data collection and data entry									X			
Data Cleaning and processing										X		
Acquisition of district competencies								X	X	X		
Data analysis and interpretation										X	X	
Presentation of draft dissertation											X	

TASK TO BE PERFORMED	PERS. RESP	2008		2009								
		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT
Submission of final dissertation											X	
Viva											X	

APPENDIX 2: BUDGET

ITEM	QUANTITY	UNIT COST	TOTAL COST
1. Proposal development	Internet access	GH¢ 250	GH¢ 250
	Secretarial services	GH¢ 100	GH¢ 100
	2 reams A4 sheets	GH¢ 6 per ream	GH¢ 12
			Sub total- GH¢362
2. Pre-testing of questionnaire (1 day)	Allowance for 5 persons	GH¢ 15 per person	GH¢ 75
3. Printing of questionnaires and photocopying	60* 6 page = 360 pages	5 GHp per page * 360 pages	GH¢ 18
4. Training of 2 field assistants (1 day)	Snack and lunch for * 1 day	GH¢10/ 3 person/day* 1 day	GH¢ 30
	Transport for 1 day	GH¢5/2 person/day* 1 day	GH¢ 10
			Sub total- GH¢40
5. Data Collection (7 days)	Stationery:	GH¢ 12	GH¢12
	2 reams A4sheet		
	1 box of pens	GH¢ 7.5 per box	GH¢ 7.5
	1 box of pencils	GH¢ 3 per box	GH¢ 3

	10 Files	GH¢ 0.50p *10	GH¢ 5
	Digital Camera	GH¢ 500	GH¢ 500
	Per diem- 2 data collectors	GH¢15 per person per day* 7 days*2 pers.	GH¢210
	Transportation – 2 gals of fuel/ day* 5 days	GH¢4 per gal* 2 gals *7 days	GH¢ 40
			Sub total- GH¢777.5
6. Report writing	1 typist for secretarial services	GH¢ 100	GH¢100
	5 reams A4 sheet paper	GH¢ 6* 5	GH¢30
	Toner	GH¢ 150	GH¢150
			Sub total- GH¢280
7. Report Binding	6 copies	GH¢ 10 * 6	GH¢ 60
8. Communications	Credits for cell phone	GH¢ 50	GH¢50
9. Accommodation and Meals		GH¢ 50 per day for 42 days	GH¢2,100
10. Transportation		GH¢ 100 round trip	GH¢ 100
11. Incidentals			GH¢ 200

GRAND TOTAL			GH 3,762.5
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APPENDIX 3: FIELD PICTURES



Abandoned De Mortford incinerator and Public dustbin containing injection materials situated in the compound of Bongo Hospital



Used syringes and needles dumped and new incinerator not in use at Talensi health centre



Evidence of open and incomplete burning at zorko health centre and also dumping of used syringes and needles from RCH unit into a septic tank in the compound of Talensi health centre

APPENDIX 4: CONSENT FORM

ASSESSMENT OF INJECTION SAFETY PRACTICE IN HEALTH FACILITIES IN BONGO AND TALENSI DISTRICTS IN THE UPPER EAST REGION

[Greetings] My name is _____, and I work with [Institution].

[Institution] is conducting an assessment about injections and health care. To do this survey, we are asking a series of questions and observing supplies as well as injection practices. Your health care facility has been chosen at random to take part in this survey. The questions will take approximately 10 minutes to complete, but I will also observe your working conditions and will be around for about one hour.

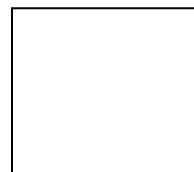
There is no risk to taking part in this survey, although you might feel you do not want to answer some of the questions. Taking part is your choice; you can choose not to answer any of the questions or tell us to stop at any time. If you decide you do not want to take part, you will not lose any employee benefits that you normally get.

Your name will not be kept on the forms we use to write down your answers. If we write the results of the survey in a report, you will never be identified in the report.

Please make sure any questions you have are answered before you agree to take part. If you have any questions about the survey you may ask them now or you can contact Madam Rufina, DDHS, Bongo and Madam.....DDHS, Talensi Nabdam and Dr. Koku Awoonor, RDHS, Bolga and ask them before you agree to take part.

Signature

or



.....

L/R Thump print

APPENDIX 5: WHO/SIGN TOOL (ADAPTED)

OBJECTIVE ONE

TO DETERMINE THE LEVEL OF INJECTION SAFETY PRACTICES AMONG STAFF WHO CONDUCT INJECTIONS – (Observational checklist for therapeutic and Immunization staff)

(Information elements on practice reflecting the risk to the recipient)

Facility name: _____ Type: Hospital ☐ Health centres ☐ Section: Curative ☐ Vaccination ☐ Outreach ☐

Staffcat1	Staff category	1. CHN 2. Gen Nurse 3. Ward Aid 4. Other
Yrspract1	Number of years of practice	1- less than 1 yr 2- B/n 2&5yrs 3- more than 5 yrs
Trainsafety1	Training on injection safety	1. Yes 2. No

	Observations	Yes No	Cannot be assessed
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ObsRR1	Preparation on a clean designated table or tray, where blood or body fluid contamination is unlikely ¹			
ObsRR2	(If glass ampoules are used) Use of clean barrier (e.g. small gauze pad) to protect fingers when breaking the top from the glass ampoule			
ObsRR3	For each reconstitution, use of a sterile syringe and needle (from sealed packet, fitted with 2 caps, or taken out of a sterilizer)			
ObsRR4	Reconstitution of lyophilized vaccines with correct volume of diluent from the same manufacturer / Reconstitution with recommended diluent (Curative)			
ObsRR5	Type of syringe used (1= AD, 2= disposable, 3= sterilizable)			
ObsRR6	For each injection, use of syringe from sterile packet or fitted with 2 caps (disposable or AD syringes) ² , or use of syringe taken from a sterilizer using a sterile technique (sterilizable syringes)			
ObsRR7	Removal of all needles from the vaccine/medication vial between injections			
ObsRR8	Reusing of syringes and needle for multiple patients			
ObsRR9	Boiling needles and syringes			
ObsRR10	Changing needles after each injection but use the same syringe			
ObsRR11	Reusing mixing syringes			
ObsRR12	Use of gloves for injection procedure			

(Information elements on practice reflecting the risk to the provider)

	Observations	Yes	No	Cannot be assessed
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¹ Not an area also used for procedures that may lead to blood contamination (e.g. blood sampling, wound dressing etc.)

² If reuse of injection equipment is about to occur without sterilization, intervene to interrupt the procedure as tactfully as possible and an "N" should be marked on the checklist.

ObsRP1	Two-hands re-capping of the needle after the injection (compared to other items on the checklist, two-hands recapping is an undesirable practice)			
ObsRP2	(Disposable or AD syringes) Collection in a puncture-proof safety container immediately after the injection			
ObsRP3	Presence of sharps in open containers			

OBJECTIVE TWO

1. TO DETERMINE THE AVAILABILITY OF EQUIPMENT, LOGISTICS

AND SUPPLIES

(Information elements on supplies reflecting the risk to the recipient)

	Observations	Yes	No	Cannot be assessed
ObsLR1	Presence of leaks in all sterilizers currently used			
ObsLR2	Presence of swabs used for skin preparation that are dirty, bloodstained or kept wet			
ObsLR3	Availability of one week supply of disposal /AD equipment/syringes			
ObsLR4	Presence of a two day supply of sterilizable spare parts			
ObsLR5	Presence of two days sterilizable equipment			

Interview with provider

ObsLR6	Do you have sufficient energy source/ items for sterilization	Yes	No	Cannot be assessed
ObsLR7	Has there been any shortage of energy source/items for sterilization in the past 3 months for more than a week?	Yes	No	Cannot remember
ObsLR8	If yes to ObsLR7 , how were equipments sterilized during the shortage?			
ObsLR9	Is there any shortage of disposable injection equipment	Yes	No	
ObsLR10	If yes to ObsLR9 how long has the shortage last?	Less than a week	More than a week	Cannot remember
ObsLR11	If yes to ObsLR9 How were you able to give injection services to patients during the time of the shortage?	Could not provide injections	The clients provided their own injection equipments	Other (specify).....

ObsLR11				
ObsLR12	Are vaccines supplied with matching quantities of AD syringes or supply of injectables with matching disposable syringes	Yes	No	Cannot be assessed
ObsLR13	Do you experience occasional mis match between vaccines and AD syringes or injectables and disposable syringes	Yes	No	
ObsLR14 ObsLR14	If yes to ObsLR13 What do you do when you experience such a mismatch between vaccines and AD or injectables and disposable syringes	Requested for the top up	Use other syringes as substitutes	Other (specify).....

OBJECTIVE TWO

2. TO DETERMINE THE AVAILABILITY OF EQUIPMENT, LOGISTICS

AND SUPPLIES

(Information elements on supplies reflecting the risk to the providers)

	OBSERVATION OF LOGISTICS, EQUIPMENT AND SUPPLIES	Yes	No	Cannot be assessed
ObsLP1	Presence of at least 10 sharps containers	Yes	No	Cannot be assessed
ObsLP2	Presence of pierced, overflowing, or open sharps containers	Yes	No	Cannot be assessed
ObsLP3	Presence of sharps in open containers	Yes	No	Cannot be assessed
INTERVIEW				
ObsLP4	Have you had needle-stick injuries in the last 12 months	Yes	No	Cannot remember
ObsLP5	If yes to ObsLP4 , How many times have you had those needle-stick injuries	once	Many times	Cannot remember
ObsLP6	If yes to ObsLP4 , were the needle sticks injuries before or after injection procedure	Before	After	Cannot remember

ObsLP7	Have you had any shortages of sharps containers for curative injections/ vaccinations in the past six months	Yes	No	Cannot remember
ObsLP8	What do you use when you have shortage of sharp containers?			
ObsLP9	Do you have sufficient supply of cotton wool for curative injections/vaccinations	Yes	No	
ObsLP10	Has there been shortage of cotton wool for curative injections and vaccinations within the past 3 months?	Yes	No	Cannot remember
ObsLP11	If yes to ObsLP10 , what did you do when the shortage of cottonwool occurred?	Used of wrappers/mothers use fingers	Borrow from other units/facility	others
ObsLP12	Do you have adequate supply of syringes and needles for reconstitution	Yes	No	Cannot be assessed
ObsLP13	Have you experienced any shortage of syringes and needles for reconstitution in the past three months?	Yes	No	Cannot remember
ObsLP14	If yes to ObsLP13 what did you do?	Borrowed from other unit	Could not conduct immunization	other
	PLANNING			
	Are you consulted in the type and quantity of injection equipments to be supplied by the facility	Yes	No	Cannot be assessed

ObsLP15				
ObsLP16	Do you provide feedback on the the injection equipments supplied	Yes	No	Cannot be assessed
	TECHNICAL SUPPORT			
ObsLP17	Provision of periodic technical support at work place on injection safety	Yes	No	Cannot be assessed
ObsLP18	Have you had training on injection safety before?	Yes	No	Cannot be assessed
ObsLP19	If yes to ObsLP18 when was the last time you were trained	<=1 yr	> 1yr	N/A
ObsLP20	Do have any knowledg on Injection safety policy and guidelines (explain policy when required)	Yes	No	Cannot be assessed
ObsLP21	Do you have a copy of injection safety policy and guidelines at work place	Yes	No	Cannot be assessed
	SUPERVISION			
ObsLP22	Provision of periodic supervision by superiors on injection safety	Yes	No	Cannot be assessed

OBJECTIVE THREE

TO ASSESS THE WASTE DISPOSAL SYSTEM OF THE FACILITIES

	(INFORMATION ELEMENTS ON SUPPLIES REFLECTING THE RISK TO THE COMMUNITY) OBSERVATION OF DISPOSAL SYSTEM			
WSYST1	Presence of sharps around the health care facility especially at disposal site	Yes	No	Cannot be assessed
WSYST2	Presence of full sharps containers in unsupervised areas	Yes	No	Cannot be assessed
WSYST3	Presence of safe storage area for SBs	Yes	No	Cannot be assessed
WSYST4	Presence of regular collection system of SBs from injection rooms and wards to safe designated collection area before disposal	Yes	No	Cannot be assessed
WSYST5	Do all sections of the facilities providing injections have SBs	Yes	No	Cannot be assessed

WSYST6	Type of waste disposal facility used for the disposal of the majority of sharps (circle only one)	1- Open burning on the ground 3- Incinerator 5- Dumping in pit latrine or other secure pit 7- Transport for off-site treatment	2- Open burning in a hole or an enclosure 4- Burial 6- Dumping in an unsupervised area	
WSYST7	If open burning or incineration used, is energy for incineration available, adequate and regular	Yes	No	Cannot be assessed

OBJECTIVE FOUR

TO DESCRIBE MANAGEMENT SYSTEM THAT PROMOTE INJECTION SAFETY PRACTICE

Staffcat2	Staff category	1. Med Supt. 2. Med Assist 3. Admin. 4. Matron .5 Midwife I/C 6. Nurse I/C 7. other
Yrspract2	Number of years of practice	1- less than 1 yr 2- B/n 2&5yrs 3- more than 5 yrs

Trainsafety2	Training on injection safety	1. Yes 2. No
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	PLANNING			
MSYST1	Presence of Injection safety plan	Yes	No	Cannot be assessed
MSYST2	Presence of a health care waste management policy	Yes	No	Cannot be assessed
MSYST3	If yes to MSYST1/ MSYST2 , Do all units have copies of injection safety plan and HCWM policy	Yes	No	Cannot be assessed
MSYST4	Presence a good waste disposal system (collection, storage, transportation and incineration)	Yes	No	Cannot be assessed
MSYST5	Involvement of injection providers on procurement of equipments	Yes	No	Cannot be assessed
	RESOURCE ALLOCATION			
MSYST6	Adequate resources allocated for injection safety activities according to plan (Check for proof)	Yes	No	Cannot be assessed
MSYST7	Availability of all health care waste logistics, equipments and supplies (check stores)	Yes	No	Cannot be assessed
MSYST8	What proportion of total income is spent on injection safety activities (training, sterilization,waste treatment and disposal – take last year’s budget)			Cannot be assessed
	TECHNICAL SUPPORT			
MSYST9	When was the last training on injection safety and healthcare waste management held (check on training reports)	1- <1yr 2-2-3yrs 3- 4-5yrs 4- >5yrs 5- cannot be assessed		

	SUPERVISION			
MSYST10	How often Provision of periodic supervision by superiors (check supervision checklist and reports)	1- weekly	2- monthly	3- quarterly
		4- Not regular	5- Cannot be assessed	

Thank you very much for your time.