# KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

# **COLLEGE OF SCIENCE**

# DEPARTMENT OF THEORETICAL AND APPLIED BIOLOGY



INVESTIGATION OF OCCUPATIONAL HEALTH AND SAFETY ISSUES AMONG HEALTHCARE WORKERS IN PUBLIC HOSPITALS: A CASE STUDY OF ST. DOMINIC'S HOSPITAL, AKWATIA

A THESIS SUBMITTED TO THE DEPARTMENT OF THEORETICAL AND

WJSAN

APPLIED BIOLOGY, COLLEGE OF SCIENCE, OF THE KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ENVIRONMENTAL SCIENCE



### DECLARATION

This work or any part thereof has not previously been submitted in any form to the University or to any other body whether for the purpose of assessment, publication or for any other. With the exception of some expressions, acknowledgements, and references cited in the work, I confirm that the intellectual content of this work is the result of my own efforts under the guidance of my supervisor.

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# **DEDICATION**

Dedicated to the memory of my late father, Mr. Paul Nicholas Kofi Soglo. This is also dedicated to my Mother, Mrs. Elizabeth Soglo, Brothers (Victor, Jerome, and Justin Soglo) and all friends who supported me in this study.



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#### ABSTRACT

The aim of the research was to investigate the occupational health and safety (OHS) issues of the Ghanaian health worker in the public hospital. The investigations were conducted using two instruments: a questionnaire for accessing OHS in the workers and a hazard identification checklist for physical analysis of the work environment. A number of 132 questionnaires were distributed among the occupational groups: Doctors, Nurses, Laboratory, Pharmacy, X-ray, and Mortuary staff of the St. Dominic's hospital in Akwatia. It was deduced that there was a high level of knowledge of OHS among the workers. Results also showed that only 32.2% of the staff had access to all the Personal Protective Equipment (PPE) they required. There was a proportion of workers who did not always make use of the few available PPE or consistently follow standard safety precautions. The reasons they attributed to this was mostly because of 'High workload pressure', followed by the 'unavailability of PPE'. It also showed that 46% of workers who had ever had needlestick injuries had not reported the incidences for medical attention. The main hazards prevalent among the workers ranged from exposure to biological, chemical, and physical agents, ergonomic hazards, stress and violence. Though they all faced some violence at work, the rate was higher among females. Results from the hazard identification checklist exposed the presence of some common hazards to all departments while some were peculiar to specific departments. Manual handling, hazards of chemicals agents, exposure to biological agents, sharp object usage, ergonomics, hazards from waste management and violence were identified in all five departments. However hazards such as steam or chemical explosions and burn hazards were specific to the laboratory, exposure to radiation was identified in both the Xray and laboratory departments, and cold stress was peculiar to the Mortuary. With regards to hazards they deemed most threatening to their duties, the hazard of being exposed to Biological agents, bodily fluids, blood and airborne pathogens ranked highest in the responses from Laboratory staff Doctors and Nurses . This was followed by Needlestick injury or cuts from other sharps. Back Pains or Body Pains due to lifting, pushing, pulling, bending or long hours of sitting and standing was ranked the most threatening hazard among the Mortuary, Pharmacy and X-ray staff. The findings showed that a greater proportion of the staff did not have access to basic requirements such as convenient eating places and access to drinking water. It is therefore recommended that management ensures adequate supplies of PPE, mechanical aides, washrooms and eating areas and regular maintenance of equipment. In-service training on safety, enhanced security, adequate staffing and routine medical checkups were also suggested.



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	their	duties	GLOSSARY
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OHSOccupational Health and SafetyILOInternational Labor OrganizationOHSOccupational Health and SafetyWHOWorld Health OrganizationGDPGross Domestic ProductMDGsMillennium Development GoalsHCWsHealth Care WorkersMOHMinistry of HealthGHSGhana Health ServicesPPEPersonal Protective Equipment

RADY

## CHAPTER ONE INTRODUCTION

## **1.1 BACKGROUND TO THE STUDY**

Health is a positive concept that includes social and personal resources as well as physical capabilities (Nutbeam, 1990). A joint definition of occupational health endorsed by the ILO and WHO states that: "Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations and the adaptation of work to man and of each man to his job" (WHO, 1995: 3). This definition of occupational health shows that, it has gradually developed from a monodisciplinary risk-oriented activity to a multidisciplinary and comprehensive approach that considers the individual"s physical, mental and social well-being, general health and personal development (WHO, 1994).

By conservative estimates workers suffer 270 million occupational accidents and 160 million occupational diseases each year (ILO, 2005). This is perhaps just the tip of the iceberg, as data for estimating nonfatal illness and injury are not available in most developing countries (DCPP, 2007).

Work is a central part of many people"s lives and it is generally recognized that individuals should have a safe and healthy working environment (Warr, 1987). Poor occupational health and reduced working capacity of workers may cause economic loss up to 10-20% of the Gross National Product of a country (WHO, 1994). Globally, occupational deaths, diseases, and illnesses account for an estimated loss of 4% of the Gross Domestic Product (Takala, 2002).

The World Health Report (2006) defined health workers as people whose job is to protect and improve the health of their communities. Together these health workers, in all their diversity, make up the global health workforce. Healthcare is one of the major sectors of many economies, employing a large number of workers. Occupational Health and Safety (OHS) issues relating to the personal safety and protection of workers is therefore a very important Environmental Health concern for hospitals (Sadleir, 2009). In Ghana, just like many other developing countries the healthcare services play a vital role to achieve socio-economic development goals, by providing quality healthcare to all, providing employment and contributing significantly to the Gross Domestic Product (GDP) of the country. In specific terms, the healthcare services in Ghana are a

significant instrument for achieving the health related guidelines of the Millennium Development Goals (MDGs) and The Ghana Poverty Reduction Strategy II (GPRS II) agenda. In spite of this strategic importance of the Ghanaian healthcare services, the industry is fraught with numerous occupational health and safety issues.

Health Care Workers (HCWs) are exposed to a great variety of hazards at the workplace. These hazards could be broadly divided into the following categories: biological, chemical and physical hazards, ergonomic factors, organizational problems and psychosocial hazards (African Newsletter, 2010). Although some risks and hazards are common to the whole sector, others are more specific to certain categories of health care workers or to certain work practices of the industry.

Hospitals are large organizationally complex, system driven institutions employing large numbers of workers from different professional streams. They play an integral role in community protection through wider public health issues but are however potentially hazardous workplaces exposing workers to a wide range hazards on the job (http://www.tropmed.org/rreh/vol1\_2.htm).

Although it is possible to prevent or reduce HCW"s exposure to these hazards, the workers are actually experiencing increasing numbers of occupational injuries and illnesses. Rates of occupational injury to health care workers have risen over the past decade. By contrast, two of the most hazardous industries, agriculture and construction, are safer today than they were a decade ago (NIOSH, 2006).

Ghana"s population has greatly increased over the decade from 18,912,079 people in 2000 to 24,658,823 in 2010 (<u>http://www.statsghana.gov.gh/</u>). There is therefore the need for an increased number of public health facilities hence, more health workers to service the health needs of the increasing masses who cannot all afford to seek health care at the private health facilities which tend to be more expensive.

Increasing access to health services requires adequate health manpower, which is currently on the decline. In Ghana currently, the doctor-to-population ratio for instance is already very low. The overall ratio of medical personnel in 2006 showed one doctor per 10,000 Ghanaians and one nurse per 1,587 people. Hospital admission per 1,000 Ghanaians was 36.5 in 2005 (Hepnet, 2007). This

ratio has gotten worse with the years because according to the WHO statistics in 2009 the national doctor-patient ratio for Ghana is 1:13,000, far below the WHO standard of 1:5,000 (www.robertmitchellfoundation.org).

Trends in the use of out-patient department (OPD) services by insured clients for the population as a whole shows a marked increase from 2005 onward, compared to stable and lower use before. The timing and pattern of this increasing trend correlates with growth in the National Health Insurance Scheme (NHIS) membership. In 2009 the Network of Mutual Health Organisations estimated an average of 1.4 to 1.5 visits per card holder per year, indicating that there has been the expected growth in service use by members (Witter and Gershong, 2009). It is therefore evident that the implementation of the NHIS of accessing health care in public hospitals in Ghana has resulted in the increase of clients accessing these facilities, hence an increase in the workload of workers in the public hospitals.

All these factors add up to the mounting pressures observed in the public hospitals in Ghana, where workers are under pressure to control costs and increase productivity while responding to increasing demands from a growing population.

Achieving comprehensive health care coverage while the population continues to grow rapidly will require that the government allocate an ever-increasing share of human, physical and financial resources to health care. The challenge of recruiting and training a sufficient number of health care staff is further complicated by the fact that Ghana suffers from "brain drain" of staff from the health sector (National Population Council, 2006). The belief that manpower is expandable (Stout, 1974) and that organizations can afford to lose some of their personnel only to be replaced in no time appears to be a thing of the past. Organizations can no longer afford to lose experienced and committed employees through ill-health caused by unhealthy working conditions as the cost of recruiting, selecting, developing, motivating and retaining new employees who take over from experienced employees lost through work related ill-health remains incalculable.

Various system-related factors have an indirect impact on staff retention, as they contribute to staff shortages and increased workload for existing staff (Dussault and Franceschini, 2006). In addition, staff shortages negatively affect the motivation of the remaining staff as they create increased workload, causing extra stress and the risk of more staff leaving or being absent from work.

Lehmann *et al.*, (2005) and Dussault & Franceschini (2006) indicated that health workers leave for many reasons and that financial reasons are often neither the only, nor main, reasons. Combining the categories proposed by Lehmann et al., one of the factors distinguished was workrelated factors and specifically includes job satisfaction, influenced by health facility factors, working conditions, and safety at work.

In the past, staff performance was often perceived as a function of skills and knowledge. In recent years, it has been recognized that performance is influenced by additional factors (WHO, 2006). If staff members are to perform to their full capacity, it is not only staffing issues that must be addressed, but also systems and facility issues. The performance of health workers depends not only on their competence (knowledge and skills) but also on their availability (retention and presence), their motivation and job satisfaction, as well as the availability of infrastructure, equipment and support systems (Zurn *et al.*, 2005).

Ghana health care reform is currently focused on the primary objectives of the Ghana Health Services/Ministry of Health and all health workers are a vital component in achieving these goals. Achievement of healthy work environments therefore is critical to the safety, recruitment and retention of workers hence strategies that enhance their workplaces are therefore required.

## **1.2 PROBLEM STATEMENT**

Numerous health and safety issues are associated with healthcare facilities. SOCSO (2008) has it that public hospitals are listed as one of the top ten that have the highest accident rates compared to other public service sectors. Exposure to low levels of safety practices and job tasks that interfere with ability to comply with safety practices significantly increases the likelihood of having a work-related injury (Gimeno *et al.*, 2007). For instance, research has it that in Canada more than 16 million nursing hours are lost to injury and illness annually. This enormous tally of lost hours due to illness and injury, much of which could be prevented, translates into a lot of care giving hours lost across the country each year (RNAO, 2008). Additionally, with the advent of high prevalence of HIV/AIDS, Multi-Drug Resistant (MDR) tuberculosis, and many other infectious diseases,

working conditions and safety at work have become very important to staff, as Lehmann *et al.*, (2005) report from various studies.

Job satisfaction has an effect on turnover and absenteeism and it is influenced by good physical working conditions, organizational and management support and safety at work (Dieleman *et al.,* 2006). At a time when the health care system in Ghana is overburdened from increasing patient numbers and inadequate healthcare staff, the further shortage caused by absenteeism and injury is a testament to the need for healthcare administrators to act on improving the work environment for health workers in general.

In order to address these shortfalls listed above, there is the need for a research to identify the current sources of occupational injury and stress that negatively influence the health, well-being and quality of work life for health workers in the public hospitals, from which recommendations can be made to create practice environments that promote the health and well-being of the current and future healthcare workforce as it is vital to the future of the healthcare system.

Ghana has no national policy on occupational health services. The findings of the research will serve as a guide for strategies to be developed in the future establishment of policies aimed at protecting the rights and the safety of these workers.

## **1.3 JUSTIFICATION FOR THE STUDY**

Health delivery system in the Kwaebibirem District consists of 2 hospitals of which the St. Dominic"s hospital is one. The district"s doctor-population ratio is 1:28,190 whilst the nursepopulation ratio is 1:1519 (www.kwaebibirem.ghanadistricts.gov.gh). This doctor/population ratio is lower than the current national ratio of 1:13,000 and greatly lower than the WHO recommended ratio of 1:5,000.

The St. Dominic's hospital is one of the largest hospitals in the country. Its location, size and facilities enable it to provide health services to a large number of inhabitants in and around Akwatia and the Eastern region in general. It serves as the major referral centre for the other lower health institutions in the district and the region as a whole. The staff of the hospital regularly have high numbers of clients to provide services to. This high workload comes with its associated problems.

There is therefore a need to study the various OHS issues the workers are faced with in their lines of duty to serve as basis for enhancing workers' safety.

## 1.4 RESEARCH QUESTIONS

The specific questions to the study include:

- What is the current state of knowledge and awareness of health care workers on work related health hazards?
- What do the various groups of workers perceive to be the most hazardous issue they face in the performance of their duties?
- What are the current causes of occupational injury to health care workers?

## **1.5 THE AIM OF THE STUDY**

The aim of this research was to investigate the occupational health and safety issues of the Ghanaian health worker in the public hospital.

# **1.6 SPECIFIC OBJECTIVES:**

- 1. To investigate the current safety measures being practiced by the workers.
- 2. To examine the knowledge of workers on occupational health and safety issues.
- 3. To determine and compare the occupational hazards of the various workers and which hazard they perceive as most threatening to the performance of their duties.
- 4. To identify the types of hazards workers are exposed to in the various work environment understudy.
- 5. To examine the views and suggestions of employees regarding the level of management of OHS they require to feel safe at work and to propose recommendations from findings.

# **CHAPTER TWO**

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#### LITERATURE REVIEW

## 2.1 COMPREHENSIVE DEFINITION OF OCCUPATIONAL HEALTH AND SAFETY

Kofi Annan, (Former UN Secretary General) said that "Safety and health at work is not only a sound economic policy - it is a basic human right".

Health is a positive concept that includes social and personal resources as well as physical capabilities (Nutbeam, 1990). The WHO defines health as not just the absence of disease but as a state of complete physical, mental and social well being (WHO, 1986).

A joint definition of occupational health endorsed by the ILO and WHO (as revised in 1995) states that: Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the workers in an occupational environment adapted to their physiological and psychological capabilities; and, to summarize: the adaptation of work to man and of each man to his job (WHO, 1995; 3).

Thus occupational health has gradually developed from a monodisciplinary risk-oriented activity to a multidisciplinary and comprehensive approach that considers the individual physical, mental and social well-being, general health and personal development (WHO, 1994). As a broad based concept, OHS encapsulates the mental, emotional and physical well-being of the worker in relation to the conduct of his work. This therefore makes it an important discipline contributing to the success of any organisation.

Traditionally, the focus of OHS initiatives has been on chemical, biological and physical exposures or hazards, diseases, disorders and injuries related to or affecting work, while psychosocial risks at work are still largely neglected and their causes and consequences still insufficiently understood especially as they pertain in the developing country context (WHO, 2007). However, health issues involving the physical space of work; types of occupation and their effect on health; job stress, work schedules, and other psychosocial issues in the work environment affecting work (Warr, 1987) are all being given some attention in recent OHS initiatives particularly in developed countries. According to the WHO, all workers have the right to healthy and safe work and to a work environment that enables them to live a socially and economically productive life (WHO, 1994). This statement puts the human life at the centre of all productive activities, which must not be compromised at any cost.

#### 2.2 THE IMPORTANCE OF OCCUPATIONAL HEALTH AND SAFETY (OHS)

It is in the interest of workers and their representatives to earn a living, and also to reach old age in healthy conditions (WHO, 2007). With past research uncovering enormous financial and human costs associated with unhealthy organisations (Cooper, 1994), human resource professionals have begun to position healthy workplace programmes and activities as a source of competitive advantage to curtail increasing health care costs; assist in the attraction, acquisition and retention of employees; better manage the employer-employee relationship; meet the needs of an increasingly diverse workforce, and boost employee morale (Fulmer *et al.*, 2003; Jaffe, 1995; Pfeffer 1994).

Indeed, the costs of unsafe, stressful and unhealthy workplaces are horrific in personal, economic, and social terms (Kelloway and Day, 2005) and therefore require immediate attention. For instance, a 2007/2008 survey by the Health and Safety Executive (HSE) on work-related illness estimated 34 million lost work days; 28million due to work related illness and 6 million due to workplace injury (HSE, 2009). Translating this in monetary terms means an erosion of a chunk of the profit margins of organisations. Jones *et al.*, (1998) in a similar study reported that 14% of the people in the United Kingdom who retired early did so because of ill-health and part of these ill-health conditions were believed to be the result of working conditions or at least made worse by working conditions.

The belief that manpower is expandable (Stout, 1974) and that organisations can afford to lose some of their personnel only to be replaced in no time appears to be a thing of the past. Organisations no longer can afford to lose experienced and committed employees through illhealth caused by unhealthy working conditions as the cost of recruiting, selecting, developing, motivating and retaining new employees who take over from experienced employees lost through work related ill-health remains incalculable. OHS therefore remains an important consideration for all organizations. By pursuing good OHS practices, institutions face fewer workplace injuries and benefit from higher employee retention rates and enhanced corporate image. This reduces the costs associated with production delays, recruiting new staff and replacing equipment and avoids the resulting uncertainty and workload pressure placed on coworkers (ASCC, 2006).

Considering that working adults spend at least a quarter to a third of their waking life at work and the fact that job satisfaction is estimated to account for a fifth to a quarter of the satisfaction in adults (Harter *et al.*, 2003), OHS issues in organisations, that include the emotional, physical, chemical and biological exposures of work should be of interest to all employers.

A high standard of OHS correlates positively with high Gross National Product (GNP) per capita. Poor occupational health and reduced working capacity of workers may cause economic loss up to 10-20% of the GNP of a country (WHO, 1994). Globally occupational deaths, diseases, and illnesses account for an estimated loss of 4% of the Gross Domestic Product (Takala, 2002). The countries investing most in OHS show the highest productivity and strongest economy, while the countries with the lowest investment have the lowest productivity and the weakest economies (WHO, 1994). Thus, active input in OHS is associated with positive development of the economy, while low investment in OHS is a disadvantage in the economic competition.

OHS of HCWs is a public health issue. The development and implementation of preventive health and safety programmes in healthcare institutions is not only critical to protecting HCWs from exposure to workplace hazards, it is also necessary for protecting patients and improving the conditions in which health care workers can provide quality health care (Henwood, 2010).

### **2.3 AN OVERVIEW OF THE GLOBAL HEALTH FORCE**

The World Health Report 2006 defined health workers as people whose job is to protect and improve the health of their communities. Together these health workers, in all their diversity, make up the global health workforce. A conservative estimate of the size of the health workforce globally is just over 59 million workers. These workers are in health enterprises whose primary role is to improve health (such as health programmes operated by government or nongovernmental

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organizations) plus additional health workers in non-health organizations (such as nurses staffing a company or school clinic).

Health service providers constitute about two thirds of the global health workforce, while the remaining third is composed of health management and support workers. Health and medical services are now a major employer in all countries. The large numbers of health workers in the world make up an important part of the total labour force. In general, the relative importance of the health workforce is higher in richer countries than in poorer ones and can account for up to 13% of the total workforce. Health care is a labour-intensive industry, and it covers a highly diversified range of activities. Although some risks and hazards are common to the whole sector, others are more specific to certain categories of health care workers (HCWs) or to certain work practices of the industry (African Newsletter, 2010).

### 2.4 OVERVIEW OF THE HEALTHCARE SYSTEM IN GHANA

Most healthcare in Ghana, is provided by the government and largely administered by the Ministry of Health (MOH) and Ghana Health Services (GHS). The healthcare system has five levels of providers: health posts which are first level primary care for rural areas, health centers and clinics, district hospitals, regional hospitals and tertiary hospitals.

The healthcare industry is typified by a government sector that serves the majority of the population and a growing private sector that serves 40 percent of healthcare needs. The healthcare industry is showing positive growth as the MOH is investing a large amount of capital into the revitalisation of all public institutions. The National Health Insurance Scheme (NHIS) implemented by the MOH has made healthcare goods and services more affordable and accessible to Ghanaians (Frost & Sullivan, 2009).

#### 2.4.1 Public Health Care System in Ghana

The public health care system of Ghana is operated through the NHIS, which permits the operation of three other types of insurance schemes (Hepnet, 2007). Trends in the use of outpatient department (OPD) services by insured clients for the population as a whole shows a marked increase from 2005 onward, compared to stable and lower use before. The timing and pattern of

this increasing trend correlates with growth in the National Health Insurance Scheme (NHIS)membership.



Figure 1: Trends in OPD and admissions, Ghana, 2001–8. *Source*: Annual sector review, 2008. Witter and Garshong (2009).

In 2009 the Network of Mutual Health Organisations estimated an average of 1.4 to1.5 visits per card holder per year, indicating that there has been the expected growth in service use by members (Witter & Garshong, 2009) It is therefore evident that the implementation of the NHIS of accessing health care in public hospitals in Ghana, has resulted in the increase of clients accessing these facilities.

### 2.4.2 The Significant Role of Ghana's Healthcare Industry

The health care sector plays an important role in any economy and its activities are also vital to the achievement of the socio-economic development goals of providing. Among other socioeconomic priorities, health is one of the issues that are at the forefront of the Millennium Development Goals (MDGs), which Ghana hopes to fulfill by 2015. The Government therefore prioritised health issues within the MDGs, three of which deal with health issues. The fourth of the goals of the MDGs is to reduce under-five mortality rate to two-thirds by 2015; the fifth goal is to reduce the maternal mortality ratio by three-quarters by 2015, and the sixth is to try and to reduce infection rates of HIV/AIDS, malaria, and other communicable diseases associated with hygiene and environment by 2015. All of these have been made primary health goals, which the government has sought to integrate into community level health care (Public Agenda, 2008).

The public health system however faces a variety of obstacles, among them shortages of personnel and funding, as well as an unequal distribution of health workers in the country's regions (Van den Boom *et al.*, 2004).

### 2.4.3 Challenges of the health care system in Ghana

Overall, and despite massive efforts by the government, the health care system is still characterized by underfunding and a lack of personnel: The Ghana Health Service acknowledges that there is an "urgent need for additional health facilities and more qualified health personnel, especially in rural communities" (IRIN, 2008).

#### 2.4.3.1 Healthcare Human Resources

A lingering problem in the Ghana health sector is the issue of personnel shortages. While the government is showing signs of reform, the health industry is losing personnel to higher income countries. Reports continue to show a high influx of Ghanaian health workers into western countries (MEDACT, 2005). The organisation Physicians for Human Rights (PHR) noted that in Africa, "health professional shortages are the most severe, by far, in rural and other poor areas" (PHR, 2004). The overall ratio of medical personnel in 2006 showed one doctor per 10,000 Ghanaians and one nurse per 1,587 people. Hospital admission per 1,000 Ghanaians was 36.5 in 2005 (Hepnet, 2007).

According to PHR, "the Ghana Medical Service estimates that 1,200 Ghanaian physicians are in the US. Ghana currently has only about half the number of nurses it had in the mid-1980s", when its population was almost half of what it was in 2008. "In 1999 alone, 328 nurses emigrated from Ghana, approximately equivalent to the number of nurses Ghana produces annually. In 2002, along with 70 physicians and 214 nurses, Ghana lost 77 pharmacists to other countries. The retail giant Wal-Mart is reported to be recruiting pharmacists from sub-Saharan Africa to work in their Canadian stores" (PHR, 2004).

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#### 2.5 OCCUPATIONAL HAZARDS IN HEALTH CARE WORKERS (HCWs)

Health and safety hazards in the health sector have been documented, and are known and experienced by some of these workers. They include: lifting and maneuvering patients from awkward postures contributing to lower back and upper limb disorders; exposure to infectious airborne diseases such as TB and H1N1 flu; sharps injuries and the risk of exposure to blood borne pathogens including hepatitis B and HIV; violence and abuse in the workplace resulting in physical injuries and psychological trauma; latex in rubber personal protective equipment (PPE) and medical equipment contributing to allergies and occupational asthma; long patient queues; shortages of beds, equipment and medicines; staff shortages and budget cuts contributing to stress and burnout; exposure to radiation by radiographers; exposure to hazardous chemicals; and ergonomic hazards (Henwood, 2010).

HCWs are exposed to a great variety of hazards at the workplace. According Dr. Shengli Niu in the African Newsletter on OHS, 2010, these hazards could be broadly divided into the following categories: biological, chemical and physical hazards, ergonomic factors, organizational problems and psychosocial hazards.

#### 2.5.1 Biological Hazards

HCWs are often in direct contact with patients, including patients with infectious diseases. Tuberculosis (T.B), hepatitis, rubella, HIV/AIDS, and cytomegalovirus (CMV) are just a few examples of the threats faced by HCWs in their daily work. The incidence rates for TB are now rising in many developing countries and even in several industrialized countries due to the spread of HIV/AIDS and a slackening of immunization programmes. The appearance of multi-drug resistant TB poses a new threat to HCWs.

Hepatitis B is usually transmitted through the blood and enters a susceptible individual through a break in the skin - often via an accidental needle stick. It could be a specific risk to people working in laboratories, renal-dialysis units, blood-trans-fusion centres, drug-addiction clinics, dental surgeries and STD clinics. Contacting patients with rubella virus infection could have serious

consequences for pregnant health care workers, and infected staff also pose a threat to patients, particularly when working in obstetric, gynaecological and paediatric services. Most HIV-positive HCWs have acquired their HIV infection outside the workplace, by sexual transmission from an HIV-positive partner/spouse. The risk of transmission of HIV from the patient is small, if the staffs observe standard infection control procedures.

Needle stick injuries are the most common injuries in the health care sector. Nursing staff, particularly nursing students are at the highest risk from needlestick incidents. The prevention of transmission of HIV through a needlestick injury is very important, particularly in high HIV prevalence areas. The risk of contracting an infection from the patients is high in developing countries where the hygienic conditions in hospitals may be problematic and where infectious diseases are rampant (Niu, 2010).

#### 2.5.2 Chemical Hazards

HCWs are exposed to a large variety of chemical agents which are being used in hospitals and other health facilities. These agents include anaesthetic agents, disinfectants, chemical sterilizing agents, drugs and cytostatic or laboratory reagents. Some of these substances are irritating to the skin and respiratory tract and can cause allergy. Some others, such as ethylene oxide, formaldehyde, hexachlorophene, are known mutagens, teratogens and human carcinogens. Among the occupational allergic agents, latex, acrylic and epoxy chemicals in orthopaedics and dentistry, laboratory chemicals such as formaldehyde, chromium, cobalt and organic solvents can cause irritant dermatitis. Substances such as animal protein and antibiotics – particularly the penicillin group – are well-recognized allergic agents which may cause not only asthma but also dermatitis and conjunctivitis. It is important to know that once an allergy has developed, it is extremely difficult to keep the exposure levels low enough to prevent exacerbation of the disorder. Thus it is very important to prevent or minimize exposures in the first place (Niu, 2010)

#### 2.5.3 Physical Hazards

Physical hazards to HCWs are ubiquitous in hospitals and clinics. They include ionizing radiation, noise, heat and cold, vibration, electric and magnetic fields. In addition, consideration needs to be

given to the ergonomic aspects of health care work. Ionizing radiation poses a threat to HCWs working not only in radiological and radiotherapy departments, but also in laboratories, dental facilities and electro-microscopy units, as well as in nursing wards and operation rooms.

Radiation is used in medical care for both diagnostic and therapeutic purposes. Work involving the preparation and assay of radiopharmaceuticals and intervention radiology tends to be associated with the highest occupational exposure in the medical use of radiation. Doses to the hands can rise to an annual limit of 500 mSv. Therefore, it is important that radiation protection measures are strictly followed, and the staff are adequately shielded from radiation sources so that the doses to the whole body and extremities can be reduced to as low a level as can be reasonably achieved.

Noise and vibration are not major problems in health care establishments except in dental and orthopedical surgery. High-speed dental turbines and surgical drills can cause noises at the level of 80–90 dB (A) which could damage the hearing of the operators if maintained for a prolonged period.

Extreme ambient temperatures are usually not major concerns for the HCWs. But in some developing countries, as well as for some categories of health staff performing certain procedures, extreme temperatures could be a health threat. People who are exposed to heat and cold include operating theatre staff, boiler-room workers, laboratory technicians, as well as service and maintenance personnel. Poor building design and maintenance can cause indoor air quality problems. Particular attention to the ventilation of the building is needed to prevent the "sick building syndrome". This is also particularly important in specific areas, such as laboratories and operating theatres where there is a specific need to suppress, minimize or control hazardous gases, dusts, fumes, etc. (Niu, 2010).

### 2.5.4 Ergonomic Factors

Musculoskeletal injuries of the HCWs are often associated with patient handling. The lifting of patients is a major problem for nurses. Back injury is the most common and most costly type of injury faced by HCWs. Nurses are at greatest risk of musculoskeletal injuries. The reason for the great number of musculoskeletal injuries is the great amount of lifting that HCWs, nurses in

particular, are required to do, and this is not always physically possible. In the health care setting, patients are more difficult to lift since they are not stable and can be very uncooperative. Injuries due to awkward work postures, such as the prolonged standing, bending or kneeling can prevail among dentists, otologists, surgeons and especially microsurgeons, obstetricians, gynaecologists and other HCWs, such as operating room staff, cleaners and hospital laundry workers. The availability of mechanical lifts and other devices for moving patients, for instance, from their beds to wheelchairs, and ergonomically designed work stations have greatly improved the comfort of the working postures in many medical practices and procedures. These lifts and devices are commonly found in industrialized countries rather than developing countries. Nevertheless, unpredictable demands and high workload, as well as economic constraints, limit the introduction of these techniques to the workplaces in the health care sector (Niu, 2010).

#### 2.5.5 Organizational problems and Psychosocial hazards

Aspects of work organization affect general well-being, physical health, and stress-related outcomes. There is a number of important emerging scientific and health issues related to work organization practices (http://www.cdc.gov/niosh/programs/workorg/emerging.html).

#### 2.5.5.1 Stress

Job stress is also a common complaint among the health care workers. The main causes include heavy workload, conflicting or uncertain job responsibilities, and job insecurity. A significant proportion of the health care workforce consists of women, who still, for the most part, manage the home and care for children in addition to their outside work. Dealing with the very sick and dying persons can be a real problem for trainees and new health care workers. Long working hours, night work and rotating shift work are a normal pattern of the health care services. High levels of responsibilities are part of the life of many hospital workers.

Junior doctors and nurses are more likely to face these situations as stressful. Although normal levels of stress will not cause a disability, it is possible that prolonged exposure to a high level of stress may result in substantial adverse long-term health effects. Such health effects can be anxiety, aggressiveness, apathy, boredom, irritability, depression, exhaustion, or behavioural effects, such

as accident proneness, smoking, drug-taking, alcohol abuse, excess eating or restlessness (Niu, 2010).

#### 2.5.5.2 Workplace Violence

Violence is a significant problem in both hospital and community based health care environments and (Cooper and Swanson, 2002). Studies indicate that as many as one-third of workers report they experienced some sort of psychological aggression, emotional harassment, or abuse while on the job during the past year. Workplace psychological aggression can be costly in terms of individual outcomes, such as increased psychological stress, reduced satisfaction, and poorer physical health, and in terms of organizational outcomes such as turnover, counterproductive work behaviors, and decreased productivity

(http://www.cdc.gov/niosh/programs/workorg/emerging.html).

Violence in HCWs at work is common among workers who are in contact with people in distress. Frustration and anger arising out of illness and pain, problems of ageing, psychiatric disorders, alcohol and substance abuse can affect people<sup>\*\*</sup>s behaviour and make them verbally and physically aggressive. HCWs are at special risk of workplace violence. Health service staff working in emergency care units and in psychiatric hospitals are at high risk of violence. Female HCWs are particularly vulnerable to violence at work (Niu, 2010).

### 2.6 THE WORK ENVIRONMENT OF HEALTH CARE WORKERS (HCWs)

Work environments differ from one setting to another, and with these differences come hazards inherent to that industry (Wagner, 1997). Hazards in comparable work environments also differ depending on the activities conducted at a particular workplace. Health care settings are workplaces in which health care is rendered to clients and includes many settings, such as primary health care facilities; occupational health services, and hospitals. Health care settings have been identified as becoming among the most hazardous occupational settings due to the activities conducted and the diverse hazards encountered in these environments (Moore and Kaczmarek, 1990; Salvage *et al.*, 1998; Triolo, 1989).

They are unique from other work environments because HCWs are exposed to hazards similar to those of other work settings (e.g noise & manual handling), in addition to hazards considered

unique to health care (e.g. biological hazards of which many are spread through inhalation) (Felton, 1990; DiBenedetto, 1995).

## 2.7 HEALTH CARE WORKERS AS HIGH RISK EMPLOYEES

HCWs are at risk of developing occupational disease if not adequately protected from exposure to occupational hazards. They have been identified as a neglected group with regard to the monitoring of their occupational health status, and research has shown that the health of HCWs does not get the attention it deserves (Michell, 2010). Many reasons have been cited for this, and these are indicated below. One of the biggest misconceptions is that as health care providers,

HCWs understand the risks associated with exposure at work and can thus protect themselves. This has, however, been shown to be incorrect. Health care training generally does not include an understanding of occupational health, and thus HCWs are often unsure of their own risks. Unpublished research conducted by Michell (2000) showed that in hospitals where 19 identified hazards were present, professional nurses were only able to identify 3.9 (range 0-9). This is in line with international research findings. More significantly, three chemicals which enter the body via the respiratory tract, i.e. ethylene oxide, gluteraldehyde and waste anaesthetic gases were identified by 1.9%, 11.8% and 44.5%, respectively. Clearly an inability to identify respiratory concerns places HCWs at risk.

## The reasons why health care workers are a high-risk group are as follows;

• HCWs are presumed safe from harm due to their knowledge of health;

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- Health care settings are presumed safe places to work;
- Lack of awareness and co-ordination of occupational health services in health care settings;
- HCWs seek corridor consultations leading to misdiagnosis of occupational ill health;
- Hospitals focus on curative services rather than preventive, as in occupational health;
- Management has focused attention on providing a safe environment for the patient and not the worker.

#### **2.8 OTHER OHS STUDIES DONE IN HCWs**

WHO made a special risk analysis of hepatitis B and C, and HIV infections among HCWs caused by contaminated sharps, such as syringe needles, scalpels, and broken glass (WHO,

2002). This analysis illustrates the general problem of high risks existing in the small worker population having exposure. WHO found that, among the 35 million health workers worldwide, there were 3 million percutaneous exposures to bloodborne pathogens in 2000. This finding is equivalent to between 0.1 and 4.7 sharps injuries per year per health worker. WHO concluded that of all the hepatitis B and C cases present in HCWs, about 40 percent was caused by sharps injuries, with wide regional variation. WHO also found that between 1 and 12 percent of HIV infections in health care workers was caused by sharps injuries.

The comparative risk assessment by region and type of infection indicates where special emphasis is needed. Clearly, solutions exist to these problems, as shown by the countries that have engaged in serious prevention efforts. Proper needle handling and waste management, substitutions for sharps, hepatitis B virus immunization, post exposure prophylaxis, training, and legislative measures have been successful. Beyond the personal and workplace consequences, the potentially devastating societal impact of loss of this critical worker group can be anticipated if prevention measures are not ensured in developing countries, where the proportion of HCWs in the population is already small (Rosenstock *et al.*, 2006).

#### 2.9 OVERVIEW OF THE STATE OF OHS IN GHANA

Employers in Ghana are required by the Ghana Labour Act 2003, Act 651 to ensure their employees are not exposed to conditions that would lead them to work-related injuries or illnesses. Employees are also required to exhibit their duty of care in ensuring that they work as per the employers" standard operating procedures which must incorporate Safety and Health requirements.

The Nation has different agencies under different jurisdictions which monitor different industries for workplace and employee safety, however, there is no national body, policy nor process that governs OHS management in Ghana. Numerous injuries, illnesses, property damages and process losses take place at different workplaces but due to under reporting or misclassification due to lack or thorough standards, or unfamiliarity with the existing guidelines, people are not normally in the known of such events as well as their actual or potential consequences and effective corrective actions required.

Lack of comprehensive OHS policy, poor infrastructure and funding, insufficient number of qualified occupational health and safety practitioners, and the general lack of adequate information are among the main drawbacks to the provision of effective enforcement and inspection services in most African countries (Muchiri, 2003). The Republic of Ghana epitomises the above assertion in its entirety. In spite of the numerous investments that the country attracts with its accompanying OHS related issues, Ghana as a nation still has no national policy on OHS. A draft occupational services policy jointly developed by the Ministries of Manpower Youth & Employment, Health and Lands, Forestry & Mines as far back as the year 2000 is yet to be adopted.

#### 2.9.1 Current OHS Legislation in Ghana

Though the recently promulgated labour Act 2003, Act 651 has a section which covers OHS (i.e., Section 15), the very tenets on which the section is built (i.e., ILO Conventions 155 and 161) have not been ratified by the government as yet. Two main statutes have informed the execution of OHS in Ghana. These are the Factories, Offices and Shops Act 1970, Act 328 and the Workmen''s Compensation Law 1987, PNDC Law 187. Missing in the coverage of industries under the Act is the vast majority of industries, and organisations. Provisions in the Act are also very limited in scope providing inadequately for preventive strategies (like risk assessments, medical surveillance and control of hazards) and standards against which services will be measured. Apart from the Radiation Protection Convention, 1960 (No. 115) ratified in 1961, there are no regulations and rules for certain classes of hazardous work situations. This makes it more difficult for employers to comply with laws and further add to the discretionary powers of inspectors.

The Workmen's Compensation Law 1987 provides for the payment of cash compensation by an employer to an employee in the event of injury resulting from accident on the job and in the event of death, payable to dependants through the courts. Compensations as prescribed by the Workmen's Compensation Law bear no relation to the level of risk to which workers are exposed. In fact, the prosecution and court processes associated with compensation cases are laborious and

time consuming for the meager amounts prescribed by the laws (www.ijbssnet.com/journals/Vol. 2 No. 14; July 2011/14.pdf).

#### 2.9.2 Legislations and Policies of OHS Available to the Ghanaian health sector

Other statutes that have bearing on OHS in Ghana include the Environmental Protection Agency Act 490, 1994, the Ghana Health Service and Teaching Hospitals Act 526, 1999, Ghana Aids Commission Act 613, 2002 and the Labour Act 651, 2003.

The OHS of HCWs are covered by the ILO instruments on occupational safety and health. The ILO Occupational Safety and Health Convention (No. 155) and Recommendation (No. 164), 1981 provide for the adoption of a national safety and health policy and describe the actions needed at the national and enterprise levels to promote OHS and to improve working environment.

## 2.10 AN OVERVIEW OF THE INTERNATIONAL LABOUR ORGANISATION (ILO)

The ILO is a specialized agency of the United Nations established in 1919 with the principal objective of protecting Human Rights of workers and to promote decent work for all races. The organization drafts and adopts conventions, with its recommendations to all member states that have accepted the ILO conventions, and are in pursuance of its aims and objectives. The ILO combines standard-setting, among other things, to all member states who have adopted, pledged to respect and promote human rights.

The international legislations and polices are important because most of the National laws and regulations on labour are often based on international conventions, agreements, declarations. To this end, the legislations and policies of OHS on labour from the ILO set the tone to review

Ghana''s safety legislation. To this effect the ILO on 22nd of June 1981 in Geneva adopted some recommendations, R16, with regard to safety and health and the working environment. Below are some highlights of these recommendations.

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### 2.10.1 Technical Fields of Action of R164 Occupational Safety and Health Recommendation, 1981

As appropriate for different branches of economic activity and different types of work and taking into account the principle of giving priority to eliminating hazards at their source, measures should be taken in pursuance of the policy referred to in Article 4 of the Convention, in particular in the following fields:

(a) Design, sitting, structural features, installation, maintenance, repair and alteration of workplaces and means of access thereto and egress therefrom; (b) Lighting, ventilation, order and cleanliness of workplaces;

- (c) Temperature, humidity and movement of air in the workplace;
- (d) Design, construction, use, maintenance, testing and inspection of machinery and equipment liable to present hazards and, as appropriate, their approval and transfer; (e) Prevention of harmful physical or mental stress due to conditions of work;
- (f) Handling, stacking and storage of loads and materials, manually or mechanically;
- (g) Use of electricity;
- (h) Manufacture, packing, labeling, transport, storage and use of dangerous substances and agents, disposal of their wastes and residues, and, as appropriate, their replacement by other substances or agents which are not dangerous or which are less dangerous;
- (i) Radiation protection;
- (j) Prevention and control of & protection against, hazards due to noise and vibration;
- (k) Control of the atmosphere and other ambient factors of workplaces;
- (1) Prevention and control of hazards due to high and low barometric pressures;
- (m) Prevention of fires and explosions and measures to be taken in case of fire or explosion;
- (n) Design, manufacture, supply, use, maintenance and testing of PPE and protective clothing;
   (o) Sanitary installations, washing facilities, facilities for changing and storing clothes, supply of drinking water, and any other welfare facilities connected with occupational safety and health;
   (p) First-aid treatment;
- (q) Establishment of emergency plans;
- (r) Supervision of the health of workers.

The recommendations included actions to be taken by authorities at National levels of each country such as issuing regulations and codes of ethics, reviewing legislative enactments, undertaking
researches, providing information and advice, providing preventive measures, all in OHS and secure good liaison with the International Labour Occupational Safety and Health Hazard Alert System set up within the framework of the ILO.

There were also actions to take at the level of the undertaking which is related to employers. These include the obligations of employers to provide and maintain workplaces, to give necessary instructions and training, to provide adequate supervision of work, to institute organisational arrangements regarding OHS and the working environment, to provide, without any cost to the worker, adequate PPE, to ensure that work organisation, particularly with respect to hours of work and rest breaks, does not adversely affect OHS, to take all reasonably practicable measures with a view to eliminating excessive physical and mental fatigue and to undertake studies and research or otherwise keep abreast of the scientific and technical knowledge necessary to comply with the foregoing clauses. The recommendations also mentions the appointment, in accordance with national practice, of workers' safety delegates, of workers' safety and health committees, and stated their rights.

Finally arrangements provided for in Article 19 of the Convention should aim at ensuring that workers take reasonable care for their own safety and that of other persons who may be affected by their acts or omissions at work; comply with instructions and procedures given for their own safety and health and those of others; use safety devices and protective equipment correctly and do not render them inoperative; report to their immediate supervisor any situation which they have reason to believe could present a hazard and which they cannot themselves correct; and report any accident or injury to health which arises in the course of work

(http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:55:0:::55:P55\_TYPE,P55\_LANG,P5 5 DOCUMENT, P55 NODE: REC, en, R164, /Document).

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#### **RESEARCH METHODOLOGY**

#### **3.1 OUTLINE OF METHODOLOGY**

The research employed a range of complementary research methods over three phases namely;

- preliminary phase
- second phase
- analysis of data phase

#### **3.2 PRELIMINARY PHASE**

In the preliminary phase, background information on health workers was gathered from primary and secondary sources. The primary sources included field surveys and face to face interviews with some workers during visits to their departments. The secondary sources were literature from journals, articles, internet, text books and reports.

The information gathered helped in developing a self structured questionnaire for capturing the key health and safety issues relevant to the categories of workers being understudied as well as a hazard identification checklist for collecting data from their work environments.

#### **3.2.1 DESIGN OF RESEARCH INSTRUMENTS**

In order to achieve the aim and objectives of the study, the investigations were conducted based on data which was collected using two instruments.

Instrument One (Appendix 2) was a well structured questionnaire which consisted of both openended and close-ended questions, designed to gather information on experiences of OHS from the target population, and Instrument Two (Appendix 1) was a hazard identification checklist for physical analysis of the working environment which was done by on-site observations and interviews.

These questions were straight to the point and had clarity. Most of the questions were closeended questions with multiple choices and this made it quite easy for the respondents to provide answers. Glasow (2005) indicated that close-ended are easy for respondents to answer and it also helps

researchers in the analysis of data. The few open ended questions that were included gave the participants the opportunity to respond in the way they chose to.

#### 3.2.1.1 THE CONTENT AND RATIONAL OF THE RESEARCH QUESTIONNAIRES

A descriptive exploratory design was used to study, assess and investigate the OHS issues among the health workers in the hospital. Instrument One was the questionnaire (Appendix A) for accessing OHS in the workers and consisted of 8 main sections with each having subsections while Instrument Two (Appendix B), consisted of 17 main checks with sub questions.

#### **Instrument One (Questionnaire)**

The questionnaire began with the demographic characteristics and personal information of the worker. The first section consisted of questions related to the worker's knowledge of what OHS entails. The second section consisted of questions on current safety issues and the use of PPE. The third section was related to the work environment. Section four consisted of questions related to exposure to chemicals, biological and physical injury and the fifth section identified workers'' exposures to musculoskeletal disorders and ergonomics. Section six was related to stress while seven was related to worker''s exposure to violence at the workplace. The last section consisted of open-ended questions which were to obtain worker''s views on safety management.

#### **Instrument Two (Hazard Identification Checklist)**

It began with a brief introduction of the department, and then identifies the presence or absence of a list of common workplace hazards. These included hazards from falls, manual handling, fires, explosions, chemicals, biological agents, radiation, electricity, pressure, thermal environment, noise and vibration. The others were ergonomic hazards, as well as hazards in lone working, sharps usage, work environment, waste management and security.

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#### **3.3 SECOND PHASE**

The second phase began with the collection of data on the study area. This was followed by data collection from the hospital's administration on the staff strength of the target population to enable me know the proportion of questionnaires to administer to each group.

#### 3.3.1 STUDY AREA

#### Geographic location and topography

The St. Dominic"s hospital is located in Akwatia which is a town in the Kwaebibirem District of the Eastern Region of Ghana. The Kwaebibirem District is located in the South-Western corner of the Eastern Region of Ghana, between Latitudes  $1^0 0^1$  W and  $0^0 35^1$  E and Longitudes  $6^0 22^1$  N and  $5^0 75^1$  S. On the North, it is bounded by the Birim North District, on the East by Atiwa District and East Akim Municipal, on the South East by Suhum Kraboa Coaltar District, and West Akim Municipal, and on the South-West by the Birim Central Municipal and on the West by Akyemansa District (figure 2). The District has a surface area of about 1230 square kilometers. (www.kwaebibirem.ghanadistricts.gov.gh).



Figure 2: Map of Ghana showing the Akwatia

#### **Demography and population**

The total population of Akwatia is 20,451. (02-02-2012 (GeoNames geographical database). Health delivery system in the Kwaebibirem District consists of 2 hospitals. The district's doctorpopulation ratio is 1:28,190 whilst the nurse-population ratio is 1:1,519. (www.kwaebibirem.ghanadistricts.gov.gh).

**Population of the Setting:** The St. Dominic's Hospital is a 320-bed facility and is relatively well equipped. The facility employs about 601 workers, made up of 303 medical and paramedical staff and 298 administrative and maintenance staff.

#### Economy

Akwatia is the main centre of diamond extraction in the country and mining is the main occupation of the indigenes.

#### **3.3.2 ETHICAL CONSIDERATION**

A permission letter to conduct this study was sought from the Department of Theoretical and Applied Biology, KNUST and was sent to the Medical Director of the hospital. The Medical Officer in charge of OHS in the hospital was asked to access my questionnaire and checklist to ensure its contents were in accordance with their ethical principles after which permission was granted to undertake the study.

On the other hand the consent of the subjects was sought. They were informed of the purpose of the study and were also asked the amount of time they needed to complete the questionnaire. Subjects were told they could participate voluntarily with a full right to withdraw from the study, and the information they will give will be treated in confidentiality and anonymity. No names were required in filling the questionnaire.

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#### **3.3.3 DATA COLLECTION Sampling Frame**

The target population was made up of 6 occupational groups of health workers in the hospital. These were Doctors, Laboratory staff, Nurses, X-ray staff, Mortuary staff and the Pharmacy staff.

#### **Sample Size Determination**

The total number of the target population at the time of the study was 273. The aim was to target a minimum of 50% of this population in the study. 150 questionnaires were therefore used.

These 150 questionnaires were distributed using a stratified proportional random sampling according to occupational group. The questionnaires were therefore distributed according to the percentage of the 273 workers each occupational group represented. Table 1 below shows a breakdown of the distribution pattern (i.e. the percentage and number of questionnaires distributed per occupational group).

Tuble 1. Question	Tuble 1. Questionnaire distribution pattern						
Occupational	Total Number in hospital	Number of 150 questionnaires to					
Group	(Percentage)	administer (Percentage)					
Doctors	27 (9.9)	15 (10)					
Nursing staff	199 (72.9)	109 (72.7)					
Laboratory staff	21 (7.7)	12 (8)					
Pharmacy staff	17 (6.2)	9 (6)					
X-ray staff	3 (1.1)	2 (1.3)					
Mortuary staff	6 (2.2)	3 (2)					
TOTAL	273 (100)	150 (100)					

<b>Fable 1:</b>	Questionnaire	distribution	patterr
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#### The Collection of Data

First of all permission was obtained from the hospital director to conduct the survey. In order to achieve high response rate, the heads of the various departments of the target population were contacted with a consent letter obtained from the hospital's administration and the purpose of the study was explained to them.

The heads of some departments permitted the direct distribution of the questionnaires to the workers however, in some other departments the heads asked for the questionnaires to be left with them for future distribution due to various shifts work schedules of the staff. In all instances, the convenient days and times for collection of the completed questionnaires were sought. Questionnaires were directly retrieved from some workers and for those who were given theirs through their heads of departments, retrievals were done via the same means.

The on-site observations were done by frequent visits to five various departments over the study period. These were the Laboratory, Mortuary, X-ray, Pharmacy, and Ward. The time spent in each of these departments however varied due to various factors. In all cases however, questions were asked, work practices with respect to safety were observed and notes of the possible hazards were taken by the aid of a hazard identification checklist.

The collection of data started on the 8th of February, 2012 and ended on 28th of February, 2012.

#### **3.4 ANALYSIS OF DATA PHASE**

The third phase of the research focused on analyzing the data collected using statistical techniques which were MS Excel and Epi Info version 7.0, which is a data collection, management, analysis, visualization, and reporting software. These helped to collate and interrogate the large volume of data collected during the research.

The methodology applied to this study was predominantly quantitative, due to the fact that findings were expressed in, figures, tables, charts, graph and the like, directed at developing a deeper understanding of the health and safety issues faced by health workers.

Relative frequency and percentages was used to determine occurrences and the magnitude of these health and safety issues.

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#### **CHAPTER FOUR**

#### RESULTS

#### 4.1 PRESENTATION OF RESULTS

Out of the 150 questionnaires, 132 were analyzed. This represented an 88% response rate and was considered adequate.

The findings of the study are presented according to the following; demographic characteristics, knowledge of safety issues, current safety issues and use of PPE, safety issues in the work environment, exposure to chemicals, biological and physical injury, exposure to musculoskeletal disorders and ergonomics, exposure to stress, exposure to violence and safety management.

#### 4.1.1 THE DEMOGRAPHY OF PERSONNEL

The information sought were the worker"s sex, age, educational qualification, and profession.

Table 2: Sample distribution	n with respect to Sex
Gender (N = 132)	113

	Frequency	Tercent (70
Male	50	37.9
Female	82	62.1
Total	132	100

#### Table 3: Sample distribution in relation to age categories. Age in Years (N = 132)

inge in Tears (it	192)	
Age group	Frequency	Percent (%)
21 – 30	75	56.8
<u>31 – 40</u>	29	22.0
41 — <b>5</b> 0	15	11.4
51 - 60	13	9.8
Total	132	100
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Table 2 above shows that 82 out of the 132 respondents were female and 50 were male, representing62.1% female and 37.9% male respectively.

From Table 3, majority of the respondents, that is 56.8% (n=75) were aged between 21 and 30 years. This was followed by 22.0% (n=29) falling between 31 and 40 years, 11.4% (n=15) being between the ages of 41 and 50 years, and 9.8% (n=13) were between 51 to 60 years.

Table 4. Educational and Processional Qualification.						
VARIABLES	MALE (n= 50)	FEMALE (n= 82)	TOTAL (n = 132)	p VALUE		
Age (years)	34 <mark>.7 ± 9.</mark> 3	31.6 ± 8.9	$32.8\pm9.1$	0.065		
EDUCATIONAL QUALIFICATION						
Senior High School Certificate	2(4.0)	3(3.7)	5(3.8)	0.921		
Certificates of other Health Courses	7(14.0)	20(24.9)	27(20.5)	0.151		
Higher National Diploma	7(14.0)	1(1.2)	8(6.1)	0.003		
BSc	7(14.0)	10(12.2)	17(12.9)	0.764		
MSc	3 (6.0)	0(0.0)	3(2.3)	0.025		
<u>OTHERS</u>			1			
MSLC	2(4.0)	0(0.0)	2(1.5)	0.068		
Diploma	14(28.0)	47(57.3)	61(46.2)	0.001		
MBChB	6(12.0)	1(1.2)	7(5.3)	0.007		
Specialist	2(4.0)	0(0.0)	2(1.5)	0.068		
PROFESSIONAL CATEGORY						
Doctors	12(24.0)	3(3.7)	15(11.4)	0.000		
Laboratory staff	8(16.0)	4(4.9)	12(9.1)	0.031		
Pharmacy staff	7(14.0)	1(1.2)	8(6.0)	0.003		
X-ray	2(4.0)	0(0.0)	2(1.5)	0.068		
Mortuary staff	3(6.0)	0(0.0)	3(2.3)	0.068		
Nursing staff	18(36.0)	74(90.2)	92(69.7)	< 0.0001		

#### Table 4: Educational and Professional Qualification.

Data are presented as means ± SD and proportions. p value defines the level of significance when males were compared with females (Unpaired t-test and Chi-square test statistic); BSc – Bachelor of Science; MSc – Master of Science; MSLC – Middle School Leaving Certificate; MBChB – Bachelor of Medicine and Bachelor of Surgery Table 4 shows that 46.2% (n=61) of the workers were Diploma graduates, 20.5% (n=27) had Certificates from other Health Courses, 12.9% (n=17) were BSc. holders, and 6.1% (n=8) were HND holders. MBChB holders made up 5.3% (n=7), Senior High School certificate holders made up 3.8% (n=5) and MSc graduates made up 2.3% (n=3) of the study population. 1.5% (n=2) workers were Specialists and 1.5% (n=2) had MSLC.

For the Professional category, the Nursing staff made up 69.7% (n=92), the Doctors made up 11.4% (n=15), the Laboratory staff made up 9.1% (n=12) and the Pharmacy staff made up 6.0% (n=8). The Mortuary and X-ray staff made up 2.3% (n=3) and 1.5% (n=2) respectively.

#### 4.1.2 KNOWLEDGE OF SAFETY ISSUES

*Question 1: Do you know about occupational health and safety and what it entails?* The results illustrated in figure 3 below, showed that 100% of the Doctors, Laboratory, X-ray, and Mortuary staff answered "Yes". Meanwhile 90.2% of the Nursing staff and 87.5% of the Pharmacy staff responded "Yes" to the question. These gave a calculated average response of 96.3% workers, saying they knew.

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Figure 3: Knowledge about OHS and what it entails among the study participants

#### Question 2: Do you know of the hazards you face during the performance of your duties?

As indicated in Table 5 below, 100% of the other professionals with the exception of the nurses responded in affirmative. With the Nurses, 98.9% of them said ",Yes". This gave a total average of 99.8% of the staff saying they knew of the hazards they face in their duties.

Table 5: Knowledge of nazards faced during performance of duties by the HC ws						
Staff Category	Male	Hazard Faced	Female	Hazard Faced	Total	Hazard Faced
Doctors	12	12(100.0%)	3	3(100.0%)	15	15(100.0%)
Laboratory staff	8	8(100.0%)	4	<b>4(10</b> 0.0%)	12	12(100.0%)
Pharmacy staff	7	7(100.0%)	1	1(100.0%)	8	8(100.0%)
X-ray	2	2(100.0%)	0	0(0.0%)	2	2(100.0%)
Mortuary staff	3	3(100.0%)	0	0(0.0%)	3	3(100.0%)



Question 3: Do you think there is a risk of you contracting an infection or injury in your workplace?

Table 6 below shows that all respondents (100%) think they face risks of contracting infections or injuries at work.

Staff category	Ri Male	sk of contracting infection	Risk of Fen	n contracting infection	Total	c of contracting infection
Doctors	12	12(100.0%)	3	3(100.0%)	15	15(100.0%)
Laboratory staff	8	8(100.0%)	4	4(100.0%)	12	12(100.0%)
Pharmacy staff	7	7(100.0%)	1	1(10 <mark>0.0%)</mark>	8	8(100.0%)
X-ray	2	<mark>2(100.0%)</mark>	0	0(0.0%)	2	2(100.0%)
Mortuary staff	3	3(100.0%)	0	0(0.0%)	3	3(100.0%)

#### Table 6: Knowledge about risk of contracting an infection/injury at the workplace



#### 4.1.3 CURRENT SAFETY ISSUES AND USE OF PERSONAL PROTECTIVE

#### EQUIPMENT

#### Question 1: Do you have access to all the required PPE when working?

Figure 4 shows that 20.0% (3/15) Doctors, 50.0% (6/12) of the Laboratory staff and 25.0% (2/8) of the Pharmacy staff said they had access to the required PPE. None, ie. 0.0% (0/2) of the X-ray staff said they had, 66.7% (2/3) of the Mortuary staff and 31.5 (29/92) of the Nurses said they had access to PPE. In all, an average of 32.2% of the staff therefore responded to having access to their required PPE.



Figure 4: Access to required personal protective equipment during working hours

#### Question 2: Do you <u>always</u> use the available Personal Protective Equipment?

The results as shown in Figure 5 indicated that those who responded to always using available PPE were 73.3% of the Doctors, 50.0% of the Laboratory staff, and 62.5% of the Pharmacy staff, 100% of both the X-ray and Mortuary staff and 46.7% of the Nurses. On the other hand, 6.7% of the Doctors, 8.3% Lab staff, 0.0% of Pharmacy, X-ray and Mortuary staff as well as 5.4% of the Nurses indicated they do not use the available PPE. The proportion of the staff who responded to using the available PPE "Sometimes" were, 20.0% Doctors, 41.7% Lab, 37.5% Pharmacy, 0.0% X-ray and Mortuary staff and 47.8% Nurses.

In all, the calculated average of 72.1 (70/132) of the workers intimated they always made use of the available PPE, 24.5% (55/132) said they sometimes used PPE and 3.4% (7/132) indicated they do use available PPE.





## Question 3: Do you consistently follow standard precautions with all blood and potentially infectious materials?

Figure 6 shows that 80.0% Doctors, 50.0% Lab, 62.5 Pharmacy, 50% X-ray, 66.7 of Mortuary and 65.2% Nursing staffs all responded "Yes" giving a total average of 62.4% (86/132) saying they consistently followed precautions. Those who responded "No" to consistently following precautions were made up of 13.3% Doctors, 33.3% Mortuary staff and 2.2% Nurses giving a total average of 8.1% (5/132). The remaining staff were those who said they "Sometimes" followed precautions and they were 6.7% Doctors, 50% Lab, 37.5% Pharmacy, 50% X-ray staff and 32.6% Nurses giving an average of 29.5% (41/132).

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Figure 6: Frequency of adhering to standard precautions with blood & potentially infectious materials

## Question 5: Which of the following reasons prevent you from always following infection control and prevention measures?

The responses from the various occupational groups have been tabulated in table 7 below. 40.9% of the staff attributed it to the unavailability of the protective equipment, 47.7% attributed it to "High workload pressure", and 3.8% said they work faster without the use of the protective measures. Meanwhile, 0.8% said it was due to having a lot of work experience, and 0.8% stated other reasons.

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#### Table 7: Reasons preventing study participants from following infection control and preventive measures

Factors examined	<u>Total (%)</u>	<b>Doctors</b>	Laboratory Staff	Pharmacy Staff	<u>X-ray</u>	<u>Mortuary Staff</u>	<u>Nurses</u>
Protective equipment are not available	54(40.9)	6(11.1)	3(5.6)	4(7.4)	2(3.7)	2(3.7)	37(68.5)
High workload pressure	63(47.7)	6(9.5)	8(12.7)	2(3.2)	0(0.0)	0(0.0)	47(74.6)
Work faster without the protective measures	5(3.8)	0(0.0)	1(20.0)	0(0.0)	0(0.0)	1(20.0)	3(60.0)
Have a lot of work experience	1(0.8)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	1(100.0)
Not bothered about infections or injury	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)
None	8(6.1)	3(37.5)	0(0.0)	2(25.0)	0(0.0)	0(0.0)	3(37.5)
Others	1(0.8)	Z ,	0(0.0)	0(0.0)		0(0.0)	
		0(0.0)	11-0		0(0.0)	r	1(100.0)
Total	132	15(11.4)	<b>12(9.1</b> )	8(6.1)	2(1.5)	3(2.3)	92(69.7)

Data are presented as absolute values and proportions





#### 4.1.4 SAFETY ISSUES IN THE WORK ENVIRONMENT

#### Question 1: At your place of work, do you have access to the following?

Figure 7 shows the responses of the workers to having access to various basic facilities that were being investigated. A total of 41.7% of the workers said they had access to a staff restroom/ changing room, implying that 58.3% of them didn"t. For access to drinking water, 43.9% of them stated they had and 56.1% (74/132) did not. About 40.2% of the staff mentioned having convenient eating places while 59.8% (79/132) did not have. With respect to access to washrooms, 78.0% of them had, while 22.0% (29/132) did not.



#### Question 2: Which of the following do you suffer a lot during work from?

Figure 8 shows the distribution of responses to the various listed conditions. 5.3% of the staff mentioned "Cold", 18.2% said "Heat", 15.9% said it was the "Lack of fresh air", and 6.1% stated "Poor lighting". In addition, 28.0% chose "Stench", and 3.0% mentioned "Dust".



Figure 8: Distribution of most suffered environmental conditions at work within the study participants

#### 4.1.5 EXPOSURE TO CHEMICALS, BIOLOGICAL AND PHYSICAL INJURY

#### Question 1: Have you ever been injured at work?

Figure 9 shows that 62% (n=82) of the participants said they had been injured at work before while 37% had not. One percent of the participants did not respond to this question.



Figure 9: General distribution for injuries experienced at work *Question 2: If Yes, what caused the injury?* 

Figure 10 illustrates the distribution of the 82 workers who said they had ever been injured at work. For 39.4%, they were injured by needlesticks, 12.9% mentioned having cuts and scratches from other sharps, 3.0% said they had injuries from lifting bodies above their capacities. Injuries from chemical splash were mentioned by 0.8%, 3.0% mentioned injuries from kicks while 3.0% said they slipped and fell.



Figure 10: Categories of causes of injuries mentioned to be suffered by the participants.

Question 3: Which of the following injuries do you sometimes suffer from as a result of

### performing your routine duties?

Exactly 70% (92/132) of them mentioned joint pains, 14% (18/132) said scratches, 4% (5/132) said fractures and to 2% (3/132) of them, it was ankle twisting. Muscle tear was also mentioned by 2% (3/132) of the workers and 8% (11/132) of them stated they did not encounter any of these injuries. This is shown in Figure 11 below.

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Figure 11: Physical Injuries suffered during performance of duties

#### Question 4: Have you ever been hospitalized due to injury at work?

Figure 12 shows that 92% (121/132) of them had not been hospitalized due to injury at work and 8% (11/132) said they had.



**Figure 12:** Response to ever being hospitalized due to injuries from work

#### Question 5: Have you ever been given sick leave due to an injury from work

Figure 13 shows that 15% (20/132) of the workers stated they had been given sick leave due to work injuries while 85% (112/132) have not.



Figure 13: Response to being given sick leave due to injuries from work

## Question 6: Have you ever had a needle stick injury or needle prick while performing your duties?

Fig. 14 shows that 60% (79/132) of the workers admitted to having had needle stick injuries while 40% (53/132) had not.



Figure 14: Response to having needle stick injuries while performing duties

#### **Question** 7: If YES, did you report it for medical attention?

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Figure 15 shows that out of the 79 workers who admitted to ever having needle stick injuries 54% (43/79) had them reported for medical attention and 46% (36/79) did not.



Figure 15: Study participants who had needle stick injuries and reported for medical attention

#### Question 8: Have you been vaccinated against Hepatitis B virus?

Figure 16 shows that 85% (112/132) of the workers said they had been vaccinated against hepatitis B virus and the 15% (20/132) had not.



Figure 16: Response by study participants to vaccination against Hepatitis "B"

#### 4.1.6 EXPOSURE TO MUSCULOSKELETAL DISORDERS AND ERGONOMICS

#### Question 1: Do you have to move heavy objects or people as a part of your workplace duties?

Figure 17 shows that 73% (96/132) of the workers answered that they move heavy objects and people as part of work and 27% (36/132) do not.



Figure 17: Lifting heavy objects and people as part of work duties

## Question 2: If YES, has it had any adverse effect on your health? (E.g. backache, muscle strains, etc)?

Out of the 96 workers stating they move heavy objects and people as part of their work, 82% (79/96) said that this has had some adverse effect on their health and 18% (17/96) said it has not.





#### Question 3: Are there any mechanical aids available to help you with manual handling?

Figure 19 shows that out of 96 workers who admitted to having to move heavy objects and people as part of their work only 20% (19/96) said that they had mechanical aids for manual handling and 80% (77/96) did not have.



Figure 19: Availability of mechanical aids for manual handlings

#### Question 4: During your work, which of the following inconveniences do you experience?

The options that were provided together with their workers" responses are illustrated in Figure 20 below. It shows that 12.9% of the workers stated they often experience lengthy sitting, 37.1% mentioned lengthy standing, 18.9% said lifting and carrying and 12.1% said they had to bend down regularly. A total of 0.8% had to reach up high regularly and 16.7 said it was the lengthy periods of repetitive movements.



Figure 20: Range of inconvenience experienced during working hours

#### 4.1.7 EXPOSURE TO STRESS

#### Question 1: Do you find your job stressful? Do you feel under pressure always?

Figure 21 shows that 71% (94/132) of those asked this, answered "Yes" and 27% (36/132), "No".



Figure 21: Admission to finding work stressful or always being under pressure

#### Question 2: If "Yes", which of the following contributes to the stress?

Figure 22 shows that out of the 94 workers who said they found their jobs stressful or always under pressure, 68% (64/94) attributed it to the excessive work load, 30% (28/94) said it was due to inadequate staff in their departments and to 2% (2/94), it was a result of long working hours.



Figure 22: Factors contributing to stress or pressure at work

#### Question 3: How many hours do you work in a day?

As illustrated in Figure 23 below, 10.6% of the workers worked less than 8hrs a day, 56.8% worked exactly 8hrs, 25.8% worked between 8 to 10hrs, 3.0% worked between 10 to 12 hrs and 3.8% mentioned more than 24hrs.



Figure 23: Number of hours worked in a day by study participants

#### Question 4: Do you have fixed breaks during working hours?

Figure 24 shows that 82% (108/132) of the workers stated they did not have fixed breaks during work hours while 18% (24/132) of them had. No response was given by 4% of the respondents.



Figure 24: Response to having fixed breaks during working hours

*Question 5: If you run shifts, does your private life suffer due to irregular working hours?* A total of 43% of the workers who admitted to running shifts duties said the irregular working hours ,,sometimes" affected their private lives, 30% said it ,,always" affected their private lives and 21% said it ,,did not". No response was given by 6% of them.



Figure 25: Response to irregular working hours affecting private life

#### 4.1.8 EXPOSURE TO VIOLENCE

#### Question 1: Has a client or their relative become violent or threatening to you before?

Figure 26 shows that 57% (75/132) of the workers said "Yes" to this question and 42% (55/132) said "No". Figure 27 also displays the distribution of responses according to gender among the 75 workers who said they have encountered ever encountered one form of violence or the other.







Figure 27: Distribution of exposure to violence according to gender among the professional groups.

#### 4.1.9 SAFETY MANAGEMENT

## Question 1: Are you satisfied with the safety measures available at your work station or department?

Out of the total study participants figure 28 shows that, 72 (95/132) stated they were not satisfied with the available safety measure while 26% (34/132) admitted to being satisfied.



Figure 28: Satisfaction with safety measures at work station in the department

## Question 2: In your opinion, what hazard do you deem as the most serious and threatening to the performance of your duties?

The reported hazards were summarized and numbered as follows; A=Needlestick

injury/ cuts from other sharps.

**B**=Exposure to Biological Agents/Bodily Fluids/Blood/Airborne pathogens.

C=Violence, threats and verbal abuse (from clients or relatives).

**D**=Back/Body Pains due to lifting/pushing/pulling/bending/ long hours of sitting & standing.

**E**=Exposure to Radiation.

**F**=Exposure to Chemical Agents.

CATEGORY OF	NO. OF	DISTRIBUTION OF RESPONSES
STAFF	RESPONSES	
X-RAY	2	50% mentioned E and 50% mentioned D
MORTUARY	3	67% mentioned <b>D</b> and 33% mentioned <b>C</b>
PHARMACY	9	56% mentioned D ,22% mentioned F and 22% mentioned B
LABORATORY	11	64% mentioned <b>B</b> , 27% mentioned <b>A</b> , and 9% mentioned <b>F</b>
DOCTORS	15	60% mentioned <b>B</b> , 33% mentioned <b>A</b> and 7% mentioned <b>D</b>
NURSES	92	59% mentioned <b>B</b> , 28% mentioned <b>A</b> , 10% mentioned <b>D</b> and 3%
		mentioned C

Table 8: Hazards the health workers deem most serious and threatening to their work.



Figure 29: A distribution of hazards deemed by the workers as most threatening to their duties. CHAPTER FIVE

#### DISCUSSION

#### **5.1 THE DEMOGRAPHY OF PERSONNEL**

The age distributions ranged between 20 and 60 years and this indicates that all the workers fall within the working age in Ghana which is 18 to 60 years and also means that they are matured enough to address their health and safety issues.

The fact that almost all the workers had their education beyond the basic education level also implies that it will be quite easy for them to read and understand any legislation and policy governing their employment with respect to OHS. It also implied that they were all able to easily answer the questions and make very useful suggestions as to how to improve on their safety. In conclusion, the background information gathered on these workers suggest that they were competent, experienced and capable of exercising good judgment and as such their responses could be relied on for this study.

#### 5.2 KNOWLEDGE OF SAFETY ISSUES

Exactly 96.3% of the staff said they know about OHS and what it entails, 99.8% of them said they know of the hazards they face during the performance of their duties and all of them (100%) think they do have risks of contracting infections or injuries at their workplaces.

These results are indicative of the fact that majority of workers know a lot about safety, which is a good thing because this knowledge enables them to be conscious and as much as possible adopt and comply with safety directives. Accidents are said to reduce if workers know the hazards they face and the potential effects of the materials they are work with.

#### 5.3 CURRENT SAFETY ISSUES AND USE OF PPE.

Improving personnel safety in the healthcare environment is key through the appropriate use of PPE (eg, gloves, gowns/aprons, masks, respirators, goggles and face shields, etc). Only an average

of 32.2% of the total staff said they had access to all the PPE they required. This is not an encouraging number considering the range of hazards they are exposed to in their duties.

When they were asked whether they always made use of the available PPE, majority of them (72.1%) "Always" did, but there was still a proportion of 24.5% who "sometimes" did and 3.4% who "do not". The motivation for resorting to PPE as a last means of hazard control (after engineering and administrative controls) is based on the fact that no matter how effective the PPE is at providing a barrier between the worker and the hazard, it will only be as effective as the person using it (Michell, 2010). This is indicated in the fact that, even though the workers have access to only some of their required PPE, not all of them were making the optimum use of these protective gears.

About 62.4 % of the workers said they "consistently followed" standard precautions with all blood and potentially infectious materials, while 29.5% "sometimes" followed and 8.1% (5/132) "do not". They attributed various reasons for their inability to always follow infection control and preventive measures. Almost half the number (47.7%) attributed it to "High workload pressure", followed by 40.9% who attributed it to the unavailability of the protective equipment, and 3.8% of them said they work faster when they don"t follow these measures. Meanwhile 6.6% gave no reason and 0.8% cited that it was due to having a lot of work experience. Heavy workload among workers may result in them not having sufficient time to perform tasks safely or apply safe practices. Some workers after having many years of work experience also end up being complacent and tend not to follow specific rules and guidelines. All these end up in compromising the quality of safety they have to exhibit and therefore expose themselves to hazards. These can all be dealt with through administrative controls such as efficient provision of required safety equipment, revising job rotations and work assignments, regular information and training on hazards.

#### 5.4 SAFETY ISSUES IN THE WORK ENVIRONMENT

Figure 7 showed that a greater proportion of the staff, 58.3% do not have access to a restroom/ changing room. However with respect to access to washrooms, most of them (78.0%) have it, but a lower proportion (40.2%) had convenient eating places and access to drinking water (43.9%). Other environmental conditions the workers complained about ranged from Stench, being the most

mentioned, followed by Heat and lack of fresh air. The availability of basic amenities is important in the work environment as these contribute to maximizing the workers" well being. Hazards in comparable work environments differ depending on the activities conducted at a particular workplace. Results from the hazard identification checklist for work environment of these health workers exposed the presence of some hazards that were common to some departments and those that were specific to some of the environments understudy. For instance hazards from manual handling, chemicals agents (eg, anaesthetic agents, disinfectants, chemical sterilizing agents, drugs and laboratory reagents, some of which are irritating to the skin and respiratory tract, while others, such as ethylene oxide or formaldehyde, are known mutagens, teratogens and human carcinogens), exposure to biological agents (through direct contact with patients with infectious diseases eg. TB, hepatitis, and HIV/AIDS), hazards from sharp object usage, ergonomics, hazards from waste management and violence were identified in all the five departments visited. However hazards such as steam or chemical explosions and burn hazards were identified only in the laboratory, exposure to radiation was identified in both the X-ray department and laboratory, and cold stress was also peculiar to the mortuary.

#### 5.5 EXPOSURE TO CHEMICALS, BIOLOGICAL AND PHYSICAL INJURY

Figure 9 shows that 62% of the participants had been injured at work before. The responses to what caused their injuries were categorized and summarized as follows; needle sticks (39.4%), cuts and scratches from other sharps (12.9%), lifting bodies above their capacities (3.0%), chemical splashes (0.8%), sustaining kicks from aggressive patients (3.0%) and slips and falls (3.0%) from different causes which included pushing or pulling clients in wheelchairs or bed trolleys. On the issue of physical injuries sustained from work, most of the workers, (70%) ranked joint pains as the most suffered condition. This was followed by scratches (14%) and fractures (4%). Ankle twisting (2%) and muscle tear (2%) were also mentioned. These are all result of some of their work designs or postures as well as having to sometimes deal with hysterical patients.

Numerous studies have shown a strong link between nurse staffing and patient/client outcomes. The evidence shows that healthy work environments yield financial benefits to organizations with respect to reductions in absenteeism, lost productivity and organizational health care costs (RNAO, 2008). Figure 12 shows that 8% of the workers said they had ever been hospitalized due

to injuries sustained at work and 15% of them had also been given sick leaves due to work- related injuries (Fig. 13). This high count of lost hours due to illness and injury, much of which could be prevented, translates into a lot of care giving hours lost across the country each year.

With regards to needle stick injuries, Fig. 14 shows that 60% (79/132) of the workers admitted to having had them before while working. Out of this percentage, only 54% (43/79) workers reported them for medical attention. The 46% (36/79) who did not report tend to increase their risks of exposure to infections. The prevention of transmission of HIV and other infectious diseases such as hepatitis B and C through a needle stick injury is very important, particularly in the high prevalence areas (Niu, 2010). According to a report by Prüss-Üstün *et al.* (2003), globally, occupational infections with HBV and HCV accounted for about 37% and 39%, respectively, of all HBV and HCV infections in healthcare workers all driven by occupational exposures to contaminated sharps.

These occupational exposures to bloodborne pathogens can be prevented by strategies that include: immunization against HBV; procedures to prevent percutaneous injuries; and postexposure prophylaxis (PEP) to prevent the development of disease. From this study, though majority of the workers (85%) have been vaccinated against hepatitis B virus there is still room for improvement to immunize all the staff. The WHO report by Prüss-Üstün *et al.*, (2003) shows the results of a study proving a greatly reduced percentage of hepatitis B and C infections in HCWs attributable to occupational exposure in the developed regions (8%–27%) largely because of immunization and PEP as compared to those in developing regions (40%–65%). Efforts should therefore be made to vaccinate all healthcare workers as early as possible in their career.

#### 5.6 EXPOSURE TO MUSCULOSKELETAL DISORDERS AND ERGONOMICS

Fig. 17 shows that 73% (96/132) of the workers move heavy objects and people as part of work. Out of these 96 workers, only 20% (19/96) had access to mechanical aids to help them with manual handling. When asked if these manual handling tasks have had some adverse effect on their health most of them, 82% (79/96) answered "Yes".

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Manual patient handling refers to tasks such as lifting, transferring, transporting, and repositioning of patients without the use of assistive devices. Such handling has been shown to increase nurses and other direct care providers risk for back and other musculoskeletal injuries/disorders (American Nurses Association, 2003). Back injuries and other musculoskeletal disorders related to patient handling are the leading cause of workplace disability for nurses and other direct patient care providers. Each year, approximately 40,000 nurses report illnesses from back pain and this represents over three quarters of a million lost work days annually due to back injuries among nurses (Garrett *et al.*, 1992).

Other enquiries made to find the other inconveniences they encounter as a result of awkward postures they have to assume at work revealed majority (37.1%) mentioning lengthy hours of standing, followed by 18.9%, stating lifting and carrying, 16.7% said lengthy periods of repetitive movements and 12.9% of them stated they often have to sit for long hours. 12.1% had to bend down regularly while 0.8% had to reach up regularly. The importance of developing reliable approaches for prevention of back injuries and other musculoskeletal disorders related to patient handling is critical.

#### **5.7 EXPOSURE TO STRESS**

With regards to stress, 71% (94/132) of the workers indicated that they found their jobs stressful and felt under pressure always. The reasons these 94 workers attributed to this were, 68% (64/94) said it was due to excessive work load, 30% (28/94) said it was due to inadequate staff in their departments and 2% (2/94) said it was due to long working hours in a day. Only a small percentage attributed their cause of work stress to long working hours because it can be seen from Figure 23 that a greater portion worked for 8 hours or less. It shows that 10.6% of them worked less than 8hrs a day, 56.8% worked exactly 8hrs, 25.8% worked between 8 to 10hrs, 3.0% worked between 10 to 12 hrs and 3.8% worked more than 24hrs. On the other hand however, a majority (82%) of the workers did not fixed breaks during work hours. This could be a contributing factor to job stress.

Staff shortages negatively affect the motivation of the remaining staff as they create increased workload, causing extra stress and the risk of more staff leaving or being absent from work. A

major portion of the respondents who said they found work stressful were women. This could also be attributed to the fact that significant proportion of the healthcare workforce consists of women, who still, for the most part, manage the home and care for children in addition to their outside work. On the other hand, a greater portion (56.8%) of the study respondents aged between 21- 30 years. This collaborates with what Niu (2010), pointed out that high levels of responsibilities are part of the life of many hospital workers and junior doctors and nurses are more likely to face these situations as stressful.

With shift work, 43% of the workers who admitted to running shifts duties indicated the irregular working hours "sometimes" affected their private lives, 30% said it "always" affected their private lives and to 21% of them, it "did not". Disruption in social and domestic lifestyle is a major consequence of shift work. Shift work can not only reduce the convenient time available to spend with family and friends, it can reduce the quality of their times off, with the chronic fatigue, tiredness, irritability, and ill health associated with shift work increasing the stress and tension of their personal interactions and relationships (Costa, 1997).

Although normal levels of stress will not cause a disability, it is possible that prolonged exposure to a high level of stress may result in substantial adverse long-term health effects such as anxiety, aggressiveness, apathy, irritability, depression, exhaustion, or behavioural effects, such as accident proneness, smoking, drug or alcohol abuse, or restlessness (Niu, 2010).

#### **5.8 EXPOSURE TO VIOLENCE**

A significant proportion of the respondents (57%) indicated they had ever encountered various forms of violence from patients or their relatives during their working life. It is seen to run through the entire professional groups understudy implying that it afflicts a wide range of health care professionals. A higher percentage of the responses came from women and this corresponds with a report by Niu (2010) stating that female HCWs are particularly vulnerable to violence at work. The Canadian Nursing Advisory Committee (2002) stated that violence in healthcare can take many forms e.g., aggression, harassment, bullying, intimidation and assault, and is directly correlated with sick leave, burnout and low employee retention rates.
Studies indicate that as many as one-third of workers report they experienced some sort of psychological aggression, emotional harassment, or abuse while on the job during the past year. Workplace psychological aggression can be costly in terms of individual outcomes, such as increased psychological stress, reduced satisfaction, and poorer physical health, and in terms of organizational outcomes such as turnover, counterproductive work behaviors, and decreased productivity (http://www.cdc.gov/niosh/programs/workorg/emerging.html). It is common among workers who are in contact with people in distress, or emergency care units and in psychiatric hospitals. Frustration and anger arising out of illness and pain, problems of ageing, psychiatric disorders, alcohol and substance abuse can affect people"s behaviour and make them verbally and physically aggressive (Nui, 2010).

#### **5.9 SAFETY MANAGEMENT**

With regards to safety, 72% of the respondents were not satisfied with the available safety measures while 26% admitted to being satisfied.

The responses to the question; "In your opinion, what hazard do you deem as the most serious and threatening to the performance of your duties?" were summarized in Table 8 and also shown in Fig 29. The hazard of being exposed to Biological agents, bodily fluids, blood and airborne pathogens ranked highest in the responses from Laboratory staff Doctors and Nurses .This was followed by Needlestick injury or cuts from other sharps. Back Pains or Body Pains due to lifting, pushing, pulling, bending or long hours of sitting and standing was ranked the most threatening hazard among the Mortuary, Pharmacy and X-ray staff. The hazard from exposure to Radiation was also equally ranked high among the X-ray workers.

The suggestions made by the workers concerning their requirements or needs to be safe and satisfied at work have been summarized and presented in the recommendations.

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#### CHAPTER SIX

#### CONCLUSION AND RECOMMENDATIONS

#### **6.1 COMMENTS ON OBJECTIVES**

#### 6.1.1 Objective 1: To investigate the current safety measures being practiced by the workers.

This objective has been fulfilled in that, the responses to all the questions in the questionnaire concerning the current safety issues, the use of PPE as well as the safety issues in their work environments were analyzed extensively. From the analysis the following findings and were made. Only an average of 32.2% of the total staff had access to all the PPE they required. Besides this discouraging number, there were still a proportion of them who do not always make use of the few available PPE as well as consistently follow standard precautions with all blood and potentially infectious materials.

The various reasons they attributed to this was mostly because of "High workload pressure", followed the unavailability of the protective equipment. This is not encouraging considering the wide range of hazards they are exposed to. It was also observed that a greater proportion (85%) of the workers have been vaccinated against Hepatitis B but there is still the need to vaccinate all the staff. The rate of reporting for medical attention among the staff when exposed to needle sticks is not adequate. Exactly 46% of exposed workers had not reported their incidences for post exposure prophylaxis and this could result in increased rates of contracting infections.

### 6.1.2 Objective 2: To examine the knowledge of workers on occupational health and safety issues.

This second objective has also been addressed by collating the responses of the workers with respect to their knowledge on safety issues. The deduction made is that there is high level of knowledge of OHS among the workers and they are well informed of the hazards they face in their

various duties. This is good because being conscious enables one to as much as possible try to comply with safety directives and hence help reduce potential accidents.

### 6.1.3 Objective 3: To determine and compare the occupational hazards of the various workers and which hazard they perceive as most threatening to the performance of their duties.

This objective has been achieved by undertaking an extensive review of and summarizing all the hazards mentioned by the workers and then categorizing these hazards according to occupational group. The listed hazards were then ranked according their number of occurrences. The most mentioned hazard among each occupational group was then perceived to be the most threatening hazard to them. The main hazards discovered among the workers ranged from exposure to biological, chemicals, and physical agents, ergonomic hazards, stress and violence. Though both genders faced some form of violence at work, the rate of exposure to violence was seen to be high among the females as observed from the responses.

With the X-ray staff, half stated exposure to radiation and the other half, back pains. Among the Mortuary and Pharmacy staff however back/body pains was mentioned by majority. The threat of exposure to infectious biological agents was top on the list from the Laboratory workers, Doctors and Nurses.

The threats of Needle stick injury was second on the list among the Doctors, Laboratory staff and Nurses and exposure to violence from clients or relatives also recurred a lot from the Mortuary staff and Nurses.

6.1.4 Objective 4: To identify the types of hazards workers are exposed to in the various work environment understudy.

The development of a hazard identification checklist which served as a guide to identify the various hazards in the 5 departments visited (Laboratory, X-ray, Mortuary, Pharmacy and Ward) together with the frequent onsite visits to these departments paved the way for the fulfillment of this objective. The questions under the third scale of the questionnaire, related to the safety issues in the work environment also contributed to the achievement of this objective.

The findings showed that a greater proportion of the staff, do not have access to some basic requirements such as a restroom/ changing room, convenient eating places and access to drinking water during work. Most of them however, had access to washrooms. Other environmental conditions the workers complained about ranged from Stench, Heat and lack of fresh air.

It also showed that some hazards were common to most departments and others were specific to some environments. For instance hazards from manual handling, hazards of chemicals agents (which are irritating to the skin and respiratory tract, or are known mutagens, teratogens and human carcinogens), exposure to biological agents (through direct contact with patients with infectious diseases eg. TB, hepatitis, and HIV/AIDS), hazards from sharp object usage, ergonomics, hazards from waste management and violence were identified in all the five departments visited. However hazards such as steam or chemical explosions and burn hazards were identified only in the laboratory, exposure to radiation was identified in both the X-ray department and laboratory, and cold stress was also peculiar to the mortuary.

6.1.5 Objective 5: To examine the views and suggestions of employees regarding the level of management of OHS they require to feel safe at work and to propose recommendations from findings.

This last objective has also been addressed by putting together the workers" views on safety management which was requested from them as an open-ended question on the last scale of the questionnaire. The summary of their suggestions together with other recommendations resulting from findings of this research have been presented in the recommendations part of this chapter.

#### 6.2 SUMMARY

HCWs are the pillars of the healthcare system, and their good health is essential for the system to function well. This is particularly true for countries in which the number of HCWs per general population is already small, as is the case in many developing countries like Ghana. Unfortunately, the healthcare workers in these countries also have the highest disease burden from exposure to disease causing agent (Prüss-Üstün *et al.*, 2003). In conclusion, OHS of health workers in the

Ghanaian healthcare sector have been compromised in some aspects as a result of various factors on the part of both the employers and the health workers themselves, coupled with the lack of or implementation of safety legislation and polices in the facilities.

#### 6.3 RECOMMENDATIONS

#### **6.3.1 SUGGESTIONS FROM STAFF**

- 1) Management should ensure an adequate and constant supply of PPE to all staff.
- There should be regular maintenance schedules for equipment and replacement of outmoded or dysfunctional ones.
- 3) There should be adequate and efficient mechanical aides for carrying and moving clients.
- In-service and refresher training courses on safety and proper use of PPE should be organized for staff.
- 5) Security must be enhanced to protect staff from violent clients.
- Adequate staffing must be ensured to improve staff/patient ratio, hence reduce heavy workloads.
- 7) Routine medical checkups, screening and immunization of staff should be encouraged.
- 8) There should be motivation or incentives packages such as risk allowances for staff.
- **9**) Adequate washrooms, restrooms and eating areas with access to drinking water should be provided.
- 10) Proper isolation of patients with contagious or easily communicable diseases is required.

To ensure health and safety of health workers, this study recommends the following:

#### 6.3.2 SAFETY MANAGEMENT

- Creating a balance between leadership and employee participation and involving the workers in health and safety committees and initiatives.
- Creating an open, blame-free culture to identify workplace hazards and report "near misses" and workplace incidents.

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#### **6.3.3 SAFETY AT WORK**

- Arrangement should be made for organized breaks for workers between work hours.
- Pre-placement and periodic health assessment of HCWs by a professional aware of the hazards to which workers may be exposed.
- Prompt diagnosis and treatment of occupational illnesses and injuries to reduce disability and lost time associated with these conditions. Periodic environmental surveillance to provide a quantified on-going evaluation of the hazards encountered.
- There should be individual and confidential health records for HCW recording exposures, health assessments, treatments and immunizations.

#### **6.3.4. EDUCATION AND COMMUNICATIONS**

- The employer should adopt teaching programs among all levels of management, workers, and supervisors to raise awareness about health and safety.
- The establishment of safety department will also monitor the use of safety materials and this will enhance safety awareness, which in turn leads to a safe and successful project.

#### 6.3.5 LAWS AND POLICIES

Ghanaian policy makers should be committed to formulate and implement the required and suitable OHS laws and policies to govern the OHS rights of the Ghanaian health service workers.



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Please complete the following hazard identification checklist by ticking the appropriate hazard.

#### DEPARTMENT

What Are The Main Processes In The Area?

List The Main Chemicals and Machines In The Area:

- TOTAL NUMBER OF WORKERS ON DUTY:
- NUMBER OF WORKERS WEARING APPROPRIATE PPE:.....
- ACCIDENT REPORT BOOK AVAILABLE?

#### Comments: YES, NO OR N/A

1	HAZARDS FROM FALLS OR FALLING OBJE	CTS
(a)	Falls of people from a height	
(b)	Falls of objects from a height	
(c)	Slips, trips or falls on the level	
2	HAZARD <mark>S OF MANUAL HANDLING</mark>	
(a)	Risk of injury from a single incident	
(b)	Cumulative effect of handling loads over a period	
3	HAZARDS OF FIRES	13
(a)	Absence of Extinguishers	
(b)	Fire prevention and detection	
(c)	Burn hazards	
	22	
4	HAZARDS FROM EXPLOSIONS	
(a)	Pressure, air, steam etc	NO
(b)	Chemical reactions	

(c)	Implos	ion	۵	
5	HAZA	RDS FROM CHEMICALS	ILICT	
(a)	Asnhy	viating/Suffocating		
(u) (h)	Toxic	very toxic harmful or irritant		
(0)	Corros	ivo		
(J)	Derma			
(d)	Derma			
(e)	Carcin	ogenic, teratogenic or mutagenic		
6	HAZA	RDS OF EXPOSURE TO BIOL	OGICAL AGENTS	
(a)	Micro-	organisms e.g. Staphylococcus, M.	Tuberculosis, Hepatitis viruses	
(b)	Humar	blood or body fluids		
	7	HAZARDS OF EXPOSURE TO	<b>D</b> RADIATION	
	(a)	Ionising e.g., X-rays, radon		
	(b)	Non-ionising eg ultra-violet, infra	red microwave	
(c)	Lasers		0	
	8	HAZARDS FROM ELECTRIC	CITY	
	(a)	Shock/burns		
-	(b)	Explosion		
(c)	Work	on live electrical equipment		
			1 AL	
	9	HAZARDS FROM PRESSURE		
	(a)	High pressure		
	(b)	Low pressure (e.g., vacuum)		-
			1 100	
	10	HAZARDS OF THERMAL EN	VIRONMENTS	
	(a)	Heat Stress		<u></u>
	(b)	Cold Stress	1	A
	14	the state of the s		
	11	HAZARDS FROM NOISE ANI	DVIBRATION	
	(a)	Noise		-9
	(b)	Vibration		<u> </u>
	12	HAZARDS AT WORKSTATIC	DN / ERGONOMICS	
17	(a)	Workstation and seating design		5
	(b)	Ergonomic factors in work layout a	and task design	-51
	(c)	Use of excessive force and repetitiv	ve movements	51
				~
	13	HAZARDS OF LONE WORKI	NG	
(a)	Hazard	s present from working alone		
	14	HAZARDS FROM SHARP OB	JECTS USAGE	
	(a)	Hypodermic Needles	NE	
	(b)	Glassware/glass		
		-		

(c)	Othe	er e.g., sharp edges	□
	15	HAZARDS OF WORKING ENVIRONMEN	ITS
	(a)	Inadequate lighting	<b>0</b>
	(b)	Ventilation	-
	(c)	Inadequate space	(d) Unavailable Washrooms
	16	HAZARDS OF WASTE MANAGEMENT	
	(a)	Hazardous waste disposal	۵
	(b)	Waste is segregated and stored appropriately	٥
	17	SECURITY	
(a)	Perso	onnel	
(c)	Viole	ence	
		And and a state of the state of	

#### <u>OUESTIONNAIRE ON OCCUPATIONAL HEALTH AND SAFETY ISSUES AMONG</u> <u>HEALTHCARE WORKERS</u>

Pls complete this form. Tick, underline or circle your choices. All information will be handled with confidentiality

#### BACKGROUND INFORMATION

 Age:.....
 Sex: Male / Female
 Profession:....
 Department:...

Educational level :(a) SHS (b) Certificate (c) HND (d) BSc. (e) MSc. (f) Other. Pls specify...

#### KNOWLEDGE OF SAFETY ISSUES

- 1. Do you know about occupational health and safety and what it entails? (a) YES (b) NO
- 2. Do you know of the hazards you face during the performance of your duties? (a) YES (b) NO
- 3. Do you think there is a risk of you contracting an infection or injury in your workplace? (a) YES (b) NO

#### CURRENT SAFETY ISSUES AND USE OF PERSONAL PROTECTIVE EQUIPMENTS

1. Do you have access to all the required Personal Protective Equipments (e.g. gloves, goggles etc) when working? (a) YES (b) NO

- 2. Do you <u>always</u> use the available Personal Protective Equipment? (a) YES (b) NO (c) SOMETIMES
- 3. Do you consistently follow standard precautions with all blood and potentially infectious materials? (a) YES (b) NO (c) SOMETIMES
- 4. Do you practice frequent hand washing at work? (a) YES (b) NO (c) SOMETIMES
- 5. Which of the following reasons prevent you from **always** following infection control and prevention measures?
- (a) The protective equipments are not available
- (b) The high workload pressure
- (d) You have a lot of work experience
- (c) You work faster without the protective measures(e) You are not bothered about infections or injury
- (f) None (g) Others, pls specify.....

#### SAFETY ISSUES IN THE WORK ENVIRONMENT

1. At your place of work, do you have access to the following?

<ul> <li>A staff rest room or changing roor</li> </ul>	n: (a) YES	(b) NO	- Access to drinking wa	ter: (a) YES	(b) NO
-A place to eat conveniently:	(a) YES	(b) NO	- Staff washrooms:	(a) YES	(b) NO

2. Which of the following do you suffer a lot during work from?
(a) The Cold (b) The Heat (e) Lack of fresh air (f) Poor lighting (g) Stench (h) Dust (i) None
3. Do you suffer from anything in your work environment which has not been listed above?
(a) YES (b) NO
If YES, pls specify?.....

4. Have you had any training on what to do in the event of a fire outbreak? (a) YES (b) NO

#### EXPOSURE TO CHEMICALS, BIOLOGICAL AND PHYSICAL INJURY

1. Have you ever been injured at work? (a) YES (b) NO

2. If Yes, what caused the injury?....

3. Have you ever suffered injuries caused by any of the following?

(a) Falling down while pushing or pulling a wheelchair or bed
(b) Hit by any hard or sharp object
(c) Lifted a patient or instrument more than your capacity
(d) Been in contact with harmful chemicals
(e) None

4. Which of the following injuries do you sometimes suffer from as a result of performing your routine duties?

(a) Joint Pains (b) Muscle Tear (c) Ankle Twisting (d) Scratches (e) Fractures (f) None

5. Have you ever been hospitalized due to injury at work? (a) YES (b) NO

6. Have you ever been given sick leave due to an injury from work? (a) YES (b) NO

7. Have you ever had a needle stick injury or needle prick while performing your duties? (a) YES (b)NO

8. If YES, did you report it for medical attention? (a) YES (b) NO

9. Have you been vaccinated against Hepatitis **B** virus? (a) **YES** (b) NO

#### EXPOSURE TO MUSCULOSKELETAL DISORDERS AND ERGONOMICS

1. Do you have to move heavy objects or people as a part of your workplace duties? (a) YES (b) NO

#### **2. If YES:**

Has it had any adverse effect on your health? (E.g. backache, muscle strains, knee pain) (a)YES (b)NO

3. Are there any mechanical aids available to help you with manual handling? (a) YES (b) NO

4. In performing your duties, does the required posture result in you regularly having pains or feel stiffness in the ff:

(a) in your shoulder, arm or hand?(b) in your hip, leg or foot?(c) in your neck?(d) at your back?(e)None

5. Do you have any other symptoms due to work which are not covered by these questions? If so, what?

6. During your work, which of the following inconveniences do you experience?(a) Lengthy sitting(b) Lengthy standing(c) Lifting or carrying(d) Bending down regularly(f) Reaching up high regularly(g) Lengthy periods of repetitive movements(h) None

#### EXPOSURE TO STRESS

1. Do you find your job stressful? Do you feel under pressure **always**? (a) YES (b) NO

2. If Yes, which of the following contributes to the stress?

(a) Excessive workload (b) Inadequate staff in department (c) Long working hours (d) Others, pls specify..... 

3. How many hours do you work in a day?

(a) Less than 8 hrs (b) 8 hrs (c) 8 - 10 hrs (d) Between 10 - 12hrs (e) More than 12hrs

4. Do you have fixed breaks during working hours? (a) YES (b) NO

5. How is your work schedule? (a) Fixed working hours (b) Run shifts (c) Work on call

6. If you **run shifts**, does your private life suffer due to irregular working hours? (a) YE S (b) NO (c) SOMETIMES

#### **EXPOSURE TO VIOLENCE**

1. Has a client or their relative became violent or threatening to you before? (a) YES (b) NO

2. Do you know what to do if you feel threatened or verbally abused? (a) YES (b) NO

3. Do you know how to recognize a violent or an aggressive behavior and how to calm an angry patient? (a) YES (b) NO

#### SAFETY MANAGEMENT

(1) Are you satisfied with the safety measures available at your work station /department? (a) YES (b) NO

In your opinion, what hazard do you deem as the most serious and threatening to the performance (2)of your duties?

What suggestions do you have concerning your requirements or needs to be safe and satisfied in (3)your job?.....

LASC W CORSHEL

P. O. Box CO 3055 Comm. – One, Tema 5th December, 2011

The Head of Department Theoretical and Applied Biology KNUST - Kumasi

Thro" The Coordinator (Accra Centre) Institute of Distance Learning KNUST – Accra

SAPS

Dear Sir,

#### REQUEST FOR LETTER OF INTRODUCTION FROM THE DEPARTMENT OF THEORETICAL AND APPLIED BIOLOGY

I am **Lawrencia Soglo**, a second year **MSc Environmental Science** student at the Institute of Distance Learning KNUST, Accra Center with student number **20121026** and exam number PG4177610.

I am currently researching on the topic; INVESTIGATION OF OCCUPATIONAL HEALTH AND SAFETY ISSUES AMONG HEALTHCARE WORKERS and I am being supervised by Dr. Bernard Fei. Baffoe.

I will like to request for a letter introducing me as a student of the Department as a pre – requisite for the institutions I will be working with during my research. I will be grateful if my request is granted. Thank you

Yours faithfully,

Lawrencia Soglo

WJSANE



#### **ACCRA OFFICE**

#### **KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY**

Tel: 0302 946384-5 0302 250708 Fax: 0302 250707



Accra Office Accra Guest House Distance Learning Centre P. O. Box GP 4100, ACCRA

Dat8TH DECEMBER, 2011

Our Ref. IDL/ST/1.1.

#### TO WHOM IT MAY CONCERN

#### LETTER OF INTRODUCTION - MS. LAWRENCIA SOGLO

This is to confirm that the above-named is a student pursuing Msc. Environmental Science at the Institute of Distance Learning, KNUST (Accra Centre).

As part of the requirements for graduation Ms. Soglo has to complete a project on "Investigation of Occupational Health and Safety Issues among Healthcare Workers".

Consequently, the Institute would appreciate your kind assistance to enable her solicit information from your organization to complete the project.

Thank you in anticipation of your cooperation.

Kofi Adu

Accra Coordinator For: Dean, IDL

Guest House (Front Desk): 0302-250708/946384. Head, Accra Office: 0302-946385/946383

Summary of Results from the Hazard Identification Checklist

SAD JA

	TYPE OF HAZARD . HAZARDS FROM FALLS OR FALLING OBJECTS	M H	Ľ Å	X	N	. 1
	a. Falls of people from a height					
	b. Falls of objects from a height					
Th	<ul> <li>c. Slips, trips or falls on the level</li> <li>HAZARDS OF MANUAL HANDLING</li> </ul>	*		*	,	
le v	a. Risk of iniury from a single incident of manual handling	*	*	*	*	.,
aric	b. Cumulative effect of handling loads over a period	*		*	l.	
ous	. HAZAKUS OF FIRES a Absence of Extinouishers			+		
dep	b. Fire prevention and detection					
art	c. Burn hazards				*	,
me	. HAZARDS FROM EXPLOSIONS				~	
nts	a. Pressure air steam, etc h Chemical reactions				* *	
W	c. Implosion					
ere	. HAZARDS FROM CHEMICALS					
ide	a. Asphyxiating/ Suffocating	*			*	×
enti	b. Toxic, very toxic, harmful or irritant	*	*	*	*	.,
ifie	c. Corrosive	*	*	*	*	v
dy	d. Dermatitis	*	*	*	*	.,
with	e. Carcinogenic, teratogenic or mutagenic . HAZARDS OF EXPOSURE TO BIOLOGICAL AGENTS	*	*	*	*	
th	a. Microorganisms eg. Staph. M. Tuberculosis. Henatitis viruses	*	*	*	*	
eir	b. Human blood or body fluids	*		*	*	
ini	. HAZARDS OF EXPOSURE TO RADIATION					
tial	a. Ionizing eg. X-rays, radon		*	*	*	
s: 1	b. Non-ionising eg. ultra-violet infra red microwave	-	* *	* *	* :	
M=	C. LASER			e e	,	
M	a Shock/ hitns		*	*	*	
ort	b. Explosion					
uar	c. Work on live electrical equipment	*	*	*	*	
y, ]	. HAZARDS FROM PRESSURE					
<b>P=</b> ]	a. High pressure				*	
Pha	D. LOW pressure eg., Vacuum .HAZAKUS FROM THERMAL ENVIRONMENT					
rm	a. Heat Stress	*	×	*		
acy	b. Cold Stress	*				
, X						
=>	a. Noise					
K-ra	. VIDIALION . HAZARDS AT WORKSTATION/ ERGONOMICS					
ay,	a Work station and seating design	*	×			
V	b. Fromomic factors in work lavout & task design	*	*	*	*	
V=1	c. Use of excessive force and repetitive movements	*	*	*	*	<b>.</b>
Wa	OF LONE WORKING					
rd	a. Hazards present from working alone	-	*	*		
an	. HAZARDS FROM SHARP OBJECTS USAGE					
ld l	a. Hypodermic Needles	*		*	*	×
L=	b. Glassware/ glass	*	*	*	*	<u>,</u>
La	c. Other eg. sharp edges	*	+	*	*	<u>,</u>
bo		+	+	+	+	
rate	a. Inadequate lighting	+				
ory.	D. Venuauou c. Inadenuate snace	1	1	-		Τ
. T	d. Unavailable Washrooms					
he	. HAZARDS OF WASTE MANAGEMENT					
	a. Hazardous waste disposal	*	*	*	*	
	b. Waste segregation and appropriate storage	*		*	*	<u>,</u>
	a Darconnal	*	T	+	+	Т
	a. Felsbullutei 10 Vialanaa	*	*	*	*	Τ.
		_	_	_	_	_

boxes marked with asterisk (\*) indicates the presence of that particular hazard in question in that department. In all, 17 major hazards with their sub hazards were being checked for. With the exception of hazards from noise and vibration and the hazards being checked in the working environments, all the other major hazards were identified in at least one department. The department that showed the

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## KNUST

presence of the highest number of hazards was the Laboratory, which was followed by the Mortuary, next was the Ward, then X-ray and the least was the Pharmacy.

