OCCUPATIONAL SAFETY AND HEALTH ISSUES IN GHANA: STRATEGIES FOR IMPROVING EMPLOYEE SAFETY AND HEALTH AT WORKPLACE

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ABSTRACT: *Contemporary employees spend most of their working lives at the workplace. Work provides economic, social and psychological experiences that promote the mental well-being of individuals. The work environment should be devoid of hazards as much as possible to provide healthy and decent work for the workforce. However, numerous injuries, illnesses, property damages and process losses take place at different workplaces. There is the urgent need for guidelines to help manage and improve safety and health at the workplace. Currently, there is no comprehensive national health and safety policy in Ghana that provides these guidelines. This paper provides a generic guide to managing the myriad of hazards that exist at the workplaces to enhance healthy and decent work for employees in Ghana. It discusses different forms of potential hazards and provides guidelines on how they can be identified, assessed, controlled or managed when they are present in a given work setting.*

KEYWORDS: Industrial accidents, hazards control, decent work, safety culture, safety performance, safety management

INTRODUCTION

Background to Workplace Safety and Health Issues in Ghana

Ghana is gradually becoming an industrialized nation, and this change is exposing a large percentage of the workforce to various health and safety hazards at the workplace. The Labour Department of Ghana Annual report (2000) gave a total of 8,692 work-related accidents reported to the Department for compensation claims, while the 1999 figure stood at 4,088. These figures represent only those occurring at the formal sector. The preamble of the International Labour Organisation (ILO) constitution highlights that the protection of the worker against sickness, diseases and injury arising out of employment is fundamental element of social justice. Occupational safety and health is human right and decent work eventually is safe work (WHO, 2010).   Concha-Barrientos et al., (2004) noted that "people at work face a variety of hazards owing to chemicals, biological agents, physical factors, adverse ergonomic conditions, allergens, a complex network of safety risks, and many and varied psychosocial factors" (p.1653 As pointed out by Marmot and Wilkinson (2006), the working environment and the nature of work itself are both important influences on health. According to the the US National Alliance for the Mentally ill (NAMI, 1999), work is at the very core of contemporary life for most people, providing financial security, personal identity, and an opportunity to make a meaningful contribution to community life. Work is very essential in human life and provides a number of psychological experiences that

promote the mental well-being of individuals, aside the financial gains. These include providing time structure, social contact, collective effort in a social context outside the family, social identity, and helps individuals to organize their daily lives (Warr, 1987). This suggests that the work environment should be devoid of hazard as much as possible to provide healthy and decent work for the workforce. The Ghana Labour Act (Act 651, 2003) defines workplace to include any place where a worker needs to be or to go by reason of his or her work which is under the direct or indirect control of the worker (p.52). (Burton, 2009, p. 23).defines a healthy workplace as :

> " a place where everyone works together to achieve an agreed   vision   for   the health and well-being of workers and the surrounding community. It   provides all members of the workforce with physical, psychological, social and organizational conditions that protect and promote health and safety. Itenables managers and workers to increase control over their own health and to improve it, and to become more energetic, positive and contented"

Industrial or occupational accidents can have, and in fact do have great effect on the mental health of victims as well as others who witnessed the incident. Health and safety of employees at the workplace are costly to the individual employees and their families, employers and the nation as a whole. In addition, there are financial implications for the victim, as well as the employer. The Ghana *Workmen's Compensation Law 1987(PNDC 187)* requires that the employer pays all medical expenses related to any work place related accident, and in addition, pay some compensation to the accident victim. Occurrence of accident at the work place can also have serious implications for the organisation's profile. In view of this, management of health and safety issues at the workplace need to be tackled with all seriousness from all angles. Pragmatic steps and policies must be put in place to ensure that unavoidable accidents and health hazards are prevented. There is the need to integrate safety and health issues of employees into the organisational structure, if safety of employees is to be ensured. The success of health and safety management at the work place requires strong management commitment, and collaboration among safety and health professionals, employees and their associations/organisations, and management.Government institutions/agencies assigned with the responsibility of ensuring health and safety at the workplace need to be empowered to enforce policies and guidelines for accident prevention at the workplace to the letter.

Currently, Ghana does not have a national policy on occupational health and safety management, as the ILO convention number 155 (1981) requires. There are however, the *Factories, Offices and Shops Act 1970, (Act 32*8), the *Mining Regulations 1970 (LI 665),* and the Labour Act 2003 (Act 561), which have some regulations about health and safety management at the work environment. The Ministry of Health and the Ghana Health Service, in collaboration with the World Health Organisation (WHO) country office also commissioned the development of policy and guideline on occupational health and safety for the health sector which was published in June 2010. But these are very limited in scope given the multifaceted distribution of industrial operations within the Ghanaian work setting. There is also the *Workmen's Compensation Law 1987(PNDC 187)* which relates to compensation for personal injuries caused by accidents atwork and hence, indirectly impacts on monitoring worker and workplace safety. The Radiation Protection Board of the Ghana Atomic Energy Commission also regulates companies with radiation exposure hazards. It is in view of this

that we provide strategies that are analysed and synthesized into 'how-to manual' to help improve health and safety at workplaces in Ghana.

Legislative Provisions on Occupational Health and Safety in Ghana

The government of Ghana has introduced Acts (e.g., Labour Act, 2003, Act 651 and Factories, Shops and Offices Act 1970, Act 328) and many other subsumed policies to protect the health, safety and welfare of all workers. The Labour Act, for example, makes it obligatory for the employer to "ensure that every worker employed in Ghana works under satisfactory, safe and healthy conditions (Labour Act, 2003 Act 651, Article 118:1). This provision is in consonance with the 1992 constitution of Ghana which states that "every person has the right to work under safe and healthy conditions" (section 24: 1). It is required that employees use the safety appliances, fire-fighting equipment and personal protective equipment provided by the employer in compliance with the employer's instructions (Labour Act, 2003 Act 651, Article 118:3). The employers' obligation under the Labour Act includes setting standards to safeguard the wellbeing of their employees, providing personal protection equipment, and providing necessary information, supervision and training consistent with the level of literacy of the employees. Furthermore, the Act requires employers to report the occurrence of occupational accidents to appropriate government agencies. Employees are obligated to exercise their actions with reasonable care as they go about their normal jobs at their workplaces to ensure their safety and the safety of others. The Act leaves the provision of standards opened to the discretion of every employer. This invariably has led to a disjointed and fragmented health and safety policy bodies as different industries (employers) have different oversight on health and safety issues in Ghana. The fragmentation is even clearer as Ghana has different agencies under different jurisdictions which monitor different industries for workplace and employee safety. For instance, there is a Road Safety Commission but with little standards, guidelines and impact on the transport industry and road users. The Minerals Commission has the Mining Regulations 1970, which contains some guidelines in Occupational Safety and Health but just for the Mining Industry.

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. Per the Labour Act 2003, Act 651, Part XV, sections 118 to 120 apparently directs employers and employees in their roles and responsibilities in managing Occupational Health, Safety and Environment in the nation. The Act, however, is not specific on how to implement safety provisions at the organizational level and about whom to report accidents and occupational illnesses to. It is not even clear or does not specify what to consider as Occupational Illness. It does not specify who to be responsible for ensuring the industries in Ghana implement corrective actions as per recommendations. There is no national body, policy nor processes that govern occupational health and safety management in Ghana.

Given the wide range of potential and/or actual undesired events associated with the myriad of work groups in Ghana from different work settings, there seem to be a missing link between legislative or policy provisions and application of contents of the various legislative acts and instruments by employers. The various Legislative Acts in Ghana task the employer and the employee to fulfil their part of ensuring health and safety at the work setting. The Acts solely directs employers/employees alike to ensure safety provisions but largely fails to address the 'how' in implementing the contents. While Ghanaians await a comprehensive

provision for occupational safety and health standards and practice in the nation, there is the need to have a strategy or *'how-to-manual'* to serve as a guide to employers, employees and regulatory bodies. geared toward improving on the practice, management and monitoring of health and safety at the workplace in Ghana. Amponsah Tawiah, 2013; Froko, Asumeng & Nyarko, 2014,2015; Pupulampu & Quartey, 2012. This paper provides an approach to achieve this aim. We reviewed types of occupational hazards; safety, biological, physical, ergonomic, chemical and psychological hazards and how they can be managed and controlled. We then analysed, synthesized and summarized the major potential occupational hazards, and provided strategies for managing and controlling them to improve safety and health at the workplace.

Types of Occupational Hazards

Effective design and implementation of occupational health and safety management system requires appreciation of the various forms of hazards present at the workplace, and how to identify them. According to Mackay, Cousins, Kelly,Lee, and McCaig (2004) the aim of any harm prevention strategy should be to have exposure to risk factors below a level which can cause harm. It is essential to note that hazards only represent potential to cause harm. Whether the harm actually occurs or not depends on circumstances, such as the toxicity of the health hazard, exposure amount, the extent of the risk factors present, and duration of exposure to the risk factors. Mackay, et. *al* (2004) noted that preventive strategies have elements comprising both surveillance and control measures, and proper design of the preventive strategies require understanding about the relationships between hazard, harm and risk. There is theoretical and empirical evidence linking hazards to harms, through risk factors (Brunner, 2002; McEwan, 2000; Sapolsky, 2003). There is the need for understanding of these basic concepts: hazards, risks, and harm.

Hazards refer to those features, either physical or psychosocial or a combination of both, of the workplace that have the potential to lead to harm or unwanted consequences. It is an inherent property of a substance, agent, source of energy or situation having the potential of causing considerable consequences for example, chemicals, slippery floor, working while standing, working standing on a ladder (Ghana Ministry of Health-MOH, 2010). The type and nature of impact of workplace factors and conditions upon employees' health constitute the harm. The harm may be acute or chronic and relates to both physical and psychological outcomes or functioning. McEwan (2000) observed that the physical and psychological consequences of stress in the workplace may have common biological pathways. Apart from individual health impacts, harm may also refer to outcomes that affect the organization, such as sickness absence, error and impaired performance efficiency (Mackay, Cousins, Kelly,Lee, &Mccaig, 2004). The concept of *risk* refers to the likelihood that exposure to a hazard will lead to harm. MOH (2010) noted that risk represents: "The probability that damage to life, health, and/or the environment will occur as a result of a given hazard (such as exposure to toxic chemical)" (p.1). The likelihood of injury or ill health resulting from a hazard is seen as a factor not only of the inherent nature of the hazard as well as the control measures in place to control the hazards. Major types of workplace hazards located in the occupational safety and health literature are presented below:

Safety hazards: These are the most common and will be present in most workplaces at one time or another. Safety hazards include unsafe conditions that can cause injury, illness and death. They are the most common features of most workplace. These hazards include: spills on floors or tripping hazards, such as blocked aisles or cords running across the floor;

working from heights, including ladders, scaffolds, roofs, or any raised work area; unguarded machinery and moving machinery parts; guards removed or moving parts that a worker can accidentally touch; electrical hazards like frayed cords, missing ground pins, improper wiring; confined spaces, machinery-related hazards (lockout/tag-out, boiler safety, forklifts).

Biological hazards: This type of hazards is associated with working with animals, people, or infectious plant materials. Work in schools, day care facilities, colleges and universities, hospitals, laboratories, emergency response, nursing homes, outdoor occupations, etc. may expose individuals to biological hazards. The type of things that might give rise to biological hazardsinclude exposure to: Blood and other body fluids,fungi/mold, bacteria and viruses, plants, insect bites, animal and bird droppings. These have the potential of resulting in infections of various forms, parasitic infestations, among others.

Physical hazards are factors within the environment that can harm the body without necessarily touching it. These include: *radiation*:-including ionizing, non-ionizing (EMF's, microwaves, radio waves); high exposure to sunlight/ultraviolet rays; temperature extremes – hot and cold; constant loud noise; poor lighting; poor ventilation; faulty electrical wiring and bare electrical cables.

Ergonomic hazards occur when the type of work, body positions and working conditions put strain on the worker's body. They are the hardest to spot since it is not always possible to immediately notice the strain on your body or the harm that these hazards pose. Short-term exposure may result in *sore muscles* the next day or in the days following exposure, but long-term exposure can result in serious long-term illnesses. Ergonomic Hazards include: improperly adjusted workstations and chairs, frequent lifting, poor posture, awkward movements, especially if they are repetitive, repeating the same movements over and over, having to use too much force, especially if you have to do it frequently, and vibration.

Chemical hazards are present when a worker is exposed to any chemical preparation in the workplace in any form (solid, liquid or gas). Some are safer than others, but to some workers who are more sensitive to chemicals, even common solutions can cause illness, skin irritation, or breathing problems. They include: Liquids like cleaning products, paints, acids, solvents – *especially* if chemicals are in an unlabeled container, vapors and fumes that come from welding or exposure to solvents; gases like acetylene, propane, carbon monoxide and helium; flammable materials like gasoline, solvents, and explosive chemicals, pesticides

Psychological hazards: Psychosocial hazards are defined to include the interactions among job content, work organisation and management, and other environmental and organisational conditions, on the one hand, and the employees' competencies and needs on the other.Thus, psychological hazards refer to various forms of workplace interactions that have a hazardous influence over employees' health through their perceptions and experience (ILO, 1986). A psychological hazard is any hazard that affects the mental well-being or mental health of the worker and may have physical effects by overwhelming the individual's coping mechanisms and impacting the worker's ability to work in a healthy and safe manner (Government of Alberta, 2011).Cox and Griffiths (2005) also consider psychosocial hazards to be those aspects of the designand management of work, and the social and organisational contexts of work that have the potential forcausing psychological or physical harm. The EU-OSHA (2007) noted that significant changes at the workplace in recent times that are closely associated with the organisation and management of work have resulted in emerging risks and new challenges in the area of occupational health and safety. Work-related stress and

workplace violence are widely recognised as major psychological hazards that raise enormous challenges tooccupational health and safety (EU-OSHA, 2007). These psychological hazards, also known as psychological risks, have been found to impact on health and safety of employees and the healthiness of organizations.

WHO (2010) indicated that Psychosocial hazards or risks go hand in hand with the experience of work-related stress, and WHO (2003) had earlier noted that Work-related stress results from the responses individuals may have when they are presented with work demands and pressures thatdo not match their personal resources, knowledge and abilities and which challenge their ability to cope. These are the hazards associated with workplace issues such as workload, lack of control and/or respect, bullying, etc. This situation results in stress (short-term effects) and strain (long-term effects) among the workforce. Examples of psychological hazards include: workload demands, workplace violence, intensity and/or pace of work, lack of respect for employees, work flexibility, individual control or say about issues at work, social support/relations, and sexual harassment. According to EU-OSHA (2007), psychosocial risks, work-related stress, violence, harassment, bullying (or mobbing) are recognised major challenges to occupational health and safety. The major categories or sources of psychological hazards are provided by Leka, Griffiths, and Cox (2003). (see Table 1).

Table 1: Sources of psychological hazards (Leka, Griffiths, &Cox (2003)

Job content	Lack of variety or short work cycles, fragmented or meaningless work, under use of skills, high uncertainty, continuous exposure to people through work
Workload and work pace	Work overload or under load, machine pacing, high levels of time pressure, continually subject to deadlines
Work schedule	Shift working, night shifts, inflexible work schedules, unpredictable hours, long or unsociable hours
Control	Low participation in decision making, lack of control over workload, pacing, shift working, etc
Environment and equipment	Inadequate equipment availability, suitability or maintenance; poor environmental conditions such as lack of space, poor lighting, excessive noise
Organizational culture and function	Poor communication, low levels of support for problem solving and personal development, lack of definition of, or agreement on, organizational objectives
Interpersonal relationships at work	Social or physical isolation, poor relationships with superiors, interpersonal conflict, lack of social support
Role in organization	Role ambiguity, role conflict, responsibility for people
Career development	Career stagnation and uncertainty, under promotion or over promotion, poor pay, job insecurity, low social value to work
Home–work interface	Conflicting demands of work and home, low support at home, dual career problems

A study by the Ghana Ministry of Health (2010) indicated that biological hazards, manual handling of patients and psychological stress are the most common hazards among health care workers.

Management of Occupational Hazards

Employees at any work setting may be exposed to a variety of workplace hazards in the course of performing their functions. The first step for addressing health and safety at the workplace to ensure healthy workenvironment requires effective assessment of the hazards at the workplace. A key component of an effective health and safety management programme is to identify and assess the hazards present at the workplace, and then determine appropriate controls to deal with them. Cox (1993) indicated that risk assessment procedures can be used in the identification and control of hazards in the workplace. The European Commission (1996) defines risk assessment as a systematic examination of the work undertaken to consider what could cause injury or harm, whether the hazard could be eliminated, and if not, preventive or protective measures are, or should be in place to control the risk. The UK Health and Safety Executives (HSE, 2001, p. 3) also provided the definition of risk assessment as:

> *'nothing more than a careful examination of what, in your work, could cause harm to people, so that you can weigh up whether you have taken enough precautions or should do more to prevent harm. The aim is to make sure that no one gets hurt or becomes ill.'*

The World Health Organisation (WHO, 2008) and Cox (1993) noted that risk assessment should offer an explanation of the quantity of the hazard present at the work environment as well as the hazard-harm relationship. Thus, the *hazard assessment* should reveal how and why there is a hazard-harm relationship as well as the extent of that relationship.The Government of Alberta (2011) asserts that the type and degree of exposure to various hazards is dependent upon a variety of individual factors including people-related factors as well as work environmental issues.

The following steps for health and safety assessment were adapted from *The guidance in Tackling Work-related Stress* (UK-HSE, 2001) and The Government of Alberta's *Best Practice Volumes* (2011: *5*):

Management Commitment and Leadership. Improving safety performance at the workplace requires senior management unambiguous commitment to provide safe and healthy work environment to their employees. It is the responsibility of management to eliminate, reduce or control hazards at the workplace and put measures in place to mitigate effects of harm if they occur. Management needs to assess a work site and identify existing or potential hazards, and prepare a written and dated hazard assessment. There is the need for periodic review of hazard assessments when changes occur to the task, equipment or work environment. Safety performance will be high if management takes steps to involve workers in the hazard assessment and control process, and ensure that workers and contractors are informed of the hazards and the methods used to eliminate or control them (Government of Alberta, 2011). Individual employees also need to take reasonable care to protect the health and safety of themselves and other workers, as required by the Labour Act, 2003, and cooperate with their employer to protect the health and safety of themselves and other workers.

Look for the hazards. The assessor needs to walk around the workplace and look for what could reasonably be expected to cause harm. There is the need to list all work related tasks and activities. The employees and their representatives must be involved because they might

notice things that are not so obvious from the outset. Manufacturers' instruction manual or data sheets can also be useful in identifying potential hazards.Identify potential biological, chemical, physical, ergonomic and psychological hazards associated with each task.

Decide who might be harmed and how. Different categories of individuals are likely to experience different degrees and types of harms. For instance, young workers, trainees, new and expectant mothers, cleaners, contractors, maintenance workers, visitors and members of the public or adjoining/nearby companies might be hurt by your activities.

Evaluate the risks and decide whether the existing precautions are adequate. Assess the risk of the hazard by considering the severity of consequences of exposure, the probability that the exposure will occur and the frequency the task is done. This can help to determine how likely it is that each hazard identified could cause harm. The evaluation also involves ascertaining whether the existing precautions are adequate or more needs to be done.

Communication and Collaboration. There is the need to ccommunicate the hazard assessments and required controls to all workers who perform the tasks. Good communication and a collaborative approach are important for an effective programme. Worker participation in all aspects of programme development is a key feature of a successful occupational injury and illness prevention programme.

Apply control measures. After the evaluation, there is the need to put appropriate and adequate control measures in place to deal with the risk.Identify the controls that will eliminate or reduce the risk. The hierarchy of controls should be followed. The control measures include the following in the listed order:

a) Deciding if the hazard can be eliminated altogether;

b) Since hazards cannot normally be eliminated, the use of engineering controls or design are the most effective. Engineering controls reduce the possibility of exposure by controlling the hazard at its source and reduce the possibility of exposure by controlling the hazard at its source;

c) Use of administrative measures, such as training and enforcement of rules; and

d) The use of personal protective equipment. A combination of these is normally the best approach. Detailed description of the control measures is discussed in the next section.

Reporting Procedures*:* All incidents or near misses that result or could result in injury should be reported and investigated. Unless incidents are brought forward and investigated, they are likely to be repeated. Reporting processes should be established in a way that respects the individual's right to privacy and does not put the person reporting the incident in jeopardy.

Record your findings. Effective safety management requires that accurate record of assessments and incidents are maintained. All safety and health related activities and related issues must be recorded. How hazards identified are dealt with, precautions put in place, training for employees, etc must be documented. Records are important for the smooth running and continual improvement of health and safety programmes. Records of incident investigations should be analyzed for trends and used to determine corrective actions.

Programme Evaluation and Continuous Quality Improvement

The control measures need to be evaluated periodically to ensure they are effective. Effective safety management system must have clearly stated goals and objectives and a way to measureprogress and outcomes. The programme should provide a clear understandingof the scope and responsibilities for programme evaluation. Regular monitoringof the programme will enable early detection of trends. Improvement opportunitiescan be identified, and the programme can evolve to meet changing needs, best practices, and the organization's experience.

Industrial and Organisational Psychologists and Occupational health and safety practitioners may be contacted to help with the assessment and other processes throughout the rest of the steps.

Controlling Hazards at the Workplace

Pettinger (n.d.), noted that from the early 1900s to the present time, employers and safety practitioners adopted the philosophy of the *three E's* (engineering, education, and enforcement) to guide their safety-related interventions. To be successful and effective in dealing with the health and safety of employees, the three Es of safety focus on: developing engineering strategies that decrease the probability of an employee engaging in at-risk behaviours; educating and training employees regarding equipment, environmental hazards, policies and procedures; and enforcing the policies and procedures related to operating equipment, wearing proper personal protective equipment, and handling specific hazardous substances (p. 6).

There is also the Safety Engineering Model (SEM), which is basically a modified form of the three Es. Using this model, researchers confirmed health and safety issues at the workplace arise from unsafe acts (85%) and unsafe conditions (15%). The researchers further suggested that unsafe acts are best prevented through education and enforcement, whereas unsafe conditions are best prevented through improved engineering practices and enforcement of these practices (Cliff, 2012).
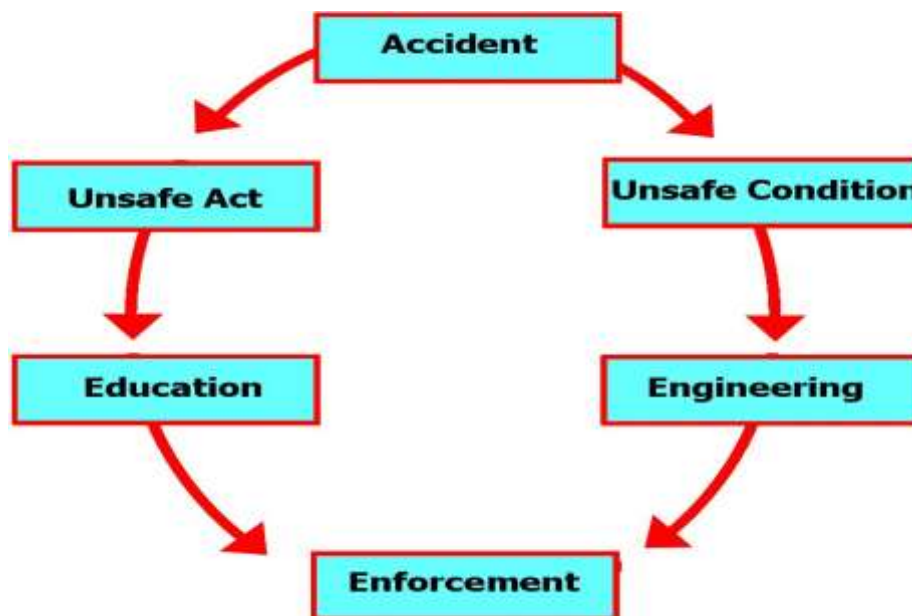

Figure 1: Safety Engineering Model (SEM) (*Adopted from Cliff./International Mining for Development Centre Mining for Development, 2*012)

Management and worker behaviour are integrated into the basic model to include a focus on the following elements: empowerment of workers, adoption of progressive labour practices, promotion of health and safety as a personal and organisational value, development of positive worker attitudes, with a focus on behaviour modification, and application of ergonomic andhuman factor analyses.

In addition, a focus on occupational health in the workplace was added to the framework. This introduced an emphasis on protecting and promoting the health of employees in the workplace and the key aspects include: prevention and control of occupational diseases and accidents, development and promotion of a healthy and safe workplace, enhancement of the physical, mental and social wellbeing of employees, and empowerment of employees to conduct socially and economically productive lives.

There is also the need for enforcement of health and safety regulations and policies. One of the most common techniques used to reduce at-risk behaviour within the workplace is to introduce stricter rules, increase supervision of the target behaviour or increase the number of reprimands given out for failure to comply with the companies' policy and procedures (Pettinger, n,d). The introduction of new safety rules followed by discipline for not following those rules can be an effective intervention if delivered correctly. Occupational health focuses on controlling employees' exposure to occupational disease, while worksite health programmes concentrate on individuals' lifestyles and health -related behaviours (or habits) that may occur on or off the job. In terms of safety-related interventions within the workplace, there is considerable overlap of effort between occupational safety, occupational health, and worksite health promotion. Occupational safety and health and worksite health promotion all focus on healthy behaviour.

In the changing stage, it is crucial for feedback loops to be established and for learning mechanisms to be in place to monitor the learning and provide a forum for reflection and further clarification, challenges, choices and for other changes to be implemented.

The Government of Alberta handbook of occupational health and safety provide three measures to be taken to handle any hazard that cannot be eliminated. This is similar to the model above. The first has to do with engineering, followed by administrative (enforcement of policies), and finally, the use of appropriate PPEs.

Engineering Controls: In the hierarchy of controls, the highest level of control is directed at the source. Good engineering controls such as proper design and maintenance of facilities contribute to minimizing the hazards. Engineering controls, once designed and implemented, are not under the control of the worker, but are directed at the source of the hazard.

Administrative Controls: Because it is not always possible to eliminate or control the hazard at the source, administrative controls are frequently used for biological hazards in healthcare. Administrative controls focus on ensuring that the appropriate prevention steps are taken, that all proper work procedures are documented, that administrative personnel are trained to use the proper procedures, and that their use is enforced. Administrative controls include policies and procedures that establish expectations of performance, codes of practice, staff placement, required orientation and training, work schedules, and occupational health programmes.Worker education and good communication processes are important administrative controls. For instance, a risk for exposure to biological hazards may occur through contact with client's blood or body fluids through violent or abusive behaviour.

There should therefore, be policies and structures in place to prevent such behaviours at the workplace.

Personal Protective Equipment (PPE): Personal protective equipment such as gloves, respiratory protection and eye protection should be used based on the risk assessment. PPE is often used in conjunction with other controls (engineering and administrative) to provide additional protection to workers. This means that all PPE is designed to reduce exposure to hazards.For example, gloves, gowns and other protective clothing reduce exposure through the dermal (skin) contact route and help contain the microorganisms to the work environment. Gloves are the most common type of PPE used to reduce exposure to biological hazards.The use of a particular PPE selected must be based upon the risk assessment of the task and the environment in which it is used.

Summary of Major Potential Hazards and Control Strategies

It is worth noting that the most effective safety management system should have a combination of these control measures.We present below some examples of the various work-related hazards and how they can be handled to ensure health and safety of employees using the *eliminate-engineering control-administrative control-personal protective equipment* sequence. In all cases, it is important to note that, the appropriate choice of control measures must be based on a risk assessment for the specific tasks being performed (Government of Alberta, 2011). The following hazards and their suggested control measures were adapted from the Handbook of occupational hazards and controls for healthcare administrative workers by the Government of Alberta (2011). Most of the hazards are present in most work environment, if not all, hence their adaptation in this manual. This is meant to be a guide, not an exhaustive list of hazards and their control.

Table 2: Biological hazards and their suggested controls

Potential Hazard	Engineering control	Administrative control	Personal Protective Equipment
Exposure to blood-borne pathogens through contact with contaminated items and surfaces	Vaccines	Compliance with all infection prevention and control (IPC) practices. Immunization program. Worker education	Gloves, protective clothing, eye and face protection.
Exposure to airborne biological agents through contact with secretions from infectious clients (coughing, sneezing, etc.) or air contaminated with infectiousbiological agents	Early detection of infection status. Isolation. Vaccines	Compliance with all infection prevention and control practices. Immunization program. Worker education	PPE based on the risk assessment may include eye protection, respiratory protection and other protective clothing

| Exposure to environmental biological contaminants from ventilation systems, water or food | Maintenance of ventilation systems. Early spill clean-up. Preventive maintenance of ventilation systems and water supply systems with regular testing to ensure proper functioning. Early detection and remediation of mould | Infection prevention and control practices related to building maintenance and food preparation. Protocols for construction and renovation projects that reduce contamination. Worker education | Use of proper PPE when cleaning contaminated environmental surfaces, including gloves, respiratory protection, and eye protection |

Chemical Hazards

Safe work practices are administrative controls necessary for working with all harmful substances and educating workers in the practices is vital. Safe work procedures should be designed to:

- Limit the worker's exposure time

- Reduce contact with the substance through any route of exposure to the worker

- Ensure safe disposal of substances and disposable equipment that comes into contact with harmful substances

- Ensure safe handling and decontamination of reusable equipment

- Require the use of all designated controls.

Table 3: Chemical hazards and suggested control strategies

Potential Hazard	Engineering control	Administrative control	Personal Protective Equipment
Exposure to a variety of disinfecting and cleaning agents	Maintain adequate general ventilation. Automatic diluting machines.	Purchase in ready to use concentrations to minimize handling. Safe work procedures. WHMIS program and maintenance of MSDSs.	Gloves and eye protection.
Exposure to laser printer emission, copier inks and other supplies	Maintain adequate general ventilation. Locate printers and copiers away from room occupants.	Purchasing procedures. Safe work procedures and educate workers in procedures. Proper storage of products. Limit number of printers/copiers in one room based on general ventilation rate.	Gloves and eye protection as warranted.
Exposure to scented products that may induce sensitization	Elimination of scented products. Substitution with less harmful products. Maintain adequate general ventilation.	Develop scent-free policies. Educate worker in the nature of the hazard. Post signage in work areas where affected workers	

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Table 4: Physical and ergonomic hazards

Potential Hazard	Engineering control	Administrative control	Personal Protective Equipment
Ergonomic hazards associated with computer use or workstation design	Ergonomically designed workstations, chairs and equipment. Incorporate adjustable workstation to accommodate shared use by employees of various sizes.	Adjustment of workstation and chair to fit user. Worker education regarding ergonomic hazards and control strategies. Self assessment tools to assist workers in identifying and controlling risk factors. Safe work procedures. Early reporting of signs and symptoms of ergonomic concerns. Stretches and micro-breaks. Purchasing standards for ergonomically designed computer workstations, chairs and equipment. Ergonomic assessments. Maintenance of workstations, chairs and equipment	
Ergonomic hazards associated with material handling of equipment, furniture and supplies including lifting, carrying, pushing, pulling, etc.	Ergonomically designed storage areas with adequate space. Ergonomically designed equipment and furniture with appropriate casters and handles. Provision of appropriate materials handling equipment such as carts, trolleys, etc.	Safe work procedures including proper lifting procedures. Worker education and awareness sessions. Early reporting of signs and symptoms of ergonomic concerns. Stretches and micro-breaks. Purchasing standards for ergonomically designed equipment, furniture and supplies. Purchasing standards for material handling equipment. Maintenance program for equipment and furniture.	
Falling hazards associated with slips, trips and falls	Install slip resistant flooring. Design stairwells according to accepted safety standards. Ensure adequate lighting.	Perform regular maintenance on flooring, stairwells, hallways, handrails, etc. Inspect ladders prior to use. Worker education. Implement a spill cleanup program that includes prompt spill cleanup, use of warning signs, etc. Maintain good housekeeping practices and minimize clutter and tripping hazards.	Appropriate footwear with gripping soles and good support.

Cuts from sharp instruments including scissors and box cutters	Avoid use of sharps when not required. Proper storage of sharps.	Worker education. Safe work procedures.	Gloves as per hazard assessment.
Electrical hazards arising from use of electrical cords and appliances	Ground fault circuit interrupters when used close to water sources.	Worker education on Safe work procedures.	Safe work procedures that include use of electrical cords, power bars and appliances that includes facility approval requirements. Worker

Table 5: Psychological Hazards and suggested control strategies

Potential Hazard	Engineering control	Administrative control	Personal Protective Equipment
Abuse by clients or members of the public	Alarm systems and panic buttons. Video surveillance.	Management policies and procedures related to no tolerance of violence or abuse. Worker education in violence awareness, avoidance and de-escalation procedures. Liaison and response protocols with local police. Working alone policies. Reporting procedures for incidents and near misses.	Ability to request support. Use of counselling services.
Abuse by co-workers	Alarm systems and panic buttons. Video surveillance.	Management policies and procedures related to no tolerance of violence or abuse. Worker education in violence awareness, avoidance and de-escalation procedures. Working alone policies. Reporting and investigation procedures for incidents and near misses.	Assertiveness training. Use of mediation and/or counselling
Hazards related to working alone -Threat of violence -Medical emergencies when alone	Communication devices. Vehicle design considerations. Panic alarms. Bright lighting. Surveillance cameras.	Scheduling to avoid having workers work alone. Worker training. Working alone policies.	
Stress related to critical incidents		Training to increase awareness of signs and symptoms of critical incident stress. Critical incident stress team to respond to incidents. Communication and call procedures to mobilize team. Defusings and debriefings as appropriate.	Development of support systems to assist in dealing with stress. Use of counselling services.

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"Technostress" related to the introduction of new technology	Design of instruments or equipment with user-friendly features.	Selection procedures to ensure user-friendly technology choices. Provision of sufficient training for workers. Worker participation in selection and implementation of new technology. Provision of problem solving resources and support workers. Back-up plans in the event of failures. Change management strategy for introduction of new technology. Realistic expectations regarding use of communication technology. Limit use of technological monitoring of worker productivity. Setting and communication of priorities.	Self-education concerning new technologies. Time management strategies. Open communication about stress related to change. Healthy lifestyles. Setting realistic goals. Limiting the need to multi-task. Technology "time outs". E - vacations.
Substance abuse as a response to excessive workplace stressors		Worker involvement in substance abuse policy and procedures development. Worker education about substance abuse. Training workers and supervisors to recognize the signs of substance abuse. Procedures to limit individual access to narcotics. . Provision of counsellingservices and return to work plans.	Increase awareness of substance abuse signs and symptoms. Communication with counsellors. Report to family physician. Participate in treatment programs and return to work programs.
Depression, anxiety, sleep disorders, other mental illness as a response to excessive workplace stressors		Worker education about the signs and symptoms of depression, anxiety, sleep disorders, other mental illness. Elimination of workplace risk factors for depression, anxiety, sleep disorders, other mental illness. Provision of support services and programs. Benefit plans provision. Effective return to work programs.	Programs to maintain or build resilience or coping skills. Development of support system. Communication with family physician.

Hazards related to impacts of aging on workers	Mechanical devices and power equipment for lifting / moving. Storing objects at appropriate heights, packing in smaller quantities or containers. Supportive, adjustable seating and workstations. Cell phones and pagers that incorporate vibration. Proper lighting.	Management policies and procedures that ensure no age discrimination. Proactive policies to accommodate aging workers. Training opportunities for aging workers. Education for all workers on intergenerational communication. Aging workers as trainers/mentors. Flexible work arrangement. Job redesign to accommodate aging workers.	Healthy lifestyle. Use of client and material handling equipment. Adequate sleep. Awareness of potential side effects of medication.
Hazards related to shiftwork, excessive workload and hours of work	Appropriate lighting levels. Lighting levels that are adjustable by workers. Appropriate thermal environment.	Management policies and procedures to address working hours and shift design. Worker involved in design of shift schedule. Limit hours of work and overtime. Shifts designed so workers get enough rest between shifts. Split shifts are avoided, if possible. Train workers and management in fatigue and shift work issues. Work shift schedules designed to minimize fatigue (e.g. maximum number of consecutive night shifts, forward rotation, etc.). Quality breaks are in place. Policies to encourage the reporting of concerns associated with fatigue. Thorough investigation of incidents and near misses with fatigue as a possible cause.	Appropriate sleep schedule and sleep environment. Strategies in place to promote sleep. Diet adjusted to accommodate shift schedule. Healthy lifestyle. Physical exercise. Safe plan for commute to work. Plan for family and friends. Use of stimulants and sedatives are minimized. Alertness strategies are utilized (e.g. bright lighting levels, regular short breaks, communication with co-workers, etc.).
Stress related to work-life conflict		Management policies and procedures that support work-life balance (e.g. voluntary reduced hours, voluntary part-time work, phased in retirement, telecommuting, job sharing, paid and unpaid leaves, dependent care initiatives, etc.). Work designed to address workload and work demands issues. Reliance on paid and unpaid overtime is reduced. Supportive management culture. Work-life balance policies are communicated to workers. The use and impact of work-life balance policies is measured.	Time log used to track time. Work-life balance programs are utilized. Work activities are isolated from home time. Time is effectively managed. Days off are protected. Appropriate sleep habits. Social support system is in place.

Exposure to nuisance or irritating noise levels that may induce stress	Any engineering controls required to abate noise to allowable levels, if over PEL. Sound absorber panels. Personal communication devices rather than overhead pagers. Maintenance and repair of facility equipment, including the ventilation system. Lubrication of equipment with moving parts. Design considerations related to noise reduction in new/renovated facilities. Padded chart holders and pneumatic tube systems. Sound-masking technology.	Lower rings on telephones. Encourage use of soft-soled shoes. Worker education on noise levels created by various activities. Posted reminders to reduce noise. Purchasing decisions that take into account noise levels of equipment. Location of noisy equipment to more isolated areas. Work organization at nursing stations to reduce noise.	
Exposure to poor indoor air quality that may induce stress	Proper ventilation system design. Ventilation system maintenance activities. Isolation/segregation of work processes that may create contaminants.	Contractor requirements to reduce air contamination. Selection of low-pollutant cleaning chemicals. Cleaning schedules. Infection prevention and controls standards. Rules regarding the use of personal appliances that may impact HVAC operations. Procedures to report and investigate indoor air quality complaints. Worker involvement in indoor air quality investigation. Communication to enable frank and timely discussion of IAQ issues and what is being done to resolve them.	

CONCLUSION

Effective management of occupational health and safety is a collaborative effort, involving government, employers, management of organizations, as well as employees. There is the need for national policy to direct handling of health and safety at the workplace to ensure that the work environment is free as much as possible from undesirable elements. Management and employers also need to be committed to the health and safety at the workplaces to ensure decent work for all. Employees must also take personal responsibility to adhere to safety guidelines. This paper, synthesized into 'how-to-manual' provides suggestions and strategies

on how to identify, assess, manage or control various forms of hazards when they are present at the workplace in Ghana. It is important to note that failure to put measures in place to provide decent work to employees and other people at the work environment is eventually extremely costly. In view of that, it is crucial that safety policies and guidelines need to be strictly enforced and adhered to. Supervisors, with support from management, must ensure that people placed under their responsibility adhere to safety work policies and procedures. Worker education and training, as well as effective communication to all at the workplace concerning health and safety issues are crucial.

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