NATIONAL OPEN UNIVERSITY OF NIGERIA

COURSE CODE: NSC512

COURSE TITLE: OCCUPATIONAL NURSING

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NSC512: OCCUPATIONAL NURSING (3CU)

COURSE GUIDE

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Introduction

This course is titled Occupational Nursing. It presents an overview of the Occupational health is a healthcare specialty devoted to the prevention and management of occupational and environmental injury, illness, and disability. The specialty has grown to encompass other dimensions of healthcare, including the promotion of health and productivity along with the support for a safe workplace. The course aims to provide students with knowledge, attitude and specific skills involved in policy and issues relevant to health and safety by devoting attention to individuals and groups in the workplace. Occupational health nursing is the nursing practice that provides for and delivers clinical service to workers and workplaces. Occupational health nurses (OHNs) are to provide health education, case management, and safety programs. The practice of occupational health is focused on promotion and restoration of health, prevention of illness and injury, and protection from work-related hazards.

NSC512: Occupational Nursing is a three credit unit course for students in the Bachelor of Nursing Science programme. It is one of the electives in the second semester of the final year.

The course is broken to 4 modules with 20 study units. This course will introduce students on how to;

- Protect human health against health and safety hazards occurring in the work environment
- Promote human health, workplaces for all ages and healthy aging by appropriate work culture, work organization and support to social cohesion
- Promote mental health, healthy life style and preventing major non-communicable diseases using specific workplace health policies and management tools
- Maintain work ability thus also employability throughout working life
- Reducing health care costs caused by employees' and employers' injuries, diseases, illnesses and premature retirement resulting from or influenced by occupational, environmental, life style and social health determinants
- Use resources effectively and efficiently and protecting the natural environment and creating health supportive environment.
- Improve societal communication and literacy on health, environment and social cohesion.

At the end of the course, the learner is expected to demonstrate clear understanding of the basic work ethics, safety precautions and how to mitigate hazards in the health workplace.

This course guide provides you with what to expect in the course, how to work through the course material as a distance learner saddled with the responsibility of studying on your own and your overall responsibilities and expectations. Tutorial sessions are also linked up with the course to provide the needed support you required.

2.0 Course Competencies

Today, Nigeria has a growing population of about 216.7 million people majority of who are in the rural areas. There is still a great imbalance in the provision of medical care facilities and it has become a great challenge to provide same for the larger population. The overall aim of this course NSC512: Occupational Nursing is to provide learners with proper understanding of basic work ethics, safety precautions and how to mitigate hazards in the health workplace. It is hoped that you will be better equipped to contribute meaningfully to health living for all and sundries.

3.0 Course learning Outcome

To achieve the aims set out above, the course sets the overall objective. In addition, each unit has specific learning outcomes stated at the beginning of a unit. Learners are advised to read them carefully before going through the unit. You will have to refer to them during the course of your study to monitor your progress. You are encouraged to always refer to the Unit learning outcome after completing a Unit. This is the way you can be certain that you have done what was required of you in the unit.

The wider objectives of the course are set below. By meeting these objectives, you should have achieved the aims of the course as a whole.

On successful completion of the course, you should be able to:

- Understand the basic ethics of occupational workplace
- Describe the historical development of occupational health in the ancient times
- Describe generally the benefits of Occupational health
- Explain the preventive measures to health problems
- Discuss the management of the common health problems in the work environment
- Describe the implication of occupational health to both the employer and the employees.

4.0 Working through This Course

To complete this course, you are required to study through the units, the recommended textbooks and other relevant materials. Each unit contains some self-assessment exercises and tutor marked assignments and at some point in this course, you are required to submit the tutor marked assignments. This will be followed by an end of term examination.

5.0 Study Units

STUDY UNITS

Unit 1: Historical Development of Occupational Health
Unit 2: Basic Concept in Occupational Health
Unit 3: Roles and functions of Occupational Health Nursing Practices in Organizations
Unit 4: Education and training of Occupational Health Nurse
Unit 5: Occupational Health Problems

Unit 6: Occupational Health Diseases
Unit 7: Occupational Accidents
Unit 8: Occupational Health Poison
Unit 9: Occupational Health Hazards
Unit 10: Pollution Prevention in Industries
Unit 11: Occupational Health and Safety
Unit 12: Industrial Legislation
Unit 13: Independent Practice
Unit 14: Evaluation of Occupational Health Practices
Unit 15: Workplace Health Management
Unit 16: Workplace Regulatory Requirement
Unit 17: Workplace Injury Management
Unit 18: Health Professional Involved in Evaluation
Unit 19: Occupational Rehabilitation
Unit 20: International Labor Organization

6.0 References and Further Readings

Achalu, F.I. (2000). *Occupational Health and Safety*. Lagos: Simarch Nigeria Limited.
Asogwa, S.E. (2007). *A Guide to Occupational Health Enugu*: Snaap Press Ltd.
Clark, M.J.O. (1999). Nursing *in the Community*. USA: Appleton and Lafe.
Henderson, V. & Nite, G. (1978). *Principles and Practices of Nursing*. (6th Ed) New York: Macmillan Publishing Co. Inc.
Hunter, D. (1978). The diseases of occupations. (6th ed). Sevenoaks, Kent, Hodder & Stoughton, 1978.
Rantanen, J. et al. (1994). New Epidemics in Occupational Health. International symposium. Helsinki. Finnish Institute of Occupational Health.
Health and safety executive. Successful health and safety management. Norwich, H.M. Stationery Office, 1998 (ISBN 07176 1276 7).

7.0 Assignment File

The assignment file will contain the Tutor Marked Assignment (TMA) which will constitute part of the continuous assessment (CA) of the course. There are 15 assignments in this course with each unit having an activity/exercise for you to do to facilitate your learning as an individual.

Presentation Schedule

This presentation schedule in this course provides with important dates for completion of each tutor marked assignment. Please try to meet the deadlines.

Assessment

There are two aspects to the assessment of the course. These are the Tutor marked assignment and written examination. In tackling the assignments, you are expected to apply information, knowledge and strategies gathered during the course. The assignments must be turned in to your tutor for formal assessment in accordance with

the stated presentation schedules. The works you submit to your tutor for assessment will count for 30% of your total course work. At the end of the course you will need to sit for a final written examination of three hour's duration. This examination will also count for 70% of your total course mark.

How to get the Most from the Course

In distance learning, the study units replace the university lecture. This is one of the greatest advantages of distance learning. You can read and work through specially designed study materials at your own pace and at time and place that suit you best. Think of it as reading the lecture notes instead of listening to a lecturer.

In the same way that a lecturer might set you some reading task, the study units tell you when to read your other material. Just as a lecturer might give you an in-class exercise, your study units provide exercise for you to do at appropriate points.

Online Facilitation

What is online facilitation? To answer this question, refresh your mind on the meaning of facilitation. Facilitation could mean assistance, enabling or help. So, if you are facilitating it means you will be provided with assistance or help. This can be done through face-to-face or virtual. Our focus in this course is on the virtual. To facilitate online means providing a guide/assistance to the learner(s).

8.0 Tutor Marked Assignment (TMA)

There Tutor-marked assignments in the each of the unit of this course. You are advised in your own interest to attempt and go through all the assignments at your own pleasure. You will be able to complete the assignments from the information and materials contained in your reading and study units. Those to be submitted for evaluation will be communicated to you through the Study Centre. There is other self-activity contained in the instructional material to facilitate your studies. Try to attempt it all. Feel free to consult any of the references to provide you with broader view and a deeper understanding of the course.

9.0 Final Examination and Grading

The final examination of NSC512 will be of 2 hours duration and have a value of 70% of the total course grade. The examination will consist of questions which have bearings with the attempted self-assessment exercises and tutor marked that you have previously encountered. Furthermore, all areas of the course will be evaluated. Make sure you give enough time to revise the entire course.

Course Marking Scheme

The following table includes the course marking scheme

Table 1

Assessment	**Marks**
Assignment 1 – 10	10 assignments for the best 3

	Total = 10% x 3 = 40%
Final examination	70% of overall course marks
Total	100% of course marks

10.0 Course Overview

This table indicates the units, the number of weeks required to complete the assignments.

Unit	Title of Work	Week Activity	Assessment
	Course Guide	Week 1	
Module 1	**Introduction to Occupational Nursing**		
Unit 1	Historical Development of Occupational Health	Week 2	
Unit 2	Basic Concept in Occupational Health		
Unit 3	Roles and functions of Occupational Health Nursing Practices in Organisations	Week 2	
Unit 4	Education and training of Occupational Health Nurse	Week 3	
Module 2	**Occupational Health Problems**		
Unit 5	Occupational Health Problems	Week 3	
Unit 6	Occupational Health Diseases	Week 4	
Unit 7	Occupational Accidents	Week 4	
Unit 8	Occupational Health Poison	Week 5	
Unit 9	Occupational Health Hazard	Week 5	
Unit 10	Pollution Prevention in Industries	Week 5	
Module 3	**Occupational Safety Requirements and Practice**		
Unit 11	Occupational Health and Safety	Week 6	
Unit 12	Industrial Legislation	Week 6	
Unit 13	Independent Practice	Week 7	
Unit 14	Evaluation of Occupational Health Practices	Week 7	
Unit 15	Workplace Health Management	Week 8	
Unit 16	Workplace Regulatory Requirement	Week 8	
Unit 17	Workplace Injury Management	Week 9	
Module4	**Industrial Legislation and Labour Organisation**		
Unit 18	Health Professional Involved in Evaluation	Week 9	
Unit 19	Occupational Rehabilitation	Week 10	
Unit 20	International Labour Organisation	Week 10	

11.0 How to get the most out of the course

In distance learning, the study units replace the university lecture. This is one of the greatest advantages of distance learning. You can read and work through specially designed study materials at your own pace and at time and place that suit you best. Think of it as reading the lecture notes instead of listening to a lecturer.

In the same way that a lecturer might set you some reading task, the study units tell you when to read your other material. Just as a lecturer might give you an in-class exercise, your study units provide exercise for you to do at appropriate points.

The following are practical strategies for working through the course:

- Read the course guide thoroughly.
- Organize a study schedule.
- Stick to your own created study schedule.
- Read the introduction and objectives very well.
- Assemble your study materials.
- Work through the unit.
- Keep in mind that you will learn a lot by doing all your assignment carefully.
- Review the stated objectives.
- Don't proceed to the next unit until you are sure you have understood the previous unit.
- Keep to your schedules of studying and assignments.
- Review the course and prepare yourself for the final examination.

12.0 Tutors and Tutorials

There are 8 hours of effective tutorial provided in support of this course. Details will be communicated to you together with the name and phone number of your facilitator through the study center.

Your tutor will mark and comment on your assignments, keep a close watch on your progress and any difficulties you might encounter and also provide assistance to you during the course. You must ensure that you submit your assignment as and at when due. You will get a feedback from your tutor as soon as possible to the assignments.

Do not hesitate to contact your tutor or study centre on phone or email in case of any of the following circumstances:

You do not understand any part of the study units or the assigned reading

You have difficulty with the self-test or exercises.

You have questions or problems with an assignment, tutors comments or grading of an assignment.

You are encouraged to attend the tutorials to allow for face to face contact with your tutor and ask questions which you needed answers immediately. It is also an opportunity to discuss any grey area with your tutor. You can equally prepare questions to the tutorial class for meaningful interactions. You are sure to gain a lot from actively participating in the discussion.

Best of Luck.

MODULE 1: INTRODUCTION TO OCCUPATIONAL HEALTH

UNIT 1 HISTORICAL DEVELOPMENT OF OCCUPATIONAL HEALTH

1.1 Introduction

Occupational health is a course that deals with the study of the health problems employees' face in their work environment and how those health problems are managed to protect the health status of employee and their family. It exposes the different sources through which the employees are affected. The processes of detecting the health problems are similar to investigative processes obtainable in established health institutions. The unit examines the historical development of occupational health; the role of health team members and the efforts of international organizations to ensure that safety measures are provided and workers get their compensation from employers. The unit looks at the historical development of OH in both developed and developing countries including Nigeria. It also looks at the contributions made by International Labour Organization (ILO) and the World Health Organization (WHO) in the protection of health and safety of people at work settings.

1.2 Learning Outcomes

By the end of this unit you should be able to:

- Describe the historical development of occupational health in the ancient times.
- Explain the historical development of Occupational Health in Britain and United States of America as example of developed countries.
- Describe the historical development of Occupational Health in developing

countries including Nigeria.

- Describe the contributions made by ILO and WHO in the protection of health and safety of employees at work settings.

1.3 Historical Development of Occupational Health

The history of the industrialized countries shows that social and economic development is closely interdependent. To this day no nation has achieved sustainable economic development by neglecting social programmes, nor has any achieved social well-being without standing on sound economic ground. The essential link between the social and economic phase is the working population. All wealth is directly or indirectly obtained from the efforts of the working population. (Reich and Okubo, 1992).

A healthy employer is the key factor for sustainable social and economic development. They contribute seriously to the wealth of the industries. As workers became the back bone of industrialization, massive and indiscriminate employment of vulnerable groups, children and women became the order. Most of the employees were inexperienced and unskilled on the type of tasks involved in the occupation. Employees then became special risk group. Poor and unsafe working conditions, rapid introduction of new industries, invention and application of new tools for mass production and other processes brought about serious danger not anticipated to the employees. (Reich and Okubo, 1992). All these resulted in significant dangers to both employees and their families. They became exposed to various occupational diseases and serious accidents aggravated by endemic diseases like malnutrition, worm infestation, malaria and others. Death toll was much. Hence the origin of Occupational Health as means of protecting the health and welfare of employees.

1.3.1 Occupational Health Development in Ancient Times

The historical development of Occupational Health dates back to the ancient days. During that period, industrialization was in rudimentary form. Un-mechanized farming was the main occupation for all nations. Slave labor was extensively used to build many of the wonders of the ancient world in Britain, USA, Egypt, Rome and numerous other countries. For example, in Britain, slaves were used to build underground and surface rail lines, some architectural buildings and their designs among others. Apart from slaves, prisoners of war were also used. They were subjected to harsh conditions in underground mines and queries. They died in large numbers due to poor health and poor working conditions. The inhuman treatment and poor health care continued till the 16th and 17th centuries when the early medical pioneers in the field of health and safety at work emerged (Asogwa, 2000, p 8-16). Among them were Georgius Agricola and Bernadino Ramazzine.

According to Asogwa (2007), Georgius Agricola (1494 - 1555) wrote an article titled - "De Re Metallica". It was published in 1556 after his death). This article focused on the working conditions in mines and industries especially mining accidents and illnesses. He observed that the major hazards in mining were radiation from radioactive rocks and silicosis. Another medical personnel concerned with the health of workers was an

Italian, Bernadino Ramazzine (1633 - 1714). His contributions in the field of workers' health earned him the title, "Father of Occupational Medicine". He stressed that the occupation of the patient must be sort in clinical clerkship in addition to those direct questions about the persons Occupation, advocated by the Greek, Hippocrates. When he was 67 years old, he published his first great work "De Morbis Artificum Diatriba" – the first systematic study of trade diseases. Ramazzini wrote as follows (Asogwa, 2000, p. 8 - 9).

"There are many things a doctor, on his first visit to a patient ought to find out either from the patient or from those present. When a doctor visits a working class's home, he should be content to sit on a three legged stool, if there isn't a guided chair, and he should take time for his examination, and to the questions recommended by Hippocrates in his work, "Affections". I may venture to add one more question: What occupation does he follow? ("Quid aitem exerceat?").

In the main, it is only when dealing with the common people that the doctor must think of dangerous trades. Hence, Ramazzines' motto - "Medcina Munus Plebios Curantis est interrogate quas artes exercent" (translated roughly to mean that the doctor treating commoners should enquire about their job). The actions of these pioneer doctors brought some changes in the life of the employees.

1.3.2 Occupational Health Development in Britain

Industrial revolution in Britain marked the origin of occupational health. According to Asogwa (2007) it dates back to the early eighteenth century, with the invention of the seed drill by Jethro Tull and the use of coke to smelt iron by Abraham Darby, both in 1709. This resulted in the employment of women and children in factories. They had to work long hours under very harsh and unhealthy circumstances. Both layman and medical practitioners by their writings and other ways fought against these ills and pressed seriously for reforms. In this regard, many authorities, such as Dr. Charles Turner Thachrah (1795 - 1833) and Lord Anthony Ashley Cooper (1801 - 1885) made serious contributions. Dr. Thachrah was known as "Father of British Industrial Medicine". As reported by Asogwa (2007: p. 2). Thachrach wrote and published a book in 1833 Titled

"The Effects of the Principal Arts; Trade and Professions and of Civic States and Habits of Living on Health and Longevity, with suggestions for the Removal of many of the Agents which produce Disease and shorten the Duration of Lie".

Lord Cooper, an aristocrat, as a member of the British Parliament helped to promote legislation which reduced the hours of work and improved the conditions of work of women and young persons employed in mines, factories and other workplaces. In order to ensure safety and health protection of workers in Britain, Medical doctors were seriously engaged.

1.3.2.1 First Direct Medical Involvement in Industry in Britain

The first medical involvement in industry took effect in 1898, Sir Thomas Morrison Leggee (1863 - 1932) was appointed the first British Medical Factory Inspector (or "Occupational health Consultant as he is known today). He introduced the idea of notifying occupational diseases especially lead poison. He stressed a number of preventive aspects of occupational health practice known as Legge's Aphorisms as follows:

1. "Unless and until the employer has done everything and everything means a good deal - the workman can do next to nothing to protect himself; although he is naturally willing enough to do his share".
2. "If you can bring an influence to bear external to the workman - that is one over which he has no contract - you will be successful and if you cannot or do not, you will never be wholly successful".
3. "Practically, all industrial lead poisoning is due to the inhalation of dust and fume, and if you stop their inhalation you stop the poisoning".
4. "All workmen should be told something of the danger of the material with which they come into contacts, and not be left to find it out for themselves - sometimes at the cost of their lives".

Numbers 1, 2 and 4 are sometimes referred to as Legge's Three Aphorisms as they deal with the general methods of prevention of diseases and ailments in industry.

The protection of juveniles in industry resulted in the appointment of Factory Doctors in Britain. The sufferings of these groups of people have attracted the attention of many people. The protection of their health became a major aim of all factory and social legislations in UK following

Industrial Revaluation. Consequently, the Factories Act of 1839 was inter alia to regulate the Labor of Children and Young Persons in Mills and Factories. However, it was the 1884 Act that provided for the appointment of a certifying surgeon who had to examine young people and declare them fit for factory employment. This term was applied to the doctors who were officially employed for the purposes to perform the same function. By the factories Act of 1948 the name changed to Appointed Factory Doctor.

1.3.3 Development of Occupational Health in United State of America

According to Allender and Spradley (1996: p. 581 - 599) Modern occupational health in America is an outgrowth of the 19th century industrial revolution in England. Deplorable work conditions and worker exploitation created a growing public concern and spawned the development of many protective laws. This influence was felt in the United States, which was rapidly becoming an industrialized nation. Between 1890 and 1914, more than 16.5 million immigrants from all over the world poured into the United States. As industrial growth escalated, these new citizens worked in the plants, factories, rail roads and mines, creating a new market for manufactured goods. Workers, children as well as adults, commonly worked 12 to 14-hour shifts, 7 days a week, under unspeakable conditions of grime, dust, physical hazards, smoke, heat, cold

and noxious fumes. People accepted work-related illnesses and injuries as part of the job and lived shorter lives, frequently dying in their forties and fifties, with workers in some trades dying in their thirties (Lee, 1978).

No connection was made between work conditions and health. Employers attributed employees' poor health and early deaths to the workers' personal habits on the job or their living conditions at home. Physicians, uneducated in the relationship between work and health, blamed industrial related diseases, such as silicosis, lead poisoning, and tuberculosis, on other causes.

1.3.3.1 Early Research in Occupational Health in USA

Public awareness and understanding were necessary before changes could be made to improve working conditions. That understanding was based on continuing research into occupational health.

In 1700, Bernadino Ramazzini, an Italian Physician known as the "father of occupational medicine", appeared on the scene. He conducted the earliest systematic study of occupational disease. His treatise was entitled Discourse on the Disease of Workers. Ramazzini had the foresight, when attempting a diagnosis, to ask about the patient's occupation. He was of the view that there is relationship between a person's work and his health condition. Despite his influence, interest in information concerning worker's health evolved slowly.

It was not until early 1900s that the Public Health Service conducted one of the first scientific studies on occupational hazards by investigating dust conditions in mining, cement manufacturing, and stone cutting. Other studies were also conducted. The findings revealed that lead poisoning was as high as 22% among the pottery workers studied. A study on garment production using 1914 workers revealed that a high incidence of tuberculosis was related to poor ventilation, overcrowding, and unsatisfactory work conditions. Other investigations revealed phosphorus poisoning among workers in the match industry (1912), and mercury poisoning in those who manufactured felt hats (1930s) (Lee, 1978). The public was awakening to the effect of work conditions on people's health.

The birth of Labor movement increased the demand for healthful and safe working conditions. Worker's compensation laws provided for occupational injury and disease coverage and other efforts were made to protect workers against health hazards in the workplace. Unfortunately, it took such disastrous events as the Triangle Shirtwaist Factory Fire to create the impetus for further legislation. This notorious fire, which occurred in New York City in 1911, took the lives of 154 workers, most of whom were young women. Investigations after the incident revealed non-existence fire escapes and locked exit doors. This tragic event resulted in establishment of the first serious safety laws to project working people from danger (Morris, 1976 as cited by Allender and Sopraldley, 1996, p. 6, 589).

Self-Assessment Exercises 1

1. The history of the industrialized countries shows that social and economic development is closely interdependent True / False
2. Modern occupational health in America was an outbreak of the 19th century industrial revolution in _____
a. Canada
b. England
c. America
d. Poland
3. _____ is known as the father of occupational Medicine
a. Allender and Sopraldley
b. Thomas Morrison
c. Bernadino Ramazzi
d. Jethro Tull

1.4 Development in Developing Countries

The occupational health in most developing countries was as a result of industrialization. Formally, the major occupation in these countries was mainly mechanized Agriculture. By then the cellular surface of the earth was easily repaired because civilization was based purely on an agricultural society where recycling depended on the natural processes.

As more countries in the developing parts of the world started to industrialize, the surface of the earth including the health of the living creatures became seriously affected. The development of occupational health in these countries, many of which were attaining political and economic emancipation, followed the path already laid down by their industrialized colonial masters. Certain features in these newly emergent nations have mirrored the situations in their colonial masters with the result that what one sees is not only a replication of some of the Labor Laws relating to occupational health and safety but also the pattern of occupational Health as it exists in the countries of their former colonial masters with whom they still maintain strong economic ties (Asogwa, 2007, p. 12). The health problems resulting from the industrialization necessitated the services of health personnel to save the life of the employees in industries and other work environments. Chief among the health personnel are the medical doctors and nurses.

The doctors, (usually, general practitioners), were the earliest health personnel engaged in the services of occupational health. They were employed either as general practitioners on either part time or full time basis. The employment of full-time medical doctor service was only possible with few large scale industries and establishments owned by multi nationals' companies and factories. The doctors employed were mainly those with special knowledge of occupational hazards. In same way, nurses with community or public health knowledge and skills were also employed. However, the number was very few. The doctors engaged in industries carried out general medical

practice in industry and not industrial medicine (Asogwa, 2007 p. 12). The services provided were mainly curative as against preventive medicine.

The type of services provided depends on the nature of the industry. For small and medium scale firms "Retainership system of Services" was adopted: In this case, the employers utilized the services of the doctor in his clinic while the payment was done by the employer based on the number treated for the period. The services were extended only to the worker's one wife and four children below the age of 18 years. But in larger firm's full-time general duty medical officers and in some cases specialist in various fields are engaged. Some industries that employ more of unskilled labor provided Medicare only for their expatriates and senior management staff while unskilled laborers were denied such services. Labor was cheap because many were struggling to be employed and retirement could be done at will.

1.5 Development in Nigeria

Development of occupational health in Nigeria followed the pattern in other developing countries. Originally, the main occupation was un-mechanized agriculture and animal husbandry. The workforces were mainly women and children. Payment for work was not known. Workers were exposed to many types of health hazards. Treatment then was not organized. Later, manufacturing including construction came into being. Modern occupational health, reported Achalu, (2000, p. 25) started as a result of colonization and industrialization by Britain.

Modern occupational health, reported Achalu, (2000, p. 25) started as a result of colonization and industrialization by Britain. The first occupational health services in Nigeria was introduced by the Medical Examination Board of Liverpool Inferminary in 1789 with the main aim of caring for the health of British slave dealers from Africa to Britain. However, after the abolition of slave trade, the Royal Niger Company of Britain increased its exploration and trading activities in Nigeria. The Company organized its own health services which were later inherited by the United African Company (UAC).

During the British colonial rule, many of their soldiers were dying of malaria. This led Colonel Lugard to establish health services to take care of the health and welfare of soldiers and other colonial administrators. Later, during the Second World War, the Medical Corps was separated to cater for the military alone leading to the creation of Public Health Service which became the nucleus of the National Health Service.

After the world war, many industries started emerging chief among them were construction of rail lines and coal mining. This attracted employment of many Laborers especially young men. These workers commonly worked 12-14 hours shift; 7 days a week under unspeakable conditions of grime, dust, physical hazards, accidents, smoke, heat and noxious fume among others. Feeding was very poor; workers were dying in their forties and fifties. People had no knowledge between work conditions and health. They accepted work related illnesses and injuries as part of the job and lived shorter lives. Employers attributed workers' poor health and early death to workers' personal habits on the job and their living conditions at home. Little or no attention was paid to

prevention of the hazards in work places. Payment was very poor and dismissal very common because job seekers were many. Workers' reaction to poor conditions at work resulted in killing of coal miners in Enugu. That exposed the working conditions of coal miners and the origin of worker's day in Nigeria. These developments and awareness lead to the establishment of some occupational health services in some Nigerian industries and occupational health legislations Act in Nigeria.

The earliest practices that can be regarded as occupational health services in Nigeria were carried out by British Companies like UAC, John Holt. This was followed by establishment of some occupational health services by Nigerian governments in the Railway Corporation and Coal Mines. Such services included pre-employment and periodic medical examination, treatment of minor illnesses and accidents. In some cases, general practitioners were hired on part time basis, especially in urban centres to take care of the sick injured workers. The increased industrialization and its impact on health, safety and welfare of workers lead to the creation of occupational health unit in the Federal Ministry of Health and the Institute of Occupational Health in Oyo State Ministry of Health. These agencies organized courses for managers, safety officers, medical officers, occupational hygienists, and other personnel involved with the protection, maintenance and promotion of health and welfare of workers in Nigeria.

1.6 International Occupational Health

As industrialization spread from one country to another, according to Asogwa (2007: p. 4) so also is the diseases and ailments associated with different trades. Gradually, occupational health was being recognized as a distinct area of medicine deserving special attention in those countries that were the pioneers of industrialization in Europe and America. Many different approaches were followed in these countries but the final goal was essentially the same. The main aim and goal were to safeguard lives and ensure that the well-being of working people are protected maintained and promoted. The oldest international bodies in modern times concerned with global health and safety of people at work are the International Labor Organization (ILO) and the World Health Organization.

1.7 International Labor Organization

The International Labor Organization (ILO) was founded in 1919 in Geneva, Switzerland under the League of Nations to promote international Labor standard and improvement of working conditions. The ILO programmes, as well as international labor Standards in the form of conventions and recommendations, were approved and adopted by the annual international Labor Conference held in Geneva. The Conference consists of two governments, one employer and one worker representative from each member states (Reich and Okubo, 1992, p. 236). Hence ILO is said to be a tripeptide body made up of representatives from governments, employers and employees (Asogwa, 2007, p. 4). The International labor Office with regional offices in Africa, Asia, Europe, Latin America, the Middle East and a number of governing body execute the programmes under supervision of the governing body, half of whose members were elected from governments and a quarter from employer and worker groups (Reich & Okubo 1992).. ILO's health work included safety and health of all types of workers

especially from chemical and other industrial risks, hygiene of seamen, social and medical insurance systems and workmen's compensation. In compliance with multi-disciplinary approach, it collaborates with the World Health organization (WHO) in holding a number of Joint Expert Committee meetings in the field of occupational health and safety and publishes inter alia International Medicine guide for slips and ship sanitation.

The International Programme for the Improvement of Working Conditions and Environment (known as PTA PIACT) activities, emphasize that the Improvement of occupational safety and health and working conditions should be considered as a complex problem in which various factors are interrelated, such as protection against risks in the working environment, adaptation of work processes to the physical and mental capabilities of workers, improvement of work schedules and job content (ILO, 1984; Copper, 1990). A multidisciplinary approach is stressed.

Self- Assessment Exercise 2

1. The occupational health in most developing countries was as a result of _____
2. The International Labor Organization (ILO) was founded in _____

1.8 The World Health Organization

The World Health Organization (WHO) is the specialized agency of the United Nations founded in 1948 with headquarters in Geneva Switzerland. It has the responsibility for global health. Its major role in the field of occupational health started with the report of the First Joint WHO/ILO Committee on occupational Health in 1950 which stated the purpose of occupational health as follows (Asogwa, 2007:p.5)…

"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 among workers of departures frown health caused by their working conditions the protection of the 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 his physiological and psychological equipment and to summaries; the adaptation of work to man and each man to his job".

Occupational health, as in other areas of Public Health, lays emphasis on preventive medicine. Occupational health practice is comprehensive. Some of the preventive measures could only be achieved by safe working environment, other conditions that encourage and promote healthful living; and ergonomics in machine design and operations (Reich & Okubo, 1992).

1.9 Future Trends of Occupational Health

The major goal for occupational health is to promote and maintain the highest level of physical, mental, social and emotional health of all workers. In practice, this goal is only beginning to be realized in selected work places. Nevertheless, it is a worthy investment and an essential objective in the realization of a productive working community (Allender & Spradley, 1992).

The rapid and fundamental changes in businesses in the 1990s have added three critical issues that affect the occupational health practice. First, increasing worldwide competition requires business to remain competitive by reducing and/or controlling operating costs at the lowest level possible. Secondly, there has been an increase in technological hazards that require sophisticated approaches as well as knowledge of toxicology, epidemiology, ergonomics and public health principles. Third, health care costs continue to escalate at faster rates than most company profits (Vail, 1997).

Until the late 1800s, agriculture was the main industry in both developed and developing countries. Now, the trend, especially in United States and in Nigeria is towards the service industries. This demands an increase in the number and proportion of service workers.

The environment - both physical and social, is also changing. Today's worker is exposed to various air and water pollutants over extended period of time; to food additives and preservatives, to complex laundry and cleaning compounds and to many other hazards. Industrial workers came into contact with many new substances utilized in processes. Many workers come to work with all kinds of psychological and physiological tendencies to certain kinds of health problems such as alcohol and drugs. Many workers are emotionally or physiologically dependent on certain drugs and some may combine drugs with alcoholic beverages thereby compounding the original problems. Many come to work with alcohol already in their systems. They drink because of stress from inner conflicts or problems either at home or in their work environment.

Current occupational health nurse practices will continue to evolve to meet future needs. The focus will shift from one-on-one health services to a new role involving broader business and research skills. Future role will involve:

1. Analysis of trends (health promotion, risk reduction and health expenditures).
2. Developing programmes suited to corporate needs.
3. Recommending more efficient and most effective in-house health services.
4. Determining cost-effective alternatives to health programmes
5. Collaborating with others to identify problems and propose solutions.

Self- Assessment Exercise 3

1. The World Health Organization (WHO) is the specialized agency of the United Nations founded in 1948 with headquarters in _____

1.10 Summary

In this unit, you have learnt that: Occupational health originated in Britain as a result of industrial revolution by the workers. Nigeria has keyed into occupational health practice for the betterment of her health workers. The health of workers was seriously affected with hazards from their occupation.

International organizations contributed to the protection of the health and safety of workers.

1.11 References/Further Readings/Web Sources

Achalu, E.I. (2000). Occupational Health and Safety. Lagos: Simarch Nigeria Limited (Splendid Publishers).

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1.12 Possible Answers to Self-Assessment Exercises

Answers to Self-Assessment Exercise 1

1. True
2. B- England
3. C- Bernadino Ramazzi

Answers to Self-Assessment Exercise 2

1. Industrialization
2. 1919

Answers to Self-Assessment Exercise 3

1. Geneva, Switzerland

UNIT 2 BASIC CONCEPTS IN OCCUPATIONAL HEALTH

CONTENTS

2.1 INTRODUCTION

The unit describes briefly some of the key features of the basic concepts that make up Occupational Health. It discusses the rationale as well as the aims and goals for which Occupational Health was set up. It further examines the effects of Occupational Health on both the employer and the employee. The need for occupation health was also explained.

2.2 LEARNING OBJECTIVES

By the completion of this unit, you should be able to:

- Define Occupational health
- State at least six aims and objectives of Occupational health
- Explain the rationale for establishing Occupational health
- Describe generally the benefits of Occupational health
- Explain the relationship between work and environment.
- Describe the effects of work on health
- Describe factors that affect successful Occupational health
- State the needs for maintenance of Health in industries.

2.3 BASIC CONCEPTS IN OCCUPATIONAL HEALTH

Occupational health is a means of protecting and maintaining the physical, psychological and social health of workers and their families. It can also be viewed as the study of factors or conditions influencing the health and well-being of workers not only in the place of work but also at home with the aim of promoting health, safety and welfare of the workers and their family. The joint International Labour Organization (ILO) and the World Health Organization (WHO) constituted in 1950 and revised in 1995, defined Occupational Health as the “promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupation”. ILO

further summarized Occupational Health definition as the “prevention of departure from health among workers caused by their working conditions; the promotion of workers in their employment from risks resulting from factors adverse to health, the placing and maintenance of the worker in occupational environment adapted to their physical and psychological well-being; and the adaptation of work to man and man to his work. Dr. Yakemi describe it as the health investment for workers to help them spend their working lives in a healthy way both mentally and physically and enable them enjoy better health in later life as well. It is the sum total of all the activities and programmes that are aimed at preventing, protecting and maintaining the highest level of health and safety among workers in any work environment which can be industrial, non-industrial or private or organizational.

1.3.1 Aims and Objectives of Occupational Health

The aims and objectives of occupational health are to:

1. Describe the meaning of Occupational Health.
2. Ensure that the physical and mental demands of the job matches the anatomical, physiological and psychological capabilities of the individual worker meant for the job.
3. Identify work hazards that occur in the work place/environment.
4. Identify potential, physical, chemical, biological, ergonomic and psychosocial stressors in a variety of work environments.
5. Explain the industrial legislations enacted in Nigeria for the protection of health and welfare of workers.
6. Explain ways of protecting the working individuals from any health hazard in their work environment.
7. Describe the role of Occupational Health team members and the role of the nurse in protecting and promoting the health and safety of workers.
8. Provide health education and rehabilitation services for workers who have emotional, physical injuries and psychological problem.
9. Provide information on the benefits of occupational health.
10. Promote and maintain the highest degree of physical, mental and social well-being of workers in work environment.
11. Prevent workers from departure from health due to the health and other conditions arising from the type of job they perform.

2.3.2 Rationale for Occupational Health

Reasons supporting the establishment of Occupational Health are deduced from the sufferings of workers in the process of performing tasks in their respective occupation. Man's working years are mainly spent in work environment which has subjected man to untold pain and suffering.

In developing countries including Nigeria, people were living in the vicious cycle of poverty and disease. This brought about establishment of various industries for economic progress to break the cycle of poverty and disease. As productive instruments, factories of all kinds started emerging in great numbers with increasing diversity of both processes (Reich & Okubo, 1992). The products became more and more obvious. The invention and application of new tools and introduction of new

machines for mass production brought about untold pains, and health problems not anticipated. Examples of such problems included respiratory, renal and gastrointestinal problems; accidents. As workers were the main survival of industrialization, their health became a priority to the nation especially in developing countries like Nigeria where health implications were felt much. The health risks were aggravated by endemic diseases such as malnutrition, warm infestation, bacteria and parasitic infections along with problems of migration from rural to urban indiscriminate employment of vulnerable groups and hazards associated with rapid introduction of new processes and products. Apart from human and materials loss, working time and economic lost were much.

The increasing use of chemicals in industries and agricultural production created new hazards for the workers. The resultant ugly health problems and their consequences became more and more obvious. Yet, Occupational Health hazards have rarely received priority attention from policy makers.

What made the matter worse was that many employers ignored the problem or even denied the existence of health problems to workers. This was because labour was plentiful; people seeking for job were numerous. A disabled worker could easily be replaced, wages were very low. This seemed to encourage industrial owners and managers to neglect safety (Auton, 1979). Accidents were believed to be inevitable and so were regarded as an "act of God". The outcome of these was enactment of industrial legislation such as Factory Acts and Workmen's Compensation Acts for the survival of workers, prevention and control of industrial health hazards, accidents and other illnesses.

2.4 Benefits of Occupational Health Promotion

Generally, the introduction of Occupational health in industries and other occupations can benefit everybody especially the management, the employers and the employees. The workplace is an ideal setting for promoting the health and well-being of the employees and the employers. This is because a large number of the population spends greater number of their time and energy at work environment each day. In essence, the work place is the second home for any employer. Also Occupational Health is meant not only for the worker but is extended to the family members and the entire community directly or indirectly. When the employees are healthy physically, emotionally and psychologically the atmosphere within the occupational setting becomes encouraging, relaxed and inviting. The productivity increases, the company stands better chance of growth.

Introduction of Occupational Health into the companies reduces items of loss and cost reduction due to absenteeism as a result of illness and accidents. Through Occupational Health, conditions that cause illness and accidents are far more reduced if not prevented. The benefits of Occupational Health at work settings could be summarized thus:

1. Improvement of worker's health behaviour due to relaxed atmosphere in the work setting.

2. Improved worker's health.
3. Improved workers moral and job-satisfaction.
4. Improved workers efficiency and productivity.
5. Lower sickness rates, lower accidents and injury rates.
6. Reduced absenteeism, reduced labour turnover.
7. Reduced health cost to the employee, the management and the employers.
8. Improved corporate image and industrial relations.
9. Lower compensation for occupational illnesses and injuries.
10. Improved intra-personal and inter-personal relationship within the companies, the family and in the community.

Self – Assessment Exercise 1

1. _____is a means of protecting and maintaining the physical, psychological and social health of workers and their families.
2.The aims and objectives of occupational health includes the following EXCEPT
a. Provide information on the benefits of occupational health.
b. Identify work hazards that occur in the work place/environment.
c. provide medicine for farmers
d. Provide information on the benefits of occupational health.

2.5 Occupational Health Benefits to Industries and Other Occupations

The benefits to industries and other occupations are many.

1. It brings to light the nature of the occupation, the type of material they produce and benefits of the industry to the general populace.
2. There is labour turn over.
3. It reduces industrial item production loss due to employee absenteeism due to illness or accidents.
4. The chances of liability compensation by employers for occupational illnesses and accident and injuries, including deaths is reduced if not entirely controlled. This is because when employees are healthy, the productivity is high, and cost benefit to the employer is increased. A sick and unhealthy worker is a problem to the employer because: it causes absenteeism; increased cost of treatment; reduction in work force and more importantly it causes damages to the Industries / occupations. (Achalu, 2000). For example, a sick employer in the bank can make a mistake of over payment or create poor relationship with customer; or a sick employer in agricultural setting is likely to cause crop destruction while a sick health worker is unlikely to attend to sick clients adequately thereby causing long hospitalization and death.

2.6 Relationship between Work and Health

The knowledge and understanding of the relationships and interactions between work and health is important in the practice of occupational health and safety. Both work and health positively and negatively affect each other. Work is supposed to be a means of economic survival and source of satisfaction and happiness where properly planned and executed. It also provides for social status and companionship as well as shared responsibility. But on the negative aspect, it can result to stress, dissatisfaction and threat to employee's health and well-being and their attendant morbidity and death. It means that work has effect on health and vice versa. The working environment and the

working conditions can positively or negatively affect the employees' health protection and health maintenance. Also, the workers' health can affect his or her performance and productivity depending on environmental dispositions and the nature of occupational organization and policies. Poor health reduces productivity and worker's efficiency.

2.6 Effects of Work on Health

There are many benefits that can be obtained. Achalu (2000) listed them as follows:

1. Work serves to relieve boredom.
2. It provides avenue for creativity.
3. It serves as means of personal/economic gain and means of livelihood.
4. It contributes to life satisfaction and happiness.
5. It serves as source of challenge for human growth and development.
6. It creates opportunity for socialization and companionship.
7. Good health increases capacity to work.
8. It increases capacity to enjoy work.
9. It increases capacity to desire satisfaction at work.
10. It promotes productivity and increases worker's performance.
11. It encourages emotional and psychological satisfaction.
12. It reduces stress and promotes intra and interpersonal relationship in the work setting.
13. It increases alertness to danger.

2.7.1 Negative Effects of Work on Health

The negative effects of work on health form the basis for Occupational Health both in developed and developing countries. The nature, situation and conditions of work determine the type and nature of occupational hazards (diseases and accidents) prevalent in a particular occupation/industry. Even the work processes, products and bye products can constitute a health hazard to the workers, their immediate families and their neighborhoods (Achalu, 2000). The hazards can affect many organs of the body causing some pathological changes that can threaten the health and well-being of workers. The threat can result in physical, mental, social and behavioral changes and even death if prompt treatment is not instituted. This is why it is very necessary for occupational health practitioners to have thorough knowledge of the hazards associated with each occupation for quality care provision and accuracy in diagnosis. The workers should also be well educated on the hazards in their particular occupation. This will enable them take precautionary measures and then comply with the occupational safety measures provided for them. The specific effects of poor health include the following:

1. Poor health is a hydra that erodes the company growth and productivity.
2. It leads to poor disposition of workers and their capacity to function effectively at work.
3. It leads to poor performance of the employees
4. It reduces productivity due to absenteeism from illness.
5. It contributes to risks for the workers and to other members of entire family.
6. It causes company to pay compensation to the injured worker.
7. It brings about stresses and low moral to both work and the employer.

2.8 Factors Affecting Occupational Health

Many factors have affected the successful outcome of Occupational Health especially in the developing world countries.

1. Lack of geographic accessibility of Occupational Health services adversely affects efforts to improve Occupational Health conditions of workers in majority of cases especially where the occupation is in a remote area.
2. The system of public roads and transport services in most developing countries are inefficiently provided especially in Nigeria. This situation makes it very difficult to reach workers located in rural or small towns far from big urban centers. Many of these workers operate in terrible conditions.
3. The quality and quantity of health services affect Occupational Health conditions.
4. The persistence of poverty in most countries remains a fundamental determinant of Occupational Health conditions. In majority of cases people in developing countries do not have access to essential necessities of food, housing, public services, clothing and safety required for survival.
5. Income is associated with level of education. The lower the educational level, the lower the wages.
6. Poor nutrition generally affects worker's health. Some workers find it difficult to fulfill their minimum nutritional necessities even if they spend their entire take home pay on food only. For example, some studies carried out in the Province of Colombia by Farcadas (1984), it was found that the caloric requirements for workers in textile industries and metal-working are 3,500kcal/day, for construction workers more than 4,500kcal/day, and for agriculture and mining workers 5,000kcal/day. Some 30 percent of the study population had caloric intake of less than 2,500kcal/day; 40 to 50 percent had an intake of about 2,700kcal/day; and the rest had an intake between 2,700 and 3,100kcal/day. Very few people had intakes over 3,100kcal/day. This created a vicious cycle; for malnutrition becomes reflected in both health and work output which in turn results in lower wages which make it more difficult to buy food.

2.9 Needs for the Maintenance of Health in Industrial Communities

The following strategies stand (Asogwa, 2007).

1. Treatment and prevention of epidemic and endemic communicable diseases, and provision of adequate housing, environmental sanitation, nutrition and social services, including health education of workers and management.
2. Prevention of occupational injuries and diseases, including the mechanical, chemical and biological risks in modern agriculture.
3. Planning and organization of medical care; including services for small or dispersed working groups.
4. Initial and further training for all types of health staff, ensuring an emphasis on preventive and curative services.
5. Introduction and enforcement of statutory minimum standards of health, safety and medical care in industry.

Self- Assessment Exercise 2

1. Mention four (4) benefit of occupational health to industries
2. Mention seven (7) negative effects of work on health

2.10 SUMMARY

In this unit, we have learnt that:

- Occupational health is the sum total of all the activities and programmes aimed at preventing and protecting the health and safety of workers.
- Rationale for occupational health is the affliction of workers with numerous health problems in work environment.
- Everybody, including employers, workers and management stand to benefit from introduction of occupational health in various ways.
- There are positive and negative effects of work on health.
- Various factors including inaccessibility of health facilities, persistence of poverty affect occupational health.

2.11 References/Further Readings/Web Sources

Achalu, E.I. (2000). Occupational Health and Safety. Lagos: Simarch Nigeria Limited Splendid Publishers.

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1.12 Possible Answers to Self-Assessment Exercises

Answers to Self-Assessment Exercise 1:

1. Occupational health
2. C- provide medicine for farmers

Answers to Self-Assessment Exercise 2

1. a. It brings to light the nature of the occupation, the type of material they produce and benefits of the industry to the general populace.
b. There is labour turn over.
c. It reduces industrial item production loss due to employee absenteeism due to illness or accidents.
d. The chances of liability compensation by employers for occupational illnesses and accident and injuries, including deaths is reduced if not entirely controlled.
2. a.Poor health is a hydra that erodes the company growth and productivity.
b. It leads to poor disposition of workers and their capacity to function effectively at work.
c. It leads to poor performance of the employees
d. It reduces productivity due to absenteeism from illness.
e. It contributes to risks for the workers and to other members of entire family.
f. It causes company to pay compensation to the injured worker.
g. It brings about stresses and low moral to both work and the employer.

Unit3: Roles and functions of Occupational Health Nursing Practices in Organizations

3.1 Introduction

Occupational health nursing is a specialist branch of public health nursing with its roots in traditional nursing care. Occupational health nurses are all registered nurses – in other words, they have been through years of rigorous training to qualify as nurses and obtain their official registration. They have subsequently maintained their registration by recording further education and experience and paying registration fees to the Nursing and Midwifery Council (NMC). Practice is regulated by the Nursing and Midwifery Council (the regulatory body whose primary function is to protect the public). Issues of accountability, confidentiality, professional standards and guidelines affect all nurses, and nurses are always conscious of the fact that they work within a legal framework. So, an occupational health nurse is a qualified, registered, accountable professional with years of experience of confidentially supporting, treating and helping people (often at very difficult times in their lives) in both hospital and community settings. They should thus have excellent communication and problem-solving skills, and most have significant management experience, e.g. running a hospital ward. A nurse qualified in occupational health has an additional qualification which may be placed on the NMC specialist community public health nurse (SCPHN) register. This unit on the role of the occupational health nurse sets the scene by outlining the job functions, historical context and some of the governing principles and key issues of importance to occupational health nursing professionals today.

3.2 Learning Outcomes

By the completion of this unit, you should be able to:

- State the various roles of occupational health nursing
- State at least six functions of Occupational health nursing
- Explain the Occupational health
- Describe the roles of occupational health nursing practice

3.3 Roles of Occupational Health Nursing Practices in Organizations

This unit describes the role of the occupational health nurse in workplace health management, a new and exciting concept that is designed to improve the management of health and health related problems in the workplace. Specialist occupational health

nurses plays a major role in protecting and improving the health of the working population in Nigeria as part of this strategy.
Occupational health nursing is the nursing practice that provides for and delivers clinical service to workers and workplaces. Occupational health nurses (OHNs) also provide health education, case management, and safety programs. The practice of occupational health is focused on promotion and restoration of health, prevention of illness and injury, and protection from work-related hazards. Registered nurses provide an array of services to business and industry and fill diverse roles in occupational health, including those of clinician, educator, case manager, corporate director, and consultant (AAOHN, 2007).

The first record of occupational health nursing in the United States dates back to 1888. The profession has since evolved with the growth of industry and service and today provides a valued role in the workplace. According to the findings from the 2008 National Sample Survey of Registered Nurses Health Resources and Services Administration of the U.S. Department of
Health and Human Services (2010), approximately 7.8% of all licensed registered nurses are working in public and community health, including occupational health. The use of healthcare professionals has long been supported, and these professionals have demonstrated value in supporting the health and safety of the workplace and the workforce. With today's workforce becoming increasingly diverse, these demographic changes result in new safety and health issues. As a result, workers are more likely to have increased risks of work-related diseases and injuries.

Occupational health is a small healthcare specialty that was initially devoted to the prevention and management of occupational and environmental injury, illness, and disability. The specialty has grown to encompass other dimensions of healthcare, including the promotion of health and productivity along with the support for a safe workplace. The specialty of occupational health is focused on policy and issues relevant to health and safety by devoting attention to individuals and groups in the workplace.

Occupational health nurses can also make a major contribution to the sustainable development, improved competitiveness, job security and increased profitability in enterprises and communities by addressing those factors which are related to the health of the working population. By helping to reduce ill health occupational health nurses can contribute to the increased profitability and performance of organizations and reduce health care costs. Occupational health nurses can also help to reduce the externalization of costs onto the taxpayer, by preventing disability and social exclusion, and by improving rehabilitation services at work. By protecting and promoting the health of the working population, and by promoting social inclusion, occupational health nurses can also make a significant contribution towards building social capital in Nigeria.

Self – Assessment Exercise 1

1. State three (3) Roles of Occupational Health Nursing Practices in Organizations

3.4 Functions of Occupational Health Nursing

The basic tenets of occupational health nursing practice are to promote health at work and to protect the health of the worker. Aw *et al.* (2007) define occupational health as: a multifaceted and multidisciplinary activity concerned with the prevention of ill health in employed populations. This involves a consideration of the two-way relationship between work and health. It is as much related to the effects of the working environment on the health of workers as to the influence of the workers' state of health on their ability to perform the tasks for which they were employed. Its main aim is to prevent, rather than cure, ill health from wherever it arises in the workplace.

In general terms occupational health is about the relationship between work and health and health and work, and paying attention to this is part of good risk management for any successful business. The general functions of an occupational health service (OHS) identified by the World Health Organization (WHO2002 pp. 11–12) provide a classic framework. Dorward (1993) listed the functions of occupational health nursing as:

- Health surveillance of the work environment
- Accident prevention
- Prevention of occupational ill health
- Treatment of illness and injury at work
- First aid Organisation
- Promotion of health and prevention of ill health
- Counselling
- Rehabilitation
- Keeping records and producing reports
- Liaison and cooperation (internally and externally)
- Administration of the occupational health unit
- Research

Most occupational health nurses perform a wide-ranging and varied role, which may include activities such as health screening and health surveillance, establishing and managing occupational health services, case management, and running a travel clinic and health promotion programmes. Some are involved with teaching and clinical supervision and mentoring. Many participate in or conduct research, surveys and while the responsibility for workers' safety and health rests with the employer, the OHS will be required to give expert advice to employers, individual workers and their representatives, and to carry out essentially preventive functions. These functions should aim at:

- Establishing and maintaining a healthy and safe work environment;
- Maintaining a well-performing and motivated workforce;
- The prevention of work-related disease and accidents; and
- The maintenance and promotion of the work ability of workers.

They hence may comprise the following:

- Identification and assessment of the health risk in the workplace;
- Surveillance of the work environment factors and work practices that affect workers' health, including sanitary installations, canteens and housing, when such facilities are provided by the employer;
- Participation in the development of programmes for the improvement of working practices, as well as testing and evaluation of health aspects of new equipment;
- Advice on planning and organization of work, design of workplaces, choice and maintenance of machinery, equipment and substances used at work;
- Advice on occupational health, safety and hygiene, and on ergonomics and individual and collective protective equipment;
- Surveillance of workers' health in relation to work;
- Promoting the adaptation of work to the worker;
- Collaboration in providing information, training and education in the fields of occupational health, hygiene and ergonomics;
- Contribution to measures of vocational rehabilitation;
- Organization of first aid and emergency treatment; and
- Participation in the analyses of occupational accidents and occupational diseases.

Self – Assessment Exercise 2

1. State five (5) functions of Occupational Health Nursing Practices in Organizations

3.5 Summary

This unit summarizes the various roles and functions of occupational health nursing. Nursing professionals have long been important assets in various aspects of healthcare, including hospitals, public and community health settings, Military and educational settings, and in industrial and workplace settings. Occupational health nursing was originally known as "industrial nursing," evolving during the Industrial Revolution. Throughout the years, occupational health nursing has taken on a variety of roles, and the scope of practice has expanded considerably, giving rise to opportunities for nurses to care for workers in various workplace settings.

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Rogers, B. (1994). Occupational Health Nursing: Concepts and Practice. Philadelphia: W.B. Sanders Company

3.7 Answers to Self-Assessment Exercises

Answers to Self-Assessment Exercise 1:

1. a. Specialist occupational health nurses plays a major role in protecting and improving the health of the working population in Nigeria as part of this strategy.

b. Occupational health nurses (OHNs) also provide health education, case management, and safety programs.

c. By protecting and promoting the health of the working population, and by promoting social inclusion, occupational health nurses can also make a significant contribution towards building social capital in Nigeria.

Answers to Self-Assessment Exercise 2

- Health surveillance of the work environment
- Accident prevention
- Prevention of occupational ill health
- Treatment of illness and injury at work
- First aid Organisation
- Promotion of health and prevention of ill health
- Counselling
- Rehabilitation
- Keeping records and producing reports
- Liaison and cooperation (internally and externally)
- Administration of the occupational health unit

Unit 4: Education and Training of Occupational Health Nurse

4.1 Introduction

Occupational health nursing aims to ensure the health, safety, optimum working capacity and the well-being of the working population. Occupational health nursing considers not only the individual but also the individual in his / her working environment. Continuous change in the working environment means changes in the specialty of occupational health nursing and, in consequence, of the education of occupational health nurses. Occupational health nursing education is a post graduate activity based on a life - long - learning principle. Each nurse undertaking a course on this core curriculum should already have achieved the first level qualification of a nurse as established in the Nigeria directives preferably with experience in public health care. The WHO recommendations regarding the education of a qualified nurse state that the education is health related instead of illness related and also includes knowledge in occupational health nursing. Ideally the student occupational health nurse would be a nurse qualified or graduated in public health nursing, but it is recognized that there may be many nurses in the EU working in industry, commerce or hospital services who do not meet this criteria. In consequence while this core curriculum is capable of being taught at a sophisticated level it can also be used as a syllabus for very basic occupational health learning.

4.2 Learning Outcomes

By the completion of this unit, you should be able to:

- State measures of Education towards Occupational health
- State training modules of Occupational health
- List professional associated with Occupational health training.
- Describe generally the benefits of Occupational health Education on professionals

4.3 Education and Training of Occupational Health Nurse

Occupational health nursing aims to ensure the health, safety, optimum working capacity and the well-being of the working population. Occupational health nursing considers not only the individual but also the individual in his/her working environment. Continuous change in the working environment means changes in the

specialty of occupational health nursing and, in consequence, of the education of occupational health nurses.
Occupational health nursing education is a post graduate activity based on a life - long - learning principle. Each nurse undertaking a course on this core curriculum should already have achieved the first level qualification of a nurse as established in the EU directives preferably with experience in public health care. The WHO recommendations regarding the education of a qualified nurse state that the education is health related instead of illness related and also includes knowledge in occupational health nursing. Ideally the student occupational health nurse would be a nurse qualified or graduated in public health nursing, but it is recognized that there may be many nurses in the EU working in industry, commerce or hospital services who do not meet this criteria. In consequence while this core curriculum is capable of being taught at a sophisticated level it can also be used as a syllabus for very basic occupational health learning.

Variation in the entrance requirements for General Nurse educational programmes, differences in the length of the programmes and the depth of knowledge required to qualify as a Registered Nurse in different countries has led to Registered nurses being prepared and qualified at different levels within Europe. Steps are now being taken to harmonies the level of education and qualifications for nurses.

4.4 Specialist Occupational Health Nurses

As has been discussed the specialist Occupational Health Nurse is a fully trained Registered Nurse who, in addition to their General nursing education and training, will have undertaken an additional period of formal study in occupational health, leading to a recognized specialist qualification in occupational health nursing, most often at University degree level. There is some variation in the course content and standards that apply in the specialist occupational health nurse programs in different countries.

4.5 Occupational Health Nursing As a Profession

Occupational health nursing can be defined as a goal - oriented activity based on the client's needs which focuses on work and the working environment. The aim is to change the working environment in collaboration with the worker in order to maintain or improve health and safety for all individuals.
The occupational health nurse;

- has her / his own professional responsibility
- is included in the OHS team as an independent professional
- is concerned with and has the responsibility to evaluate and
- develop her / his own work and methods used
- can have administrative management responsibility of her / his own work
- is an expert in health promotion in the work environment

4.6 Modules in Occupational Health Nursing Education and Training

Education of occupational health nurses should be based on the nursing sciences. The scientific approach should be considered both in the education as well as in the methods

used. The substance should be based on documented knowledge, evaluated and / or scientifically proved as well as empirical knowledge.

The settings in which training is given may vary in accordance with the health and educational structures of the country or region in which the education and training takes place. Part - time, modular or distance learning should not be excluded from planning programmes based on this curriculum.

To ensure that the professional occupational health nurse has the multiple skills and knowledge required, the following modular training programme should be considered. Occupational health nursing consists primarily of:

- interaction and collaborating skills and group interaction skills
- educational informative counselling and training skills
- dynamics of communication
- administration of occupational health services
- develop nursing science and research

The education programme is focused on the occupational nursing process. The contents in the modules develop and support the occupational health nurse's working process.

Below is the guideline of the various modules;

Module 1 - Health promotion in OH Nursing

- Activities supporting and promoting working capacity and the methods used
- Working environment hazards and their effects on health
- Environmental surveys and follow - up
- Labour protection / Legislation
- Ecological health care

Module 2 - The work of an Occupational health Nurse and Interaction

- Fundamentals of Nursing in OHS
- Development of the work of an OHN
- Marketing and communication methods

Module 3 - Planning an Occupational Health Service

- Current questions concerning health policy
- OHS as a part of the health care system
- Working life and legislation on work
- Health Economics
- International aspects of OHS

Module 4 - Administration and Organizations

- Service and expert organizations
- Organizational systems
- Management and strategies
- OHS as a part of corporate strategy
- OHS as a part of entrepreneurship

Module 5 - Evaluation and Development of Occupational Health Services

- Epidemiology

- Work and research on work
- Research methods
- Efficiency and quality assurance

Self-Assessment Exercise 1

1. The WHO recommendations regarding the education of a qualified nurse state that _____
2. what are the modules in occupational health nursing education

4.4 Summary

The education and training of Occupational Nurses are very important to the workplace environment and as such, scheduled courses and trainings should be given to the nurses in order to improve their enhancement and competences towards their work specification. The training of Occupational Nurses are post graduate programs which helps them improve their basics studies already done while in practice.

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4.6 Possible Answers to Self-Assessment Exercises

Answers to Self-Assessment Exercise 1:

1. The education is health related instead of illness related and includes knowledge in occupational health nursing.

2. Module 1 - Health promotion in OH Nursing

- Activities supporting and promoting working capacity and the methods used
- Working environment hazards and their effects on health
- Environmental surveys and follow - up
- Labour protection / Legislation
- Ecological health care

Module 2 - The work of an Occupational health Nurse and Interaction

- Fundamentals of Nursing in OHS
- Development of the work of an OHN
- Marketing and communication methods

Module 3 - Planning an Occupational Health Service

- Current questions concerning health policy
- OHS as a part of the health care system
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Module 4 - Administration and Organizations

- Service and expert organizations
- Organizational systems
- Management and strategies
- OHS as a part of corporate strategy
- OHS as a part of entrepreneurship

Module 5 - Evaluation and Development of Occupational Health Services

- Epidemiology
- Work and research on work
- Research methods
- Efficiency and quality assurance

MODULE 2: OCCUPATIONAL HEALTH PROBLEM

Module Structure

UNIT 5 Occupational Health Problems

Unit Structure

5.1 Introduction

This unit exposes you to the nature of occupational health problems workers face in their work environment. It is a fascinating study that informs you of the type of occupational problems that can occur in diverse occupations such as industries/factories agricultural settings, educational institutions, health institution among others. The unit also discusses the factors that contributed to the problems, the preventive measures and the type of management that could be provided by the health professional to ensure survival of the employees.

5.2 Learning Outcomes

At the completion of this unit, you should be able to:

- Explain the meaning of occupational health problems
- List the types of occupational health problems commonly seen in different occupations
- Explain how working conditions contribute to employees' increased risk for health problems
- Describe the factors that contribute to the health problems
- Explain the preventive measures to health problems

- Discuss the management of the common health problems in the work environment.

5.3 Occupational Health Problems

The occupation or the nature of work performed by a person exposes him or her to health hazards associated with that occupation. Diverse occupations exist. They include traditional manufacturing industries (automobile. automotive and appliances); service industries (banking, health care, and restaurant); education, agriculture, construction, mining, and newly high technology firms like computer chips manufacturing companies and many others. Each of these occupations has peculiar health hazards associated with it. These health hazards interact with numerous nutritional, hygienic, microbial and social factors in the worker's environment to aggravate their effects on health. There is also interaction between work hazards and chronic diseases such as malaria, diabetes, hypertension and cancer. Types of health problems include Labour accident, occupational diseases, chemical hazards and many others. The figures are uncertain due to reporting irregularities. The hazards seriously affected the health of the employees and invariably their productivity. Death toll was much and morbidity very serious. They employers paid no attention to the sufferings of the employees. This brought about the provision of occupational health services to alleviate the sufferings of the employees and to provide preventive and management services for the welfare of employees.

5.3.1 Definition of Occupational Health Problems

Occupational health problems can be regarded as diseases, accidents and other hazards arising from the work environment or situations that arise in the attempt to perform tasks in any occupation. It is a compensable disease that arises out of and in the course of employment (Henderson and Nite 1978, p. 243). The definition hinges on the condition that entitles the worker to compensation from the employer.

5.3.2 Types of Occupational Health Problems

Types of OH problems being treated in an industrial clinics and hospitals depend on the diseases and health hazards obtainable in a particular industry or occupation because each industry/occupation has its own peculiarities (Asogwa, 2007). Health problems commonly noticed in American but also seen with industrialization in developing countries like Nigeria include;

1. Occupational lung diseases (including lung cancer, pneumonoconioses, and occupational asthma)
2. Musculoskeletal injuries such as back injuries, neck injuries, arthritis, vibration problems and white finger diseases.
3. Occupational cancers (other than lung cancers).
4. Traumatic deaths, amputations, fracture and eye loses.
5. Cardiovascular diseases (including myocardial nifarction, stroke and hypertension).
6. Reproductive health problems such as prematurity, abertica.

7. Neurotoxic illnesses.
8. Noise induced hearing loss.
9. Dermatologic problems (including dermatoses, burns, and lacerations).
10. Psychological disorders.

(Source: National Institute of Occupational Health and Safety quoted by Achalu (2000, p. 31)

The list and figures according to Reich and Okubo are not certain because of reporting irregularities. But they confirm the existence of serious and increasingly diversified problems. For example an estimate proved that the world's acute pesticide poisoning recorded in the third world countries is as a result of chemicalization of agriculture.

Self-Assessment Exercises 1

1. Define the term occupational health problem.
2. Mention five (5) types of Occupational Health Problems learnt.

5.4 Occupational Health Problems in Industry

Workers in industries do face numerous occupational health problems. Such problems seriously affect their productivity and life span. The main problems include: Problem of social and environmental pollution, air pollution, noise pollution, ergonomic and chemical pollution.

1. Social and environmental health problems. They include increases in migration of both skilled and unskilled workers from rural to urban centers causing overcrowding and environmental pollution. The migration results in unemployment, poverty, lower standard of living delinquent behaviour such as abuse of drugs and alcohol, prostitution, robbery, and psychological problems among others. These outcomes bring about stress, anxiety and their implications. Apart from environmental pollution, there is problem of poor housing, overcrowding, poor working conditions and malnutrition.
2. Traumatic injuries are common especially where protective measures are not taken seriously. Most known injuries include musculo-skeletal injuries, traumatic amputations, bruises, lacerations. These do cause serious set-back in the industries concerned. There could be lost of economy due to absenteeism and poor productivity.
3. Air pollution is a serious health problem of industrialization. Apart from contamination of air and the entire environment through automobile and industrial fumes, it introduces harmful pollutants from the exhaust of internal combustion and diesel engines. The pollutants affect the entire body organs and cells causing such risk conditions as cancer, degenerative and chronic diseases including irritation of respiratory and cardiac problems, loss of visibility leading to accidents (Achalu, 2000, p. 28). Air pollution also affects the plant growth negatively resulting in poor food production and nutritional problems such as malnutrition and anaemia. The end result being morbidity and mortality.
4. Excessive noise pollution: Noise is a form of energy that is transmitted through the air as waves with varying pressure (Achalu, 2000, p. 28). Noise is measured in decibels. The lowest sound, the human detects is one decibel and the highest is 150 decibel is damaging to the ear. Example of industries that can produce

loud noise include: automobiles, milling/grinding machines, panel beating workshops, stereo equipment workshops, generator producing industries and many others. These industries produce serious health problems which are often neglected. Problems from the noise include poor hearing, loss of concentration, irritation, fatigue, restlessness and in serious cases loss of hearing.

5. Excessive temperature and humidity in industries have their own problems. This occurs in industries where the industrial processes make atmospheric control difficult. Examples of such industries are textile mills, laundries, breweries. The resultant problems include eye inflammations, respiratory and gastro-intestinal problems and even exhaustion resulting from atmospheric extremes.
6. Poisonous - harmful substances other than gases and fumes can be present in industries to cause problems. Chemicals used in industrial plant operations can act as poisons to cause harm to the skin. Chemical chronic poisoning can occur in workers improperly handling materials in routine operations without protective measures.

5.5 Occupational health problems in Health Institutions

Health workers in health institutions (hospitals, clinics, health centres etc) are faced with numerous health problems which impact seriously on their status. The hospital environment by its nature is full of hazardous problems. The problems could be classified into endogenous and exogenous (Asogwa, 2007, p. 38).

a) Exogenous problems are such that were brought into the hospital environment by the health worker suffering from such a condition such as tuberculosis, Human Immunodeficiency Virus (HIV), chicken pox and other conditions that have long incubation period and cannot be diagnosed early for preventive measures to take place.
b) Endogenous problems are those acquired within the hospital from patients, patients' relations or even from workers. Example of such problem include hepatitis B, HIV, other blood sera (that is hazards due to exposure to infected blood and other body fluids), other problems include protozoa infections such as malaria parasites. The hazard could occur through needle stick injuries, lacerations from razor or Lancet or scalpel blades that were infected and other sharp instruments.
c) Hazards resulting from radiation such as x-rays used for radiotherapy. This can result in radiation injuries like cancer. This is seen mostly in workers in x-ray departments where radio-active substances are used for therapeutic purposes.
d) Problems due to exposure to communicable diseases such as tetanus, chickenpox, and other blood borne pathogens. This is a major concern when caring for infected patients. The presence of resistant organisms causes extra concern and makes treatment difficult. Workers who have frequent contact with blood and blood products and those engaged in intravenous therapy have a special risk for exposure to hepatitis B.

e) Problems due to exposure to food and water borne diseases include diarrhea, gastroenteritis, caused by schistosomiasis, salmonella's organisms. These problems occur due to contamination of food and water within the environment of the health institution.
f) Problems resulting from hazardous chemical agents do occur. Anaesthetic gasses can increase the risk of spontaneous abortion in pregnancy; maternal illness and death in severe cases and the risk of foetal malformation or death in severe cases. Chemotherapeutic agents used in the treatment of cancer are extremely toxic. Contact with many drugs, especially antibiotics during preparation and administration may cause the health worker to develop sensitivity. This can cause transitory problems such as hand and skin rashes and other undesirable effects. Cleaning agents and disinfectants used in hospitals can cause some hazards if not properly used.
g) Back and joint injuries are common occupational problems among hospital workers. These problems interfere with the working life of people. They occur due to improper body alignment before and after lifting patients and equipment.
h) Other problems include occupational stress which may be due to pressure of work, shortage of personnel, interpersonal relationship with other staff or with supervisor or with patients or patients' relations or even with self. There could be physical attack from violent and emotionally unstable patients; burn outs due to pressure of work or other various psychosocial stresses at work. Health workers mostly at risk of health problems include doctors, nurses, laboratory staff, radiographers, mortuary attendants, cleaners, physiotherapists and many others. The major sources of the health problem could be hospital wards, hospital clinics, theatres, laboratory, mortuary and other areas where patients are being treated and blood and other body fluids and specimens are taken for investigation.

Self-Assessment Exercises 2

1. Workers in industries do face numerous occupational health problems, mention 5 occupational health problems
2. Differentiate between exogenous problems and endogenous problems

5.6 Occupational Health Problems in Agricultural Settings

In developed and developing countries including Nigeria, agricultural work is the main occupation for majority of the people. The type of agricultural work varies and ranges from mechanized to non-mechanized farming. The activities involved included: clearing the ground, planting, weeding, harvesting, and processing, among others. Then for animal husbandry it involves breeding, raising and caring for animals. The health problem can occur from any of the activities and could be grouped into general and

specific health problems. The general problems include: cardio-vascular, respiratory, nutritional problems and accidents.

Specific problems are those connected with various agents of diseases such as physical, biological and chemical hazards (Achalu, 2000, p. 52).
Biological hazards include zoonosis or diseases transmitted by animals during caring and handling of animal products and wastes. Examples of such health problems include: anthrax, brucellosis, bovine tuberculosis, laser fever, rabies, bird flew and many others. These problems arise during planting, harvesting and primary processing of all types of crops as well as problems arising from breeding, raising and caring for animals, tendering market gardens and nurseries.

Parasitic diseases transmitted due to contact with polluted water in farm lands and poor sanitary conditions of agricultural environment include: hookworm disease (ankylostomiasis), schistosomiasis especially in irritant and riverine farm lands, tetanus, sleeping sickness, malaria, skin rashes and many others. Allergic diseases do occur due to inhalation of vegetable pollen dusts, animal dusts, organic chemicals and reaction to certain food substances. Such diseases include asthma, byssinosis from cotton dust, bagassosis from sugar cane bagasse, allergic conjunctivitis from rubber, dermatitis from wood dust, and allergic skin reaction to certain grasses and chemicals.

Physical problems do occur as a result of exposure to prolonged heat and sunlight, noise from farm machinery, dust and fumes, puncture wounds from sharp instruments and woods, cuts, bruises and lacerations. These can cause severe preventable diseases like tetanus, bacteria infections and gangrene of the wound. Other problems include backache resulting from prolonged bending, heavy load and wrong posture. Accidents and other injuries do occur and they can result from liquid or gas splashing, electrocution due to electrical faults, falling from height such as palm trees, mango trees, tractor accidents, and so on.

We also have records of stings and bites such as human bite, snake bite, dog bite, scorpion bite and many others. When the stings and bites occur, the treatment is always an emergency in order to save life and protect the individual. Human bites do occur over ownership of farm, and it is the most dangerous if treatment is not taken at once.

Social problems include: low income, poverty, lack of healthcare and health facilities, water borne diseases like diarrhoea, cholera, schistosomiasis, dysentery, parasitic problems like hook worm, tape worm, and other water borne diseases got from polluted stagnant dirty waters in the farm land as well as sanitary conditions (Achalu, 2000, p. 52). Food poisons also do occur either as a result of contamination at the harvesting or preparation or servicing or even eating with soiled hand or contaminated plates and cutleries.

Work place violence is a serious cause of health problems. It may occur over ownership of farm land or economic trees. This can cause interpersonal or even communal violence, body injuries and death in severe cases.

Health Problems of Education Institutions

Educational institution (primary, secondary and tertiary) is purely a learning institution where teachers and students interact. The proprietor of the school is the employer while teachers and students are regarded as employees. Both teachers and students are exposed to various occupational problems. Teachers face such problems as:

1) Accidents - might occur resulting in injuries like falls, chalk board dropping from the wall or knocking the feet against had objects.
2) Infections can occur. It could be transmission from infected student or from the school environment through the use of infected animals for practical demonstration or contaminated environment e.g. chickenpox, measles.
3) Needles prick injuries occurring during practical demonstrations on how to inject animals or vaccination and immunization of animals.
4) Varicose veins in severe cases resulting from long standing and pressure.
5) Respiratory problems due to inhalation of chalk particles and particles from dust within the school environment.
6) Dehydration due to talking, heat on radiation, convention and conduction of heat.
7) Electrocution due to faulty electrical appliances in the school premises and in the offices. It can occur during laboratory demonstrations or even during teaching process.
8) Loss of voice due to strains on the vocal cord during long period of talking in large classes. The teacher has to try to increase the volume of the voice while teaching to carry the class along.
9) Anxiety and its implications like hypertension, other cardiac anomalies resulting from strains and stresses in school. The stress can be caused by the pressure of work; from students especially with stubborn students; from, employers, from self-due to inner tensions from inability to fulfill one's desires, stresses from work overload; generated by caring for students and their personal problems; poor remuneration and irregular payment of salary. Other causes of anxiety and stresses include organizational structure of the school, job insecurity facing teachers; students parent intrusions, relationship with school workers and co-teachers as well as relationship with supervisor. Most importantly poor knowledge and skills to teach.

Other causes of emotional dissatisfaction include back pain, frequent headache, pains and disabilities, and other illnesses. The health problems of the teacher can cause absenteeism and decreased productivity, poor learning and poor students' performance. Indirectly this could cause poor growth of the school.

5.8 Factors that Contribute to Health Problems of Workers

The factors that contribute to worker's problems in occupational setting include: biophysical, psychological, social, behavioral and health systems (Clark, 1999).

Biophysical

Human biological factors are those related to maturation and aging, genetic inheritance, and physiological functions (Clark, 1999). Maturation and aging: The age compositions of workers in occupational settings do affect their health. If the employees are mainly adolescents and young adults, health problems likely to occur with some frequency included: sexually transmitted infections like syphilis, gonorrhea, HIV; pregnancy, hepatitis, drug abuse, alcoholism and other social vices. They may also be at increased risk of injury due to their inability to settle down for work; limited job training, and skills, lack of experience, experimentation, impatience and inability to concentrate. The health problems that may be noticed among the middle aged employees are: heart problems like hypertension, stroke, palpitations, renal problems and cancers in most cases. They may also be at increased risk of mental depression, anxiety, and other emotional problems due to pressure of work in the families, work environment and in the society.

Health problems that may occur in elderly employees over 65 years of age are reduced capacity to function, problems of muscuoskektal system, sensory impairment, poor coordination, frequent high risk occupational accidents and dementia. Factors that influence their continued desire to remain in the employment may be associated with economic constraints, loneliness and many personal problems. Another contributory problem is a situation where there is shortage of skilled manpower and inability of employers to enforce prohibition on retirement at specific age.

Genetic Inheritance

Genetic inheritance factors likely to be of great importance in the workforce are those related to race, gender and genetic inheritance like sickle cell disorder. For example, in a large African American Labour force, hypertension may be prevalent. In an Asian population particularly if large numbers are refugees, communicable diseases such as Tuberculosis and parasitic diseases may be common (Clark, 1999, p. 645).In underdeveloped countries like Nigeria, labor force hypertension and mental stresses may be prevalent.

The sex composition of the employees do determine the types of health problems that may occur: For example, if large numbers of employees are women of child bearing age, there is need to provide pre and post natal services, monitor more closely environmental conditions that may cause genetic changes or damage to unborn child causing malformations and death; monitoring for infertility, spontaneous abortion, low birth weight, pre and post maturity, birth defects, chromosomal abnormalities, preeclampsia and an increased incidence of childhood cancers (Clark, 1999, p. 645). If an employee has genetic inheritance like sickle cell disorder, there is need to provide an environment that discourages precipitation of painful crises such as adequate ventilation, assignment of less strenuous jobs and environment free of dust, and fumes

and smokes. Monitoring for conditions that can precipitate bone pain crisis and provision of facilities for treatment of crisis before reaching the clinic for management.

Physiological Factors

Conditions prevalent in occupational settings include traumatic injuries, lung diseases, cardiovascular problems, renal problems, neuro-toxic disorders, cancers, skeletal problems, injuries of all kinds, sensory impairments and many others. These health problems are related to the work environment, personal behaviours of employees within and outside the work environment. Other problems that may occur are the out breaks of dermatologic conditions that indicate the presence of hazards in the work environment that need control measures. They include: variety of rashes, pruritus, chemical burns and desequemation. These dematiologic problems affect seriously the production capacity and loss of income to the company. Psychological problems of anxiety and stress may manifest as a result of stressors associated with work overload, the organizational structure of the company/occupation, job insecurity, interpersonal and intrapersonal relationships with co-workers or employers or supervisors and attitudes of racial or ethnic discrimination in workplace. Other sources of stress most frequently identified by workers include: lack of control over the contents, processes and pace of one's work; unrealistic demands and lack of understanding by supervisors; lack of predictability and security regarding one's job and future; and the cumulative effects of occupational and family stressors. Employers most often perceive employee's lifestyles, and health habits as the primary contributors to stress.

The Physical Dimension

Physical environmental factors contribute to a variety of health problems employees' face in the work settings. The categories of the health problems include: chemical hazards, physical hazards such as radiation, noise, vibration and exposure to extremes of heat and cold; electrical hazards, fire, heavy lifting and uncomfortable working positions, and potential falls (Clark, 1999, p. 648).

With poor lighting or high noise levels, the employee may face the adverse effects of vision and hearing respectively. Heavy objects that must be moved may cause musculoskeletal injuries, hernia and potential for falls and exposure to excessive heat or cold in many workplaces.

Other factors related to physical environment is the use of toxic substances in work performance which may be inform of solids, liquids, gasses, vapors, dust, fumes, fibers or mists (Clark 1999 quoting California Occupational Health Programme, 1992). The toxic substances can cause respiratory, dermatologic and other health problems. Heavy metals like lead can cause lead poison. Other metals of concern include mercury, arsenic and cadmium. Areas to be assessed for the presence of heavy metal potentials for toxic exposure in the work settings include substances used in setting and their levels of demonstrated toxicity, portals of entry into human body, established legal exposure limits, extent of exposure, potential for interactive exposures and the presence of existing employee health conditions that put the individual affected at greater risk of exposure-related illnesses.

The use of heavy equipment or sharp tools can cause occupational injuries. It can also cause hand-arm vibration syndrome especially in using tools that vibrate or visual disturbances related to the use of computer display terminals. Another recent hazard discovered generated by widespread computer use is the potential for tendinitis and other similar conditions stemming from the use of word processors. Extreme or awkward postures have been associated with low back problems and repetitive or high force movements with carpal tunnel syndrome.

Social Dimension

The social environment of the work setting can influence employee health status either positively or negatively. The nature of the influence depends on the social interactions among employees, attitudes toward work and health and the presence or absence of racial, sexual or other tensions can all affect the health status of the employees and their productivity within the occupation.

Four spheres of influence in the workplace social environment do affect the health status of the employees. The first sphere of the influence is concerned with health related behaviours of employees; the second sphere of influence on health status occurs among groups of co-workers. The third sphere of influence is the management sphere such as attitudes toward health and health-related policies and the effects of the policies or their lack on employee's health status. For example, to value wellness and health promotive efforts, they must perceive them to be valued by employers. The fourth sphere of influence involves legal, social and political action that influences the health of employees. An example of this is the regulation of conditions in the work environment by agencies such as occupational safety and health administration. Through legislations society can mandate that business and industry create specific conditions that enhance the health of employees; companies over a certain size should offer employees a health maintenance organisation as one option for health insurance coverage. The final social dimension factor in the work setting that is not currently compensable but is drawing increasing attention is workplace violence (Clark, 1999).

Behavioral Dimension

Life style factors to be considered include; the type of work performed, consumption patterns, patterns of test and exercise and use of safety devices. The type of work an employee performs within the work setting can significantly influence the employee's health; determines the risk of exposure to various physical hazards and level of stress experienced; it influences the extent of the exercise employees obtain.

The consumption patterns of interest include those related to food and nutrition, smoking and drugs and alcohol use. The nutrition influence on the health status is well known. Smoking is harmful to health and may increase the adverse effects of other environmental problems particularly those that affect respiration. Over indulgence in substance abuses such as caffeine, may pose health problems to employees.

Rest and Exercise: occupational places do place many physical and psychological demands on the employees. These demands result to inadequate rest and recreation.

Same problem is faced by employees who work constantly to ensure progress and those who keep other jobs in an attempt to make ends meet. Many occupations are recognizing that exercise provides physical and psychological relaxation, alertness and relieve muscle tension making it ready to work again. It reduces heart attack and injury and even sleep at work and accident. It causes better coordination, reduces hazards, accidents and better work output. These benefits have made employers of labour to promote physical exercises by providing activities for recreation in work settings.

5.9 Preventive Measures

Preventive measures to occupational health problems include:

1) Pre-employment medical examination of all employees to rule out presence of any health problems and potential for hazard in the job.
2) Immunization of employees at risk of infections such as tuberculosis, hepatitis B and HIV, where applicable.
3) Periodic monitoring of all employees in all occupations especially those in high risk areas e.g. periodic x-ray examination of staff working in x-ray units, or those working in lead producing industries, heavy metal industries.
4) Regular inspection, of food preparation, servicing and storage facilities as well as inspection of food preparation environment.
5) Ensuring the use of wholesome water for drinking and food preparation (pathogen free chlorinated water) to avoid water borne infections and making sure that water containers are free from contamination.
6) General hygiene of the work environment especially that of the hospitals, schools and many others to avoid accidents and infection dissemination.
7) Provision of safety devices such as eye gurgle, booth, helmet, lead apron and many others.

5.10 Management of the Health Problems

1) All workers should be screened on employment and those found sick should be screened and treated properly. All those at risk of tuberculosis (TB), hepatitis B and HIV should be immunized and post immunization antibody response estimated after a stipulated interval to ensure positive result. Then such employee should be assigned to a unit in the workplace that is safe for him or her.
2) All employees working in x-ray department or where there is risk of radiation hazards should be posted to another section of the unit. Special precautions should be taken by all employees working in radiation areas or handling radioactive materials to avoid exposure above the threshold limit for a specific period. The standard required for safety must never be compromised and the use of dangerous and unsafe equipment should be avoided.

3) All food handlers should be examined periodically and those sick should be treated and then allowed sick off to ensure quick recovery before handling food substances.
4) Any incident of food or water poisoning should be properly investigated and precautionary measures taken to avoid further spread and occurrence. Those already affected should be screened and properly treated before resuming duty.
5) The health worker should identify the presence of any health hazards in the physical environment that contribute to health problems and then ensure that such health hazard is removed by encouraging the employers.
6) Nurses who work in settings where such agents are prepared and administered should seek additional education regarding their administration, not only in relation to the client's safety but also in relation to personal safety (Asogwa, 2007). The hospital employer is responsible for providing the equipment to maintain safety when handling the agents. The effects of known health hazards on the employee should be determined or lessened and treatment provided based on findings. All employees with emotional and psychological problems or those experiencing uncomfortableness due to stresses in the work environment should be monitored, counselled and guided on ways to solve the identified cause of stresses and effort made to remove the stressors.
7) Health education on prevention of stressors and their management should be intensified. Those seriously affected should be allowed off sick and then followed up for proper treatment and rehabilitation.

Self- Assessment Exercise 3

1. mention at least five (5)Health Problems of Education Institutions
2. mention two (2) Management of the Health Problems

5.11 SUMMARY

In this unit, we have learnt that occupational health problem can be regarded as diseases, accidents, hazards arising from the work environment or health problems that employers face in performing tasks in occupational settings.

- Types of Occupational health Problems Commonly seen in different occupations; such as industries, health institutions, schools, agriculture and other occupations include accidents, infections, stresses, physical and mental instability. The factors that contribute to the health problems include biophysical, physical, and physiological among others. The preventive measures included monitoring to identify those at risk; immunization of those at risk of communicable diseases like tuberculosis, chickenpox, hepatitis B, HIV and others. Management of the affected employees included proper treatment of the sick ones; those working at x-ray department should be provided with film bandages to ensure radiation free and then posted to another section where

radiation is free. Employees suffering from food and water borne diseases should be screened and treated adequately.

- Employers suffering from stresses should be counselled and guided. The stressor should be identified and removed and health education provided on how to come off the stresses.

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5.13 Answer to Self-Assessment Exercises

Answer to Self-Assessment Exercise 1

1. Occupational health problems can be regarded as diseases, accidents and other hazards arising from the work environment or situations that arise in the attempt to perform tasks in any occupation.

2. a. Occupational lung diseases
b. Musculoskeletal injuries
c. Occupational cancers
d. Traumatic deaths, amputations, fracture and eye loses.
e. Cardiovascular diseases.
f. Reproductive health problems such as prematurity
g. Neurotoxic illnesses.

Answer to Self-Assessment Exercise 2

1. a, Exogenous problems
b. Exogenous problems
c. Hazards resulting from radiation
d. problems due to exposure to communicable disease
e. problems resulting from hazardous chemical agents

2. **Exogenous problems** are such that were brought into the hospital environment by the health worker suffering from such a condition such as tuberculosis, Human Immunodeficiency Virus (HIV), chicken pox and other conditions that have long

incubation period and cannot be diagnosed early for preventive measures to take place. While **exogenous problems** are those acquired within the hospital from patients, patients' relations or even from workers. Example of such problem include hepatitis B, HIV, other blood sera (that is hazards due to exposure to infected blood and other body fluids), other problems include protozoa infections such as malaria parasites. The hazard could occur through needle stick injuries, lacerations from razor or Lancet or scalpel blades that were infected and other sharp instruments.

Answer to Self- Assessment Exercise 3

1. a. Accidents - might occur resulting in injuries like falls, chalk board dropping from the wall or knocking the feet against had objects.
b. infections can occur. It could be transmission from infected student or from the school environment through the use of infected animals for practical demonstration or contaminated environment e.g. chickenpox, measles.
c. Varicose veins in severe cases resulting from long standing and pressure.
d. Respiratory problems due to inhalation of chalk particles and particles from dust within the school environment.
e. Dehydration due to talking, heat on radiation, convention and conduction of heat.
f. Electrocution due to faulty electrical appliances in the school premises and in the offices. It can occur during laboratory demonstrations or even during teaching process.
g. Loss of voice due to strains on the vocal cord during long period of talking in large classes. The teacher has to try to increase the volume of the voice while teaching to carry the class along.
2. a. All workers should be screened on employment and those found sick should be screened and treated properly. All those at risk of tuberculosis (TB), hepatitis B and HIV should be immunized and post immunization antibody response estimated after a stipulated interval to ensure positive result. Then such employee should be assigned to a unit in the workplace that is safe for him or her.
b. All employees working in x-ray department or where there is risk of radiation hazards should be posted to another section of the unit. Special precautions should be taken by all employees working in radiation areas or handling radioactive materials to avoid exposure above the threshold limit for a specific period. The standard required for safety must never be compromised and the use of dangerous and unsafe equipment should be avoided.

UNIT 6 Occupational Health Diseases

Unit Structure

6.1 Introduction

The unit introduces the learner to the nature of occupational diseases that could be contacted by the worker in the process of task performance within the occupational environment. The diseases could compromise the workers' health status as well as limit their life span. The magnitude of morbidity and mortality associated with such diseases is high especially if they become chronic and proper treatment not provided. According to Stanhope and Lancaster (2001, p.946) each day an average of 137 individual workers die from work related diseases. The problem is that some of the diseases do not manifest early enough for treatment to be started. It could manifest when the worker must have retired, thus making it difficult to find the actual cause. For example, Silicosis can take up to 15 years to develop while some cases of Mesothelioma can only became evident 25 years after the worker was last exposed to asbestos. Lung diseases in workers occur gradually over time, continued Stanhope and Lancaster. All these made it impossible for early diagnosis and life saving measures to be instituted. The Unit also discusses the classification, causative agents, prevention and control of occupational diseases, reportable diseases, as well as the implications to both the employers and the employees.

6.2 Learning Outcomes

At the completion of this unit you should be able to:

- Explain the meaning of occupational health diseases
- Describe the types of occupational diseases
- Explain the predisposing factors to occupational diseases
- Describe the methods that can be used in detecting occupational health
- Discuss the prevention and control of occupational diseases
- Describe the implication of occupational health to both the employer and the employees.

6.3 Occupational Health Diseases

Occupational health disease can be defined as a compensable disease contacted by the worker due to exposure to hazards in the work places. Adobe (1996) defined it as any condition arising from work place exposures which compromises worker's physical, mental and social wellbeing. Asogwa (2007) defined it as diseases associated with particular processes or agents which the worker is exposed to in the course of his work. Osanyigbemi was quoted by Achlu (2000 p. 29) defined occupational disease as those diseases which occur with characteristic frequency and regularity in occupations where there are specific hazards. It can also be explained as any chronic ailment that occurs as a result of occupational activities. By the definitions, it means that there must be interaction of the worker with the environment before the disease can occur.

6.3.1 Classification of Occupational Diseases

Occupational diseases can be classified in different forms. Classification put forward by Asogwa (2007) and Park (2002) is according to the target organ systems of the body and hey includes:

1. Occupational diseases of the respiratory system
2. Occupational diseases of the liver
3. Occupational diseases of the cardiovascular system
4. Occupational diseases of the Gastro-intestinal system
5. Occupational diseases of the Genito-urinary system
6. Occupational diseases of the skin or dermatologic system
7. Occupational diseases of the musculo skeletal system
8. Occupational diseases of the haemopioetic system
9. Occupational diseases of the physical agent.

Types of Occupational Diseases

The types are hereby presented according to the systems of the body being affected.

1. Respiratory Diseases

They are diseases that can affect the organs of the respiratory system such as the nose, nasal cavity, the trachea, the bronchus, and the Lungs. Such diseases include: acute inflammatory diseases, Rhinitis, pneumonia, asthma, pneumoconiosis, dyspnoea, cough which can be dry and productive, pleural plague diseases, cancers, farmers lung disease, anthracosis, silicosis, asbestosis, bagassosis, byssinosis, tabacosis and others. The diseases can cause impairment of air entry into the lungs by either narrowing the airways or producing ventilatory failures. Some of the respiratory diseases can causes permanent damage to the respiratory systems especially the lungs. They can gradually affect the worker by gradually reducing the working capacity thereby causing serious setback in industrial production.

2. Occupational Diseases of the Liver

Industrial or occupational diseases that affect the liver gain access into the body through the skin abrasions and alimentary track to the liver cells to cause the following disease hepatitis, cancer, hepatomegaly, multilobular cirrhosis of the liver, fatty degeneration of the liver, uremia and so on.

3. Occupational Diseases of the Cardio-vascular System
They are diseases conditions that affect the heart and the blood vessels. Such diseases include: hypertension, anaemia, heart failure, angina pectoris, myocardial infection, stroke, leukemia, arrhythmias, coronary heart diseases, other cardiac anomalies and many others. Most of these diseases incapacitate the workers especially the chronic ones.

4. Occupational Diseases of the Gastro-intestinal System
Common diseases of gastro-intestinal track reported by workers included: diarrhoea, vomiting, typhoid, gastritis, gastric ulcer, constipation, cancer, gastro enteritis, oesophageal fistulae and many others. The diseases mostly occur through ingestion of substances, chemicals and through starvation or wrong timing of feeding.

5. Occupational Diseases of the Genito Urinary System
Common diseases affecting the system included: Cancers, diabetes mellitus, renal stone, renal failure, haematuria, kidney failure, typhoid fever, acute nephrosis, nephrotic syndrome and many others.

6. Occupational Diseases of the Skin (dermatologic)
The diseases include: irritant contact dermatitis, allergic diseases, skin cancers, acne, skin pigmentation, and thickening of the skin, skin manifestation, thickening of the skin, skin manifestation of systemic toxicity, heat and cold damages, parasitic diseases such as mites. These are common diseases experience by workers in different occupations and they can be quite incapacitating.

7. Occupational Diseases of the Musculo Skeletal System
They include: osteoporosis, muscular pains, and rickettsiae

8. Occupational Diseases of the haemopoetic system include leukaemia, anaemia, lymphopenia, thrombocytopenia and many others.

9. Occupational Diseases of the Physical Agent include dermatitis, e.g. allergic hypersensitivity, and non-allergic irritants; inflammatory conditions, boils; Rhinitis,

6.4 Causes of Occupational Diseases

Pre-disposing Factors to Occupational Diseases;
1. Lack of provision of protective (safety) devices by the employers of labour.
2. Inadequate or non-use of safety devices by the respective worker. The non-compliance to company rules can predispose the worker to various illnesses.
3. The health status of the worker. A worker who is ill and stressed up is likely to be affected. A worker who is anemic due to ill-health like malaria or due to poor nutrition is likely to develop further complications.
4. Poor personal and environmental hygiene.

5. Lack of periodic medical investigation or examinations of the workers to identify those likely or already developing ill-health so that treatment can be started early. Types of medical examination should include x - ray and laboratory investigations.
6. Lack of practice of most containment and preventive measures.
7. Exposure to defective equipment and instruments.
8. Exposure to dermatologic agents which could be endogenic. Such substances include absorption of gold, mercury arsenic biological agents like Bacillus anthraces and mechanical agents.
9. Ingestion of toxic substances and dangerous agents such as contaminated food substances, vegetables and fruits.
10. Exposure to hazards like lead, toxic materials, fumes, dust and other substances.
11. Inhalation of gases, fumes, organic substances like silica sulphate, iron dusts, coal dusts and others.
12. Carelessness of workers and hazardous life styles like excessive smoking, alcohol intake and ingestion of non-prescribed and adulterated and fake drug. Inability of the worker to go for medical check-up as preventive measure.

6.5 Occupations that can Predispose Workers to Diseases

Occupational groups from which workers can contact diseases are: industries, factories, service industries like health institutions, banks, educational institutions, agriculture, construction industries like road construction, and mining, catering and processing, hair dressing. Electrical industries, building and construction, leather manufacturing and many others.

Self-Assessment Exercises 1

1. Occupational health disease_____ can be defined as a compensable disease contacted by the worker due to exposure to hazards in the work places.
2. Occupational diseases can be classified in different forms EXCEPT
a. Occupational diseases of the respiratory system
b. Occupational diseases of the liver
c. Occupational diseases of the cardiovascular system
d. Occupational disease of the Thrombosis

6.6 Methods of Detection of Occupational Diseases

Since some health hazards responsible for occupational health diseases are known and documented while some are largely unknown, there is need to attempt to identify the unfamiliar and unknown hazards in the work places in order to control them. The methods of detection put forward by Asogwa (2007 p.70) included: biological monitoring, epidemiological methods, and environmental measurements.

1. Biological Methods

This takes the form of pre-employment medical examination for basic data, and periodic medical examinations and laboratory tests to detect diseases if any. Laboratory

tests can take the form of hematological studies, urine tests, and stool analysis while medical examination can be chest-x-ray. Those with suspected cases of dermatitis should be kept away. The tests do help to detect early the presence of diseases and to plan appropriate preventive and curative intervention programmes to curtail the spread and damage to the health status of the individual.

2. Epidemiological Methods

Epidemiology in an industrial setting aims at studying the determinants, distribution and deterrents of diseases among workers. Epidemiological studies therefore help to detect both the occupational and non-occupational work related diseases among workers. For effective preventive measures to be planned. Example of work-related association between stressful occupations and diseases can be peptic ulcer, hypertension, gastric upset and others. The assessment aims at prevention of spread of the disease.

3. Environmental Measurement

These are used to detect agents of known hazards in the work place before the diseases occur. This helps to identify the hazards early enough in order to prevent or reduce the adverse effects of such hazards. Example, dust sampling and measurement in a coal mine or cement industry can reduce the incidence of coal workers. Pneumoconiosis, Noise measurement with meters in manufacturing industries would help reduce the incidence of defeaness and use of gas detectors to measure the level of various gases like carbon monoxide can help reduce carbon monoxide poisoning. Other methods of detection that could be employed include: history taken from the worker.

6.4 Prevention and control of Occupational Diseases

The practice of making prevention a priority in different occupations is of primary importance in occupational practice. This is because work-related illnesses are frequently irreversible (Allender and Spradley 2001.p 592). For example development of a mesothelioma from asbestos exposure is a condition for which there is no cure. Same applies to other conditions. Some can even lead to morbidity and mortality. Prevention is the only answer. The preventive and control measures put forward by Achalu (2000 pp. 62-65) and Asogwa (2007, pp.72-75). Complete elimination of hazardous agents. This can be achieved through the following methods.

a) Substitution of the Process

This means replacing the harmful substances by the less harmful ones which are equally effective or nearly so. Example, the use of fiber glass instead of asbestos in the production of roofing sheets or the substitution of noisy machinery with less noisy ones.

b) Change of Work Process

Example, the use of scanning technique instead of x-ray in carrying out investigations.

2. Containment Measures
This involves containment at the source of the hazards. It is a method of getting rid of dusts, vapors and fumes from a point source. Example, the use of exhaust ventilation in chemical laboratory, wet drilling in mixers or wet mining in coal mines.

3. Total Enclosure of Hazards
This involves preventive measures when the work process is enclosed to avoid exposure. It is relevant to work groups like radiation workers suchas x-ray and transformer station workers. The radioactive material is enclosed in a lead shield, thereby preventing the associated hazards to the worker.

4. The use of partial enclosure of hazards of dangerous machine process section. That is, isolation of such machines.

5. Limitation of Time of Exposure
This is usually the practice in situations where radiation or noise is the hazard. According to Asogwa (2007), the maximum tolerance daily dose should be known and the hours of work arranged so that no worker stays longer than the prescribed period of time.

6. Segregation of Hazardous Processes
By this method, those not concerned with its operation are protected thereby reducing the number of those at risks. In operations involving emission of irritant gases, workers should be made to use breathing apparatus like protective mask and respirators for prevention.

7. Adequate Ventilation in the Work Environment
This reduces high temperature by air movement, maintains adequate dilution of atmospheric contaminants, and reduces the nuisance or harmful effects of such contaminants in the air. Ceiling fans fixed at appropriate places in sufficient numbers will be of help in maintaining adequate ventilation.

8. Cleanliness of the Workplace also called Good Housekeeping
This is very essential especially in hospital environments, as it eliminates the accumulation of dangerous materials in the workplace. Sweeping and washing of the floor with disinfectant should be carried out at regular times daily, preferably at the end of the day's work or before the start of business in the mornings. This should be arranged in such a way as to allow the workers go home with others. This also improves the workers morale and productivity. It can be achieved by establishing and maintaining rules of conduct in the workplace. Such protective devices should include face masks, hand gloves, goggles, boots, helmets, apparels and many others.

9. Personal Cleanliness
Personal hygiene contributes in avoiding accidental consumption of dangerous substances. Preferably, workers employed in inherently dirty jobs should come to work in their clean clothes while their working apparels should be kept and laundered in the

work environment. The employers should contribute by providing facilities for changing and washing of the working apparels. Workers should also be provided with specific places for eating and smoking during recreation periods. There is need for massive health education and campaign on the need for how to use those devices, followed by adequate supervision to see that such workers put on those protective devices, if much success is to be recorded. There is also the need for the industries especially manufacturing and service industries like hospitals to provide all the needed protective devices to avoid things like the individual workers buying inferior protective devices himself because of cost.

10. Legislation

This can be used to eliminate or reduce exposure of workers to occupational hazards. This is because, if the industrialists are not legally compelled to protect the workers, they may not do anything to help prevent workers' exposure to hazards, especially when they still make their profits and workers are always there to be hired and dismissed at will with the slightest flimsy excuses. According to workplace safety and Insurance Bureau (WSIB, 2007), occupational diseases can be prevented by:

a) Finding out what materials and substances were being used in their workplace with the aim of ensuring safety provisions.

b) Finding out how to work safely around materials and equipment in their workplace.

c) Use protective equipment provided by their employer. Make sure that they know how to use the facilities if not ask questions.

d) Be alert to the symptoms of change in your health status and be able to report on time.

e) Always tell the company doctor where they work, what they do and what substances they work with because this information will help in making accurate diagnosis.

f) Keep records of all jobs and industries that they worked with in order to find the cause of the illness.

11. Periodic health education of all the workers to provide them with adequate knowledge of all the hazards that can cause diseased associated with their occupation and the preventive measures to adopt, as well as the importance of keeping safety rules of the occupation.

12. All the workers should be trained and retrained periodically on how to use the protective devices provided by the management in the language familiar to them; regular supervision and monitoring to ensure compliance to the proper use of the devices; information on safety provisions and their importance should be displayed on the posters and notice boards and the sign posts mounted at strategic positions in the company. At times hand bills should be provided for personal keeps for constant consultation and reminder. Managers should show good example by using the devices always.

6.8 Implication of Occupational Health Diseases

Occupational health diseases have implication(s) to both the employers and the employees. To the Employees;

1. The disease condition can seriously affect them physically, mentally, socially and psychologically and that of their family well-being.
2. Such disease conditions like hypertension and stroke can lead to permanent disability to the employee thereby making him or her nonproductive. This will further affect the employee generally as well as reduce his life span.
3. There could be increased morbidity and mortality among workers.
4. The ill-health can lead to low productivity with decreased income
5. It could lead to reduced work force.
6. Respiratory diseases can cause permanent damage to the respiratory systems especially the lungs. These can gradually affect the worker and by gradually reducing the working capacity thereby causing serious industrial set back.
7. The diseases can create physical and emotional problems that can affect the general behavior of the worker.

Threat of Occupational Diseases

The treat differs according to the causative agent. Some of them are:
1. Silicosis causes fibrosis of the lungs leading to emphysema. This can result to permanent disability and death among the workers.
2. There could be physical deformity resulting from diseases such asstroke, hypertension or even diabetes. This can incapacitate the worker making him/her nonproductive especially if treatment is not started on time.
3. Cardiac diseases such as angina pectoris, heart failure.

6.9 Reporting of Occupational Diseases

In Nigeria, according to Asogwa (2007 p.293) the following diseases occurring in occupational settings are reportable by Law by the factory owners:
1. Lead poisoning, including poisoning by any preparation or compound of lead or their squeal.
2. Phosphorus poisoning by phosphorus or its compounds or their sequelae
3. Mercury poisoning, by mercury, its amalgams and compounds and their sequelae.
4. Manganese poisoning by arsenic or its compounds and their sequelae
5. Carbon bisulphide (disulphide) poisoning
6. Benzene poisoning, including poisoning by any of its homologies, their nitro and amido derivatives or their sequelae.
7. Chrome ulceration due to chronic acid or bichromate of potassium, sodium or ammonium, or any preparation of these substances.
8. Anthrax
9. Silicosis

10. Pathological manifestations due to: a) radium or other radio-active substances b) X-rays
11. Toxic jaundice due to tetrachlorethane or amido derivatives of benzene or other poisonous substances
12. Toxic anemia

13. Primary epitheliomatous ulceration of the skin due to the handling or use of tar, pitch, bitumen, mineral oil, paraffin or the compounds, products or residues of these substances.
14. Poisoning by halogen derivatives of hydrocarbons of the aliphatic series.
15. Compressed air illness (cassion disease)
16. Asbestos.

Self- Assessment Exercise 2

1. Methods of detection of occupational diseases includes _____, _____and _____
2. Mention three (3) implications of occupational health diseases.

6.10 SUMMARY

In this unit we have discussed the following:

- The meaning of occupational diseases for awareness creation
- Types of diseases a worker can contract in the process of job performance in any occupation he/she engages himself.
- The pre-disposing factors to those diseases and also,
- The precautionary and preventive measures a worker can adopt in order to avoid the occurrence of the disease as well as the type of treatment that can be applied for better cure.

6.11 REFERENCES/FURTHER READINGS

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6.12 ANSWER TO SELF ASSESSMENT EXERCISES

Answer To Self-Assessment Exercise 1

1. Occupational health disease
2. Occupational disease of the Thrombosis

Answer To Self-Assessment Exercise 2

1. Biological method, Epidemiological method and Environmental method
2. a. The disease condition can seriously affect them physically, mentally, socially and psychologically and that of their family well-being.

b. Such disease conditions like hypertension and stroke can lead to permanent disability to the employee thereby making him or her nonproductive. This will further affect the employee generally as well as reduce his life span.

c. There could be increased morbidity and mortality among workers.

UNIT 7 Occupational Accidents

UNIT 7 Occupational Health Diseases

Unit Structure

7.1 Introduction

The success of any occupation is measured by the progress made and the safety of its workers. The need for the employees' safety from the occupational hazards is highly commendable. Every worker expects to live longer and so needs to be free from all hazards including accidents that can limit or threaten their survival and that of their families. The most common of such hazards is accident. They need to be safe and secure in relation to himself, his family and his work so that their health will be prolonged and work output increased thereby promoting the growth of the industry. Nevertheless, accidents occur and constitute the most important threat to survival of workers. Occupational injuries do create serious health problems for the working population. They are costly, not only in terms of health and personal loss but also in loss of productivity. They also increase the work load of caring professions like nursing. There is need to discuss the meaning, types of accidents, causes, preventive measures and how those affected can be effectively managed and then rehabilitated back to their occupation.

7.2 Learning Outcomes

At the completion of this Unit, learners should be able to:

- Define occupational accidents
- State the types of accidents in work environment
- Describe the predisposing factors to occupational accidents
- Explain the methods of prevention and control of occupational accidents
- Describe the management of accident cases in occupational settings
- Describe ways of protecting employees from occupational accidents.

7.3 Occupational Accidents

Accident is one of the major occupational health problems of the employees. It is an unexpected and serious sudden event that can occur anywhere and then result in both bodily and property damages. Accident, according to Mroz, 1978 occupational accident is a sequence of sudden, unplanned events which have the potential for producing personal injury or property damage. It is an unplanned event usually associated with unpleasant outcome (Asogwa, 2007). It is an unexpected, unanticipated and sudden event that results in bodily injury, property damage and death. It causes both human and economic and material losses to both paid and non-paid occupations such as industries, health institutions, agricultural, educational, banking and numerous other occupations.

7.3.1 Types of Occupational Accidents

There are different types of occupational accidents and each has its peculiar types of accidents. The types of accidents can generally be grouped into: Main types arising from all types of occupations. Specific accidents occurring in specific occupations. General types include: puncture wounds, bruises, scalds, sprains, contusions, fractures, dislocations, crush injuries, amputations, enucleation, asphyxiation, unspecified injuries among others. Injuries arising from industries include: Amputation, lacerations, puncture wounds, electrocution, fractures, head injuries and sprains etc. Accidents arising from health institutions include: needle prick injuries, sprains, cuts from sharp instruments, slip disc, falls, fractures, anesthetics accidents, eye injuries, burns from acids and other chemicals. Accidents arising from Agricultural occupation include: cuts from hoe, knives, gunshot wound especially in land disputes, scorpion, human and animal bites like snake bite, drowning, falls, contusions, accident in banks include: back injuries, syncope, falls and others The Causes or Precipitating Factors of Accidents The causes of accidents to workers are varied. Some of the causes are known while others are unknown. The known causes can happen without signs. The main causes can be attributed to the following: The type of occupation where the person is employed. It could be manufacturing industries such as those cited by Reich and Okubo like machinery and equipment, wood and furniture, Hide, Clothing and Textiles; Chemicals, Tobacco, non-metal minerals, minerals and paper and printing industries. It could result from agricultural or health institutions among others.

The causes continued Reich and Okubo could also be as a result of:
i. Unsafe human behaviors/human failure.
ii. Environmental factors.
iii. Defective machinery.
iv. Work characteristics.

Unsafe human behaviors according to Mroz, 1978 are the principal cause of up to 80% of accidents. Causes include: Psychological and attitudinal factors like anger, hatred, fear, anxiety and joy. The relations to these factors can push the worker to ignore safety precautions and then act carelessly and recklessly thereby acting out what he/she could not in normal self. Unsafe personality traits such as attitudes, exaggerated opinion of

self-importance; over confidence, abnormal needs for excitement. Undesirable attitudes resulting in erratic and unpredictable behaviors. Complex personality traits such as exaggerated opinion of self-importance; over confidence in self, abnormal need for excitement. Employees with these traits tend to focus all their attention on themselves and act irresponsibly against themselves and others. They over estimate their abilities, exercise and therefore display in attention and disregard safety precautions, subject themselves and even others to accident.

Unhealthy habit formation such as intake of self-prescribed medical drugs like sedatives, tranquillizers, antihistamines etc. these may produce alteration in normal physical abilities causing drowsiness, confusion, sleepiness, blurred vision, perceptual problems that can lead to accident. Excessive alcohol intake interferes with the body's psychological processes, alter the person's mood, attention, judgment etc. all these unsafe behaviors can hinder judgment and other mental processes, body fatigue leading to reduced efficiency of the individual. Unnecessary risk-taking behaviours and competition commonly seen among adolescents, young drivers overtaking at bends, over speeding rushing to overtake other vehicles etc. these can lead to fatal accidents. In an attempt to protect self ,company property and family members from armed robbers people have built miniature prisons in their homes and work places with the result of being trapped in the event of accidents such as fire outbreaks; unnecessary risks include: keeping loaded pistols under the pillow, keeping drugs at reach of children, keeping bottle of fluids like kerosene, bleach, fuel and other dangerous fluids and substances without label carelessly in the work sites and in the house at reach of children, swimming when you don't know how to do so, riding motor-cycle in a very busy road and other unnecessary careless acts etc. Other personality factors include age, lack of knowledge, experience, skills, ill-health and physical unsuitability of the worker such as visual or hearing impairment, epilepsy, unfriendliness with co-workers or employers, emotional problem like fear, inability to follow instructions and concentration (Achalu,2000.p68).

7.3.2 Predisposing Factors to Occupational Accidents

Environmental Factors

These are conditions of the work environment that can precipitate accident to workers. They include nature and man-made factors.

a. Nature factors include those factors that can obscure visibility such as: rain, dust, smoke, wind, sunlight, foreign body in the eyes, others include floods, tornados, earthquakes, land slide, extreme temperatures, and inadequate ventilation. Man-made factors that cause accidents include: filthy environment, slippery floors, improper storage of items, use of generators, candles, insecticides pesticides etc.

b. Locality of the work environment, physical hazards, working arrangement like time of the day, day of the week, attitude of supervisors towards work and safety in the environment where the industry is sited. Defective Agents – it could be due to poor design, manufacturers fault, mechanical or structural failures, rusted connections, poor handling of machines, shovels, knife.

Other predisposing factors to accident include; bad lifting technique causing spinal injuries; assaults in work site, direct explosion on the unit, carbon monoxide from combusting fuel, wood oil, vehicles, generators, faulty electrical appliances.

7.4 Principles of Occupational Accidents

The general principles of accident prevention applicable to all occupations irrespective of size proposed by Asogwa (2007, p 187-188) include:

- The prevention of accidents is an essential part of good management.
- Both workers and management must cooperate to reduce accidents.
- The organization of safety in the plant is the responsibility of the management.
- Each plant should have a definitive and well known policy on safety.
- There must be available organization and resources to carry out the policy.
- The best known method which can be introduced must be applied at the work place.

Self- Assessment Exercise 1

1. Who defined Occupational Accident as a sequence of sudden, unplanned events usually associated with unpleasant outcome?
a. Arewa
b. Asojwa
c. Mroz
d. Achalu
2. Types of Occupational Accident can be grouped into _____, _____ and _____
a. General type, main type and specific type
b. Main type, peculiar type , special type
c. Specific type, soft type and hard type
d. Peculiar type, backward type and main type

7.5 Prevention and control of Occupational Accidents

- The understanding of the causes of accidents and how the employee is affected within the environment is beneficial in prevention and control of accidents. Literature abounds on the preventive measures. The following measures could be applied as suggested by Achalu (2000):
- Provision of safe premises, safe procedures, safe machines for workers by the employers.
- Provide workers with adequate training on the importance and proper use of safety devices such as eye goggle, booths, ear plugs, hoes, cutlasses, hand gloves, face mask as the case may be according to factory rules.
- Pre-employment and periodic examination of all employees should be ensured. This is to evaluate the health and fitness status of the employees before employment as a baseline data and also to determine what becomes of the workers' health with time due to the nature of work done.
- Provide workers with information regarding the inherent risks of any occupation before he is allowed to work alone on the job.
- Protective clothing should be properly designed according to the anthropometric measurement of the workers to avoid discomfort while performing tasks. This,

according to Asogwa (2007 p179) discourage unwillingness of the workers to use the clothing properly or even do without it claiming that it is uncomfortable and makes him clumsy. Workers should also be motivated to use the clothing for safety measures. Effective training and encouragement of workers on proper use of safety knowledge, skill and various work procedures.

- There should be well defined policy guidelines on safety precautions in each plant.
- All aspects of the factory should be adequately ventilated to avoid excessive heat or humidity – extremes of temperature.
- Avoid pouring water, oil or other chemicals that can make the work environment slippery to cause accident.
- Prepare and display at strategic positions within the work environment bill boards, posters, sign posters indicating danger zones, safety measures, unsafe danger zones, safety measures, unsafe acts in work place, the need for compliance and disciplinary measures.
- Inculcation of personal hygiene and provision of facilities for conveniences.
- All defective machines and equipment should be repaired or replaced to avoid accidents. Modification in the use of dangerous machinery and hazardous operations should be adhered to.
- The use of worn-out hand tools, e.g., hammers, Chisel should be discouraged. Proper design and shielding of all machinery with efficient interlocks may eliminate completely the risk of damage to the worker from splashing chemicals or damage from flying objects thereby avoiding accidents.
- Studying the biomechanics of human gait to determine forces and torques acting at the interface between the floor and the sole of the shoe can assist to improve friction characteristics of floor surfaces and shoe soles to reduce accident risks as a result of falls.
- All staff in health institutions should adopt the stringent measures in the use and disposal of needles and sharp objects.
- Workers' metabolic demands for a job done in hot and humid environments should be evaluated to recommend a work-rest regime that will prevent heat stress. Recreational facilities and canteen for feeding should be provided.

Prevention of musculoskeletal accidents should be avoided by:

- Evaluating lifting tasks to determine biomechanical stresses acting at the lower back and designing lifting tasks to ensure that the stresses do not cause back injuries;
- Evaluating work station layout to discover potential causes of postural stress and recommending changes to eliminate or reduce non-natural work postures that could cause cumulative trauma disorders.
- Eliminating awkward postures can also reduce fatigue (Federal Ministry of Health, 2001). The Ministry also stated that: Work space minimum space should be allowed between body and body components or worker and the point of friction. The work table, control boards, stacking racks should be designed either

in sitting or standing position. This will enable easy reach and grip strength. Also, all had-controlled operations should be at the elbow level.

7.6 Treatment of Occupational Accidents

- The survival of an employee after an accident depends on effective management. The type of management to be provided should depend on the type of injury sustained. Some injuries could be minor while some could be serious enough to affect life. In all cases, in order to provide prompt and effective management, the following should be provided in work settings:
- Establishment of an occupational health service at workplace to ensure a healthy workforce. Effective first aid services. There should be groups of workers selected from each work section to be trained as first-aiders for early treatment accident cases. First aid boxes should be placed at strategic positions within the work environment.

i. Prompt referral of serious cases to appropriate hospitals.
ii. Rehabilitation of injured and reabsorption into the occupation.
iii. Training of a rescue team in high risk places coal mining.
iv. Keeping accidents records to determine trends of accidents and for comparison.
v. This should be analysed periodically to discern trends and evaluate the efficacy of the counter measures.

7.7 Reportable Accident Cases in work Environment

Reportable accident cases are those accidents required to be reported; are those that can result in disability lasting up to five days of absenteeism from work. They include such cases as: Amputation of a body part, head injury, fractures, and burns especially up to second degree burns. Apart from recording the serious cases, minor injuries should also be recorded immediately they occurred. The following should be indicated. Name of the victim, sex age, and marital status, type of duty, cause of accident, location where the accident happened and location of the factory where the victim works. These data are essential for future reference and comparison.

The accident form should be in triplicate and should be filled out by the first-aid provider specialist or by the foreman where a specialist is not available. A copy should be kept with the occupational health service, another one with the foreman while the third one remains in the register or file. Both the foreman and occupational health service should transfer the information in the accident report form into their accident report register. The victim's case should be reported by the doctor treating him or her indicating

Minor injuries: First aid treatment lost working time of less than one shift.
Major injuries: Hospital admission for at least one working shift.
Fatalities: Where one or more persons were killed.

Before the worker resumes duty, he should report to the health service where he will be certified fit and given written confirmation for the foreman for records and determination of any benefits.

7.8 Treatment Proper: Reassurance of Victims in Work Environment

The first line of management is to encourage the victim and reassurance that there is still hope. Attend to the following:

i. If there is lack of breathing movements or events affecting breathing, first ensure that the victim is still alive.
ii. Arrest bleeding if any with any available material.
iii. Accompany victim to the factory clinic where available, otherwise refer to hospital.
iv. Provide management as prescribed or as deemed necessary.
v. Rehabilitate the victim
vi. Include relations of the victim in the management.
vii. Keep record of the treatments given as well as the type of accident.
viii. Reporting of Accident cases.

7.9 Transportation of Accident Victims in Work Environment

Transportation of the victim should always be limited to situations in which an immediate danger to life of the victims exists or to situations in which professional ambulance or rescue personnel are not available. Under these circumstances, the first-aid provider should observe the following: Unless the victim's life would be in further danger, never move him until his breathing has become adequate, his bleeding has been controlled, and his wounds, which could be fracture or dislocations have been splinted. If for his immediate safety, the victim must be moved, before such measures can be taken, always protect and support the injured parts during the movement.

Where possible, bring the transportation device (vehicle or stretcher) to the victim rather than carrying him to it. When lifting and carrying the victim, gently support the head, neck, back and extremities, keeping the body aligned all the times. When transporting a victim, never force him or her to travel in a sitting position instead, always place the victim in a reclining or semi reclining position, the necessary space best afforded by a station wagon. Since the few minutes saved by a high-speed ride is almost always unimportant for the victim's recovery, drive within the posted speed limits and reduce the speed especially at bends.

7.10 Rehabilitation of Accident Victims

The aim of rehabilitation is to restore the victim to his fullest physical, mental and social capacity. Recognition of the victim's physical, social and economic roles is very essential. Rehabilitation should aim at solving the problems and it should start from the moment of injury sustenance thus:

At the scene of the accident, the victim should be reassured and encourage. This gives him courage and hope. At the initial time of hospitalization, the following should be done:

Prevention of complications arising from long period of bed rest, urinary tract infections, venous thrombosis, muscle wasting, joint stiffness, contracture etc by good nursing and physiotherapy.

During hospitalization, there should be continued provision of all planned care such as medication, personal hygiene, feeding, psychological and emotional care etc. these should be continue until discharge from the hospital. Involve the relations in the care of the victim. Remedial exercises should be encouraged. Provision of aids and other appliances to make up for lost functions particularly with mobility in the form of artificial limbs is necessary.

Resettlement at work: this is started when the victim has gained physical recovery and has been certified fit to be engaged as before the injury. He can be re-instated in his former position where his condition permits or be retrained and assigned another responsibility his condition allows.

Self- Assessment Exercise 2

1. In reassurance of victim in work environment, the first line of management is to encourage the victim that there is hope? True or False
2. The aim of rehabilitation is to restore the victim to his fullest _____, _____ and _____ capacity.

7.11 Summary

In this unit, we learnt that occupational accident is an unexpected, unwanted, unplanned sudden event. It is an occurrence arising from unsafe acts or unsafe conditions, unsafe practices etc. Common injuries include: fractures, sprains, amputations, head injuries etc. Implications to workers include pains, injuries, disabilities, emotional and psychological implication and even death. Implications to employers include human, financial and material loss.

7.12 References/Further Readings

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www.ncsu.edu/ehs/accidents/occacc.htm
HYPERLINK http://www.ncfh.org/pateduc/en-work.htm
www.ncfh.org/pateduc/en-work.htm.

7.13 Answers to Self-Assessment Questions

Answers to Self-Assessment Questions 1

1. C- Mroz
2. A- General type, main type and specific type

Answers to Self-Assessment Questions 2

1. True
2. Physical, mental and social capacity.

UNIT 8 Occupational Health Poison

Unit Structure

8.1 INTRODUCTION

The increasing hazards faced daily by many workers at their jobs call for concern. The employees may not suffer the consequences of the hidden hazards (chemical, radiations) directly or indirectly until years later. These chemicals or radiations are poisonous to the body. Occupational poisons are serious injury that is job-related. It usually happens on worksite such as a factory or construction site. This can occur as a result of leakage, failure of chemical plant or as a major accident
(Usman 2001). Achalu (2000 pg.43) defined occupational poisons as those substances, elements, compounds or mixtures used in industries that interferes with the metabolic processes of the body and produces acute or chronic ill health. These poisons can enter the body by inhalation, ingestion or absorbed through the skin contact. They include heavy metals, chemicals and solvents fumes, gases, and vapor. This write up focuses on occupational poisons.

8.2 LEARNING OUTCOMES

- After reading through this unit you should be able to:
- Define occupational poisons
- Describe occupational poisons and their sources
- Enumerate people at risk
- Describe clinical manifestation of some occupational poisons
- Discuss diagnostic procedures of detecting occupational poisons
- State strategies for prevention
- Describe how the poison incident can be reported
- Discuss the implications on the employees
- Discuss precautionary measures to be taken.

8.3 OCCUPATIONAL HEALTH POISON

Definition

Poison is any substance that can impair function of otherwise injure the body; something that destroys body organs or body systems, given something with intent to kill

8.3.1 Sources of Industrial Poisons

Sources include:

1. Heavy metals like all lead compounds. Example lead oxides, lead carbonate, lead sulphide. Among these lead compounds the most dangerous is lead carbonate while lead sulphide is the least toxic (Park 2005). Metallic mercury, one can get this from industries that manufacture batteries, lead smelting, lead ores, pipes, paints, solder, rubbers, and shoe makers. Health workers are likely to come contact with such.
2. Chemicals: Strong acids, concentrated alkalis in the work environment
3. Chemical in form of dust, gases, fumes.

Dusts causing poison include:

a) Inorganic dusts - asbestos, coal mining dust, silica dust, arsenic dust. One can get these from mine, textile, construction, acetaldehyde, butyl alcohol, paint, rope and string in thermal insulation, floor tile, cement, removal of sludge from tank that held sulphuric acid.

b) Organic dusts-examples include: vegetable dust, cotton dust, sugar cane dust. It is found in striping, grinding of card machines.

Gases: arsine, aniline, carbon tetrachloride, carbon monoxide, hydrogen cyanide, hydrogen sulphide. One can get these from insecticides, leather, smelter, dyes, perfumes, pharmaceutical products, dry cleaning agents. Fumes – arsine

4. Organic compounds are: phosphorus, ammonia. One can get these from fertilizers, pesticides used in agriculture, organic phosphorus insecticides.
5. Other compounds include benzene, carbon tetrachloride, manganese toluene, and xylene.

8.3.2 People at Risk of Occupational Poisons

According to Marie (1991) the following people are at risk of occupational poisons.

1. Health workers - Nurses, laboratory scientist radiographers, doctors, anesthetists etc.
2. Employees in mining industries, coal miners, quarry.
3. Employees at cosmetic industries due to dye, spray, perfumes.
4. Employees in laundries and dry cleaning establishments.
5. Carpenters, welders, bankers.
6. Farmers, veterinary workers.
7. Workers in textile, construction companies.
8. Employees in cement, asbestos industries.
9. Employees in oil refineries.
10. Aerospace workers.

11. Employees in ceramics, glass producing industries/
12. Shoemakers

8.3.3 Clinical Manifestations of some Clinical Health Poison
This depends on the types of poison and the parts of the body affected clinical manifestations of some of the occupational poisons are mentioned.

8.3.3.1 Clinical Features of Lead Poisoning:
Abdominal colic, loss of appetite obstinate constipation, blue line on the gum, anemia, wrist drop. Organic lead poisoning affects most central nervous system causing insomnia, headache, mental confusion, delirium. Encephalopathy following exposure to organic lead compounds is characterized by mental dullness, loss of ability to concentrate, loss of memory, tremor, deafness, convulsion, aphasia, coma etc where there is severe poisoning.

8.3.3.2 Clinical Features of Asbestosis
1. Progressive breathlessness
2. Initially unproductive cough which becomes mucoid or mucopurulent at late stage
3. Listlessness
4. Loss of weight suggestive of malignant changes
5. Cyanosis in advance cases
6. Dull on percussion in advanced stage
7. Dullness is suggestive of pleural effusion (Asogwa 2007 pg.121)

3.3.2 Clinical Manifestation of Arsine Poison
If the haemopoietic system is involved it presents the following signs and symptoms. Their effects when mild are sudden and are characterized by malaise, nausea, and vomiting, shivering, giddiness and epigastric pain. Haemoglobinuria, anaemia due to powerful haemolytic nature of arsine. Pot wine urine and jaundice are present. In severe case blockage of renal tubules with anuria and hepatic damage are observed. Clinical features when mucocutaneous tissues are affected. In sub-acute poisoning there is catarrhal inflammation of mucous membranes, conjunctivitis, laryngitis, tracheitis, eczema, tons skin lesions at skin folds and other moist areas. Arsine dust produces perforation of nasal septum, chronic poisoning produces dermatitis, ulcer, trophic changes in the nails and loss of hair and bronzing. In mild cases the bronzing is best seen in the eyelids, temples, neck and nipples in fair-coloured individuals. In people with dark skin it may be difficult to see even in severe cases.

Assessment Exercises 1

1. _____ is any substance that can impair function of otherwise injure the body; something that destroys body organs or body systems, given something with intent to kill
2. Mention two (2) sources of industrial poison
3. People at Risk of Occupational Poisons includes the following **EXCEPT**
a. Bankers
b. Aerospace works
c. Farmers
d. Health workers

changes may occur with intellectual impairment, memory loss, insomnia, anxiety. Poisoning from organic compounds affect nervous system more than inorganic mercury.
Clinical Features of Organo and Phosphorus Compounds Include the following by (Asogwa 2007 pg.147): Initial symptom may be mild or non-specific. There may be headache, nausea, unusual fatigue. Taking food or smoking makes symptom worse. Diarrhea, vomiting, pinpoint pupils, convulsion are signs of pulmonary congestion. It occurs in a matter of 2 - 8 hours. Death may result shortly after appearance of symptoms.

8.5 Diagnostic Procedures for Detecting Occupational Poisons

Some occupational poisons are known and documented while some are not known. It therefore becomes important to detect the unfamiliar and unknown in order to control them. This can be achieved by the following:

1. Biological Monitoring

This takes the form of pre-employment health assessment, pre-placement assessment, and periodic health assessment. Basic health data are collected through history and laboratory tests. Chest X-rays are also utilized. The hallmark of biological monitoring is for early detection of poisoning and to plan appropriate preventive and curative measures to curb the spread and damage.

2. Epidemiological Methods

This aims at studying the distribution, determinants and deterrents of disease and ailment among segments of work force. It detects both occupational poisons and non-occupational ones among workers through association between condition and certain diseases.

3. Environmental Measurements

It is used to detect agents of known hazards in the work site before the risks occur. It is particularly very relevant in disabling and irreversible diseases. For example dust measurements in coal mine would help reduce the incidence of pneumoconiosis (Asogwa 2007 pg 71-72).

8.6 Strategies for Prevention

- Conduct pre-employment and pre placement health assessment. This is to determine exclude individual's fitness for particular work or the susceptility to the effect of work process or the environment in which the work is to be done.
- Monitor health status of employees from time to time. The frequency of examination depend on the work process individual undertakes.
- Conduct inspection of industries to ensure compliance and research to establish the hazardous level of various chemicals.

- Integration of safety training into the actual work situation.
- The occupational health officers, health inspectors and medical advisers and trade unions should inform, educate employees on hazards associated with each work process and safety measures recommended.
- Monitor the use of protective devices among the employees.

8.7 How Poisoning Incident can be reported

According to Asogwa (2007), when any disablement occurs in an industry. The first aid specialist or foremen fills the poison form. The forms are filled in triplicates. The accidents registered are as well filled. After the victim has been attended by doctor, the diagnosis, disposal and duration of incapacity are equally entered in triplicate forms as well asoeisonais registered. A written notice in a prescribed form with the prescribed particulars is sent through the factory occupier. Where the occupier is not the employer of the victim the employer will send the particular to the district inspector. The report is made if there is a loss of life or disablement for more than three days. It can equally be reported when there is suspected or proven disease.

8.8 Implications of Occupational Poisoning on the Employees

The implications of occupational poisoning on the employees are enormous and are discussed under the following headings; deformity, psychological depression/trauma, economic loss, health social implications.

Disabilities

An employee affiliated with occupational poisoning may come down with minor or permanent disablement. Example, contact with corrosive acids. They may leave contracture, and physiological dysfunction of organs and systems, the employee may be left with permanent disability even after recovery. The disability sustained may be so severe that life of such employee is at jeopardy, the employee may be falling sick often and on, which may throw him/her out of job completely, loss of job will compound his health problems, hasten death.

Psychological Trauma/Depression

Distortion in the body image or appearance carries a lot of emotional depression, as the employee thinks on how to cope with alternated body image. Where the employee is single He/she thinks of these, can I still get wife/suitor of my choice, can I bear children, how to carry on family responsibilities among other things;. All these constitute psychological trauma.

Social Isolation

Disability depending on the nature and site may hinder the employee from attending social functions or withdrawal from other people, this result in loss of acquaintances thus social isolation with its resultant affects the worker.

Economic Implications

Financial losses occur following occupational poisoning. Even though the employer pays compensation but the employee may have some other things he does outside factory work. In that case he can no longer attend to that resulting in economic loss. Recovery from such hazard may result in shift from former trade of the employee to a

less skilled one with low remuneration. Again the employee may be to take care of him/her and this amounts to heavy financial involvement to the family. Thus economic loss is seriously felt by the employee.

8.9 Precautionary Measures to be taken

Asogwa (2007) and Akintola (2005) highlighted on the precautionary measures to be adopted thus:

Health Assessment

This includes pre-employment, pre-placement health assessment as well as periodic medical examinations to exclude any underlying health problems that may predispose an employee to hazards in the work process or environment. Again for early detection of pathological changes and institute measures to avert such.

Work environment must be inspected from time to time. This aims at ensuring safe work environment and promotes and protects health of employees.

- Employers must ensure that his plant is well designed and meet the safety requirement specifications and his work process.
- Inherent risks of any process must be explained to the workers before he is left alone on a job.
- Double standards of safety should not be condoned.
- Design of protective clothing should be in line with the anthropometric measurements of the workers.
- Well planned and executed education of workers should be carried out in a language the workers understand.
- Vague concepts of safety and accidents prevention should be avoided.
- Hazards and consequences of negligence should be made as concrete as possible through life case studies and factual material drawn from work situations in which the people are employed.
- Safety training should be integrated into the actual situation so that the worker is constantly reminded of the need to practice safety measures.
- Guard for dangerous parts of machinery.
- Regular inspection and repair of machines should be documented in a book when such has been done and found in order.

Self- Assessment Exercise 2

1. Diagnostic procedures for detecting occupational poisons includes Biological monitoring, Epidemiological method, and Environmental method. True/ False
2. List and explain three (3) implications of occupational poisoning on employee.

8.11 REFERENCES/FURTHER READINGS

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POSSIBLE ANSWERS TO SELF- ASSESSMENT EXERCISES

Possible Answers to Self- Assessment Exercises 1

1. Chemical and Dust (Organic and Inorganic dust)
2. A- Bankers

Possible Answers to Self- Assessment Exercises 2

1. True

Disabilities

An employee affiliated with occupational poisoning may come down with minor or permanent disablement. Example, contact with corrosive acids. They may leave contracture, and physiological dysfunction of organs and systems, the employee may be left with permanent disability even after recovery. The disability sustained may be so severe that life of such employee is at jeopardy, the employee may be falling sick often and on, which may throw him/her out of job completely, loss of job will compound his health problems, hasten death.

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UNIT 9 ENVIRONMENTAL HEALTH HAZARDS
Module Structure
MODULE 2 ENVIRONMENTAL HEALTH HAZARDS

UNIT 9 **ENVIRONMENTAL HEALTH HAZARDS**
Unit Structure

9.1 INTRODUCTION

Examples of human activities presented in module 1 indicate that, man's ability to tinker with or dominate his or her environment has obvious consequences. One of such is the creation of environmental agents capable of impacting on human and the environment. In this unit, we will look at environmental hazards, it definitions, types and classifications.

9.2 LEARNING OUTCOMES

- At the end of this unit, you should be able to:
- Define environmental hazard
- Ascertain the misconceptions about the meaning of hazards
- Describe environmental media
- Illustrate different classifications of environmental health hazard

9.3 ENVIRONMENTAL HEALTH HAZARDS

9.3.1 Environmental Hazards: Definition

Environmental hazard' is a generic term for any situation or state of events which poses a threat to the surrounding environment. This term incorporates topics like pollution and natural hazards such as storms and earthquakes. An environmental hazard is also any substance, agent, equipment, object, human behaviour or factor that is capable of injury, disability, disease or death in humans or has the potential for polluting or degrading the environment (Olaniran et al, 1995).

9.3.2 Misconception about the meaning of Hazard

Some misconceptions about the meaning of 'hazard' should be cleared. The word 'hazard' is not synonymous with injury or disease. A hazard is only capable of causing

injury if and only if certain environmental conditions exist. Few examples are given to illustrate this point.

1. A parked vehicle is a hazard but will not cause harm until it is recklessly driven by a drunk driver or there is a break failure.
2. Injury from a sharp, pointed object (a knife) can only occur of there is an accident through misuse or carelessness.
3. A big polythene bag appears harmless but very hazardous to children if they are left unchecked. It can lead to suffocation and death.
4. Human faeces (excreta) a very hazardous waste, cannot cause illhealth unless a person ingest water and food contaminated with faeces. It must therefore be emphasized that hazard is not an injury or a disease although the terms are usually erroneously used interchangeably

(Olaniran, et al, 1995).

9.4 Environmental Media

Exposure by individuals to environmental health hazards is normally through a medium. Exposure can be by inhalation through the nose, ingestion by mouth or absorption through the skin. Thus, the pathway in the environment through which hazards must pass before impacting on human health are collectively known as environmental media (Olaniran, et al, 1995).The environmental media are:

- The air we breath
- The food we eat
- The water we drink
- The soil which we cultivate
- Inanimate objects in our environment
- Occupation and Socio-cultural events

9.5 Classifications of Environmental Health Hazards

Environmental health hazards can be classified into 4 broad groups depending on nature and type. The groups are:

- Physical
- Biological
- Chemical
- Socio-cultural/Psychosocial

Most of the physical hazards are easily observable, detectable and measurable and are found in our immediate surroundings, but mainly in the occupational and home environment. Some of the biological hazards cannot be seen by the naked eyes, but most are present in all components of environment. Biological hazards are detectable and measurable using microbiological or biological techniques. Chemical hazards are the most numerous and complex. Most are found in the workplace and are measurable using sophisticated laboratory techniques. Socio-cultural hazards are the most difficult to detect and measure because they are usually ill-defined attributes of man. Examples of hazards in each of the 4 groups are thus presented below:

Self- Assessment Exercise

1. What is environmental hazard?
2. Mention four (4) misconceptions about the meaning of hazard
3. What are the four (4) main classification of environmental health hazards

9.6 SUMMARY

Hope you enjoyed reading through this unit. This unit took a broad look at the meaning and misconceptions of environmental hazard, as well as environmental media and classifications of environmental health hazards. Now let us attempt the questions below.

9.7 REFERENCES/FURTHER READINGS

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9.9 POSSIBLE ANSWERS TO SELF- ASSESSMENT EXERCISES

1. Environmental hazard' is a generic term for any situation or state of events which poses a threat to the surrounding environment

2. a. A parked vehicle is a hazard but will not cause harm until it is recklessly driven by a drunk driver or there is a break failure.

b. Injury from a sharp, pointed object (a knife) can only occur of there is an accident through misuse or carelessness.

c. A big polythene bag appears harmless but very hazardous to children if they are left unchecked. It can lead to suffocation and death.

d Human feces (excreta) a very hazardous waste, cannot cause illhealth unless a person ingest water and food contaminated with faeces. It must therefore be emphasized that hazard is not an injury or a disease although the terms are usually erroneously used interchangeably

3. Physical, Biological, Chemical, and Socio-cultural/Psychosocial

UNIT 10 POLLUTION PREVENTION IN INDUSTRIES
CONTENTS

10.1 INTRODUCTION

This is s general introduction to an overview of pollution prevention concepts. Here we will look at source reduction, good operating practices, technology change, product change and most importantly, recycling. Observations indicates that most countries now argue for recycling practices because it is very cost effect and environmentally friendly. Happy reading!

10.2 LEARNING OUTCOMES

At the end of this unit, you should be able to:

- Determine an overview of pollution prevention concepts
- Determine source reduction in industries
- Identify good operating practices in industries
- Illustrate technology changes and pollution prevention.

10.3 Overview of Pollution Prevention Concepts

Pollution prevention encompasses both source reduction and in-process recycling. Source reduction is thus defined as any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream prior to recycling, treatment, or disposal, and that reduces the hazards to public health and the environment associated with the release of such substances, pollutants, or contaminants. Thus governments, businesses and industries, and individuals should prevent or reduce pollution at its source wherever feasible. Where source reduction cannot be achieved, it is advocated that responsible parties reuse and recycle to reduce the quantity of hazardous waste requiring treatment. If there are no feasible pollution prevention alternatives, environmentally sound treatment should be applied with disposal used only as a last resort. Techniques that merely transfer contaminants from one medium to another without a net reduction in the quantity and toxicity of hazardous constituents do not meet the definition of pollution prevention. This unit describes and

gives examples of the various pollution prevention measures encompassed in source reduction and recycling.

10.3.1 Source Reduction in Industries

Source reduction lessens or eliminates the quantity of hazardous and toxic wastes generated and the expense and environmental impacts associated with managing these wastes. In addition, source reduction usually results in significant cost savings realized from raw material conservation. Source reduction encompasses good operating practices, technology changes, input material substitutions, and product changes (Sherry, 1988a).

10.3.2 Good Operating Practices in Industries

In general, industries can realize a high return from a minimal investment by implementing good operating practices. Good operating practices are procedural, administrative, and institutional measures, which include improving inventory control, preventing accidental spills, segregating waste streams, and scheduling production runs that maximize production and minimize waste. Getting management to commit to pollution prevention is a first step toward instituting an effective source reduction program. This commitment might be demonstrated by a written policy statement circulated to company employees and posted in visible locations and by encouraging employees to adopt the principles of pollution prevention. Demonstrating management's dedication to pollution prevention and its importance to company operations can galvanize the work force and help employees view pollution prevention as a priority in their everyday work activities. Other management and personnel practices, such as employee training, incentives, and bonuses, also can encourage employees to reduce waste.

Maintaining an orderly inventory system and proper storage conditions can greatly reduce material waste from deterioration, inefficient use, and spills. For example, an inventory system that employs a "first-in/first-out" management method and keeps a 1- or 2-month supply of materials is less likely to result in material disposal because of product expiration. Implementing a material tracking system that tracks material use by individual employees or work groups allows managers to identify individuals or production teams with above-average materials use. Using tight-fitting lids and spill-proof containers with spigots, minimizing traffic, and employing proper environmental controls in storage areas also will extend material supplies and prevent spills. Frequent inventory inspections will result in early detection of leaks and spills. Other good housekeeping practices include containing and reusing materials dripped from parts as they are transferred during a process and providing funnels or other equipment that avoids spills when transferring materials. Regularly scheduled preventative maintenance reduces the occurrence of malfunctions and leaks, which will reduce the volume of wastes discharged to the sewers. Modifying production schedules to minimize required equipment changeovers will reduce the quantity of wastes generated

by equipment cleaning. Segregating hazardous and non-hazardous waste streams avoids making the entire waste stream hazardous and reduces the volume of waste requiring treatment or costly disposal. Also, maintaining separate waste streams can enhance the industry's ability to reuse or reclaim waste materials. For example, by not mixing two different spent solvents, the purity of the waste materials is maintained, making recycling easier.

Another action, often overlooked, is examining the cleaning products (e.g., cleaners, degreasers, and floor finishes) used by a company to determine whether they are contributing to the toxic loadings in wastewater when discharged through sink and floor drains. Cleaning products with toxic constituents can be replaced with substitutes that do not contain harmful elements. A good housekeeping program should include a review of the cleaning products used in house. Many companies use good operating practices as a first step toward reducing toxic materials use (Greiner and Rishard, 1992; Sherry, 1989b).

10.3.3 Technology Changes

Technology changes can range from minor modifications to existing processes, to major investments in new manufacturing equipment.

Technology changes involve changes in any of the following areas:
1. Production processes.
2. Equipment, layout, or piping.
3. Use of automation.
4. Process operating conditions, such as flow rates, temperatures, pressures, and residence times.

Production processes can be modified to eliminate the need to change over equipment if a unit can be dedicated to one process. Mechanical methods can be used in lieu of solvent use for cleaning and stripping parts. Various process changes can be implemented to reduce drag-out of process solutions, including adjusting the speed of withdrawal of the part from the process solution, allowing more time for the part to drip, and positioning the part to maximize runoff of the solution. Many companies have experimented with technology changes to prevent pollution.

10.4 Input Material Substitutions

This technique involves replacing the input material that contains a problem pollutant with a different material that performs the same function without generating a toxic or hazardous waste. Input material substitutions reduce or eliminate the problem pollutants that enter the production process. Input modifications that avoid the generation of problem wastes during production also fall under this source reduction category. Process changes might sometimes be required to accommodate input material changes. Examples of input material substitution include: United Piece Dye Works of Edenton, North Carolina, met stringent effluent discharge limits on phosphorous by making chemical substitutions in the production process rather than building expensive treatment systems. The company conducted a detailed evaluation of production processes, process chemistry and the chemicals used to identify sources of phosphorus.

It then made process modifications to reduce use of phosphate chemicals by substituting chemicals not containing phosphate. For example, the use of hexametaphosphate was reduced and the use of phosphoric acid was eliminated. These chemical substitutions reduced the level of phosphorus in the company's wastewater from 7.7 mg/l to less than 1 mg/l. This reduction was achieved without any capital expenditures for phosphorus removal (Griener et al, 1992).

10.5 Product Changes

A final source reduction technique consists of product modifications. By altering the product in such a way that the problem pollutant is no longer required in the production process, businesses can eliminate generating the problem waste. Product modifications also can reduce environmental releases of problem pollutants related to the use of a particular product. Product change generally falls into one of three categories: product substitution (e.g., an entirely new product); changes in product composition (e.g., minor modification to an existing product); and product conservation (e.g., increasing the working life of an existing product). Examples of product changes include:

The paint manufacturing industry has taken steps to reformulate its products to reduce hazardous constituents. Paint manufacturers have continued to improve water-based paints and find applications for them that were previously dominated by solvent-based paints. Water-based paints do not contain toxic or flammable solvents that contribute to the potential hazards of solvent-based paints. The use of water-based paints eliminates discharge to sewers of volatile organics in rinse water from production-line cleaning operations. In addition, volatile organics are not released to the atmosphere by water-based paints (Griener et al, 1992).

10.6Recycling

Recycling options involve the reuse and reclamation of spent input materials, such as solvents, detergents, inks, and other chemicals. Reuse substitutes spent input materials for new input materials in the manufacturing process. Reclamation, on the other hand, recovers valuable material from spent input materials for incorporation in some other process or product. Recycling can be integrated within the process through a closed loop system or can be conducted separately, using centralized onsite waste recycling systems or commercial materials recyclers. Waste reprocessed or reclaimed can be used on site or sold or given to other businesses for use in their operations. Some states maintain networks to facilitate waste exchanges. The following examples illustrate recycling initiatives:

Mao/a Milk and Ice Cream Company in New Bern, North Carolina, recover ice cream and milk products for reuse in ice cream products and animal feed. Initial re-use activities in 1986 prevented the loss of over 17,000 pounds of milk and decreased 5-day biochemical oxygen demand (BODJ by 17,000 pounds over a 4-month period. Soon after Mao/a began recovering milk and ice cream wastes, the City of New Bern's treatment plant showed a 14.7 percent reduction in B0D5 and a 22.8 percent decrease in suspended solids. The recovery and reuse program also has translated into reduced chemical usage, less sludge accumulation, and reduced power requirements for the New Bern treatment plant. In 1988, Mao/an estimated it saved $24,000 per month in

wastewater treatment costs and recovered product. Upon full implementation of the reuse and recovery program, Maola hopes to recover as much as 2,410 gallons per day of ice cream ingredient valued at $480,000 annually (Greiner, et al., 1992).

SELF ASSESSMENT EXERCISE 1

1. Pollution prevention encompasses both _____ and _____
2. Technology changes involves changes in the following areas
    a. Production process
    b. Dumping process
    c. Casting method
    d. Recovery process
3. A final reduction techniques consist of _____
4. Recycling options involve the _____ and _____of spent input materials

10.7 SUMMARY

In this unit, we looked at several pollution-prevention techniques, especially those obtainable in industries. Hope you enjoyed your studies.

10.8 REFERENCES/FURTHER READINGS

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10.9 ANSWER TO SELF ASSESSMENT EXERCISE

1. Sources reduction and in- process recycling
2. A- Production process
3. Product modification
4. Reuse and reclamation

MODULE 3 OCCUPATIONAL SAFETY REQUIREMENTS AND PRACTICE

Module Structure

UNIT 11 Occupational Health and Safety

Unit Structure

UNIT 11 OCCUPATIONAL HEALTH AND SAFETY CONTENTS

11.1 INTRODUCTION

This unit provides trainees with general background information on occupational health and safety, and on the magnitude and variety of health and safety problems worldwide, and explains the role of the health and safety representative.

11.2 OBJECTIVES

At the end of this unit, learners will be able to:
Explain that occupational health and safety is more than accident prevention
Explain why management's commitment to health and safety is crucial
Explain why training is a critical component of any health and safety programme
Recognize a number of occupational hazards and some of the types of work generally associated with those hazards
Discuss the range of hazards in their own workplaces.

11.3 Occupational Health and Safety

Occupational health and safety is a discipline with a broad scope involving many specialized fields. In its broadest sense, it should aim at:
1. The promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;
2. The prevention among workers of adverse effects on health caused by their working conditions;

3. The protection of workers in their employment from risks resulting from factors adverse to health;
4. The placing and maintenance of workers in an occupational environment adapted to physical and mental needs;
5. The adaptation of work to humans.

In other words, occupational health and safety encompasses the social, mental and physical well-being of workers, which is the “whole person”. Successful occupational health and safety practice requires the collaboration and participation of both employers and workers in health and safety programmes, and involves the consideration of issues relating to occupational medicine, industrial hygiene, toxicology, education, engineering safety, ergonomics, psychology, etc.

Occupational health issues are often given less attention than occupational safety issues because the former are generally more difficult to confront. However, when health is addressed, so is safety, because a healthy workplace is by definition also a safe workplace. The converse, though, may not be true - a so-called safe workplace is not necessarily also a healthy workplace. The important point is that issues of both health and safety must be addressed in every workplace. By and large, the definition of occupational health and safety given above encompasses both health and safety in their broadest contexts.

Poor working conditions affect worker health and safety:
1. Poor working conditions of any type have the potential to affect a worker's health and safety.
2. Unhealthy or unsafe working conditions are not limited to factories — they can be found anywhere, whether the workplace is indoors or outdoors. For many workers, such as agricultural workers or miners, the workplace is “outdoors” and can pose many health and safety hazards.
3. Poor working conditions can also affect the environment workers live in, since the working and living environments are the same for many workers. This means that occupational hazards can have harmful effects on workers, their families, and other people in the community, as well as on the physical environment around the workplace. A classic example is the use of pesticides in agricultural work. Workers can be exposed to toxic chemicals in a number of ways when spraying pesticides: they can inhale the chemicals during and after spraying, the chemicals can be absorbed through the skin, and the workers can ingest the chemicals if they eat, drink, or smoke without first washing their hands, or if drinking water has become contaminated with the chemicals. The workers' families can also be exposed in a number of ways: they can inhale the pesticides which may linger in the air, they can drink contaminated water, or they can be exposed to residues which may be on the worker's clothes. Other people in the community can all be exposed in the same ways as well. When the chemicals get absorbed into the soil or leach into groundwater supplies, the adverse effects on the natural environment can be permanent.

Overall, efforts in occupational health and safety must aim to prevent industrial accidents and diseases, and at the same time recognize the connection between worker health and safety, the workplace, and the environment outside the workplace.

11.4 Importance of Occupational Health and Safety

Work plays a central role in people's lives, since most workers spend at least eight hours a day in the workplace, whether it is on plantation, in an office, factory, etc. Therefore, work environments should be safe and healthy. Yet this is not the case for many workers. Every day workers all over the world are faced with a multitude of health hazards, such as: dusts, gases, noise, vibration and extreme temperatures.

Unfortunately some employers assume little responsibility for the protection of workers' health and safety. In fact, some employers do not even know that they have the moral and often legal responsibility to protect workers. As a result of the hazards and a lack of attention given to health and safety, work-related accidents and diseases are common in all parts of the world.

11.5 Costs of Occupational Injury/Disease

Work-related accidents or diseases are very costly and can have many serious direct and indirect effects on the lives of workers and their families. For workers some of the direct costs of an injury or illness are:

1. The pain and suffering of the injury or illness;
2. The loss of income;
3. The possible loss of a job;
4. Health-care costs.

It has been estimated that the indirect costs of an accident or illness can be four to ten times greater than the direct costs, or even more. An occupational illness or accident can have so many indirect costs to workers that it is often difficult to measure them. One of the most obvious indirect costs is the human suffering caused to workers' families, which cannot be compensated with money.

The costs to employers of occupational accidents or illnesses are also estimated to be enormous. For a small business, the cost of even one accident can be a financial disaster.

For employers, some of the direct costs are:

- Payment for work not performed;
- Medical and compensation payments;
- Repair or replacement of damaged machinery and equipment;
- Reduction or a temporary halt in production;
- Increased training expenses and administration costs;
- Possible reduction in the quality of work;
- Negative effect on morale in other workers.

Some of the indirect costs for employers are:

- The injured/ill worker has to be replaced;
- A new worker has to be trained and given time to adjust;
- It takes time before the new worker is producing at the rate of the original worker;
- Time must be devoted to obligatory investigations, to the writing of reports and filling out of forms;
- Accidents often arouse the concern of fellow workers and influence labour relations in a negative way;
- Poor health and safety conditions in the workplace can also result in poor public relations.

Overall, the costs of most work-related accidents or illnesses to workers and their families and to employers are very high.
On a national scale, the estimated costs of occupational accidents and illnesses can be as high as three to four per cent of a country's gross national product. In reality, no one really knows the total costs of work related accidents or diseases because there are a multitude of indirect costs which are difficult to measure besides the more obvious direct costs.

11.6 Health and Safety Programme

I. The Scope

For all of the reasons given above, it is crucial that employers, workers and unions are committed to health and safety and that:

- Workplace hazards are controlled - at the source whenever possible;
- Records of any exposure are maintained for many years;
- Both workers and employers are informed about health and safety risks in the workplace;
- There is an active and effective health and safety committee that includes both workers and management;
- Worker health and safety efforts are ongoing.

Effective workplace health and safety programmes can help to save the lives of workers by reducing hazards and their consequences. Health and safety programmes also have positive effects on both worker morale and productivity, which are important benefits. At the same time, effective programmes can save employers a great deal of money.

II. Extent of the Problem Worldwide

A. Accidents

In general, health and safety in the workplace has improved in most industrialized countries over the past 20 to 30 years. However, the situation in developing countries is relatively unclear largely because of inadequate accident and disease recognition, record keeping and reporting mechanisms.

It is estimated that at least 250 million occupational accidents occur every year worldwide. 335,000 of these accidents are fatal (result in death). (Since many countries do not have accurate record-keeping and reporting mechanisms, it can be assumed that the real figures are much higher than this.) The number of fatal accidents is much higher in developing countries than in industrialized ones. This difference is primarily due to better health and safety programmes, improved first-aid and medical facilities in the industrialized countries, and to active participation of workers in the decision-making process on health and safety issues. Some of the industries with the highest risk of accidents worldwide are: mining, agriculture, including forestry and logging, and construction.

Identifying the cause of an accident

In some cases, the cause of an industrial injury is easy to identify. However, very often there is a hidden chain of events behind the accident which led up to the injury. For example, accidents are often indirectly caused by negligence on the part of the employer who may not have provided adequate worker training, or a supplier who gave the wrong information about a product, etc. The consistently high fatal accident rates in developing countries emphasize the need for occupational health and safety education programmes that focus on prevention. It is equally important to promote the development of occupational health services, including the training of doctors to recognize work-related diseases in the early stages.

B. Diseases

Some occupational diseases have been recognized for many years, and affect workers in different ways depending on the nature of the hazard, the route of exposure, the dose, etc. Some well-known occupational diseases include:

- Asbestosis (caused by asbestos, which is common in insulation, automobile brake linings, etc.);
- Silicosis (caused by silica, which is common in mining, sandblasting, etc.);
- Lead poisoning (caused by lead, which is common in battery plants, paint factories, etc.);
- Noise-induced hearing loss (caused by noise, which is common in many workplaces, including airports, and workplaces where noisy machines, such as presses or drills, etc. are used).

There are also a number of potentially crippling health problems that can be associated with poor working conditions, including:

- heart disease;
- musculoskeletal disorders such as permanent back injuries or muscle disorders;
- allergies;
- reproductive problems;

- stress-related disorders.

Many developing countries report only a small number of workers affected by work-related diseases. These numbers look small for a variety of reasons that include:

- Inadequate or non-existent reporting mechanisms;
- A lack of occupational health facilities;
- A lack of health care practitioners who are trained to recognize
- Work-related diseases.

Because of these reasons and others, it is fair to assume that in reality, the numbers of workers afflicted with occupational diseases are much higher. In fact, overall, the number of cases and types of occupational diseases are increasing, not decreasing, in both developing and industrialized countries.

Identifying the cause of occupational disease

The cause of work-related diseases is very often difficult to determine. One factor is the latency period (the fact that it may take years before the disease produces an obvious effect on the worker's health). By the time the disease is identified, it may be too late to do anything about it or to find out what hazards the worker was exposed to in the past. Other factors such as changing jobs or personal behaviours (such as smoking tobacco or drinking alcohol) further increase the difficulty of linking workplace exposures to a disease outcome.

Although more is understood now about some occupational hazards than in the past, every year new chemicals and new technologies are being introduced which present new and often unknown hazards to both workers and the community. These new and unknown hazards present great challenges to workers, employers, educators, and scientists that are to everyone concerned about workers' health and the effects that hazardous agents have on the environment.

III. The Range of Hazards

There are an unlimited number of hazards that can be found in almost any workplace. There are obvious unsafe working conditions, such as unguarded machinery, slippery floors or inadequate fire precautions, but there are also a number of categories of insidious hazards (that is, those hazards that are dangerous but which may not be obvious) including:

- Chemical hazards, arising from liquids, solids, dusts, fumes, vapors and gases;
- Physical hazards, such as noise, vibration, unsatisfactory lighting, radiation and extreme temperatures;
- Biological hazards, such as bacteria, viruses, infectious waste and infestations;
- Psychological hazards resulting from stress and strain;
- Hazards associated with the non-application of ergonomic principles, for example badly designed machinery, mechanical devices and tools used by

workers, improper seating and workstation design, or poorly designed work practices.

Most workers are faced with a combination of these hazards at work. For example, it is not difficult to imagine a workplace where you are exposed to chemicals, unguarded and noisy machines, hot temperatures, slippery floors, etc. all at the same time. Think about your own workplace. Are there various hazards there that you can think of?

Workers do not create hazards - in many cases the hazards are built into the workplace. The trade union position on occupational health and safety is to ensure that work is made safer by modifying the workplace and any unsafe work processes. This means that the solution is to remove the hazards, not to try to get workers to adapt to unsafe conditions. Requiring workers to wear protective clothing which may not be suited or designed for the climate of your region is an example of forcing workers to try to adapt themselves to unsafe conditions, which is also shifting the responsibility from management to the worker.

It is important for unions to maintain this position because many employers blame workers when there is an accident, claiming that the workers were careless. This attitude implies that work can be made safer if workers change their behaviour or if employers only hire workers who never make mistakes. Everyone makes mistakes — it is human nature, but workers should not pay for mistakes with their lives. Accidents do not stop simply by making workers more safety conscious. Safety awareness may help but it does not remove unsafe work processes or conditions. The most effective accident and disease prevention begins when work processes are still in the design stage, when safe conditions can be built into the work process.

IV. Importance of Management Commitment

In order to develop a successful health and safety programme, it is essential that there be strong management commitment and strong worker participation in the effort to create and maintain a safe and healthy workplace. An effective management addresses all work-related hazards, not only those covered by government standards.

All levels of management must make health and safety a priority. They must communicate this by going out into the worksite to talk with workers about their concerns and to observe work procedures and equipment. In each workplace, the lines of responsibility from top to bottom need to be clear, and workers should know who is responsible for different health and safety issues.

V. The Importance of Training

Workers often experience work-related health problems and do not realize that the problems are related to their work, particularly when an occupational disease, for example, is in the early stages. Besides the other more obvious benefits of training, such as skills development, hazard recognition, etc., a comprehensive training programme in each workplace will help workers to:

- Recognize early signs/symptoms of any potential occupational diseases before they become permanent conditions;
- Assess their work environment;
- Insist that management make changes before hazardous conditions can develop.

VI. Role of the Health and Safety Representative

As health and safety representative your role is to work proactively (this means taking action before hazards become a problem) to prevent workers from being exposed to occupational hazards. You can do this by making sure management eliminates hazards or keeps them under control when they cannot be eliminated.

Steps to help you reach your goals are:

1. Be well informed about the various hazards in your workplace and the possible solutions for controlling those hazards.
2. Work together with your union and the employer to identify and control hazards.
3. Although these Modules have been developed for the protection of workers, you may occasionally need to share some of this information with your supervisors and employer in the process of working towards a safe and healthy workplace. Being a health and safety representative is not always easy, but helping to protect the lives of your fellow workers is worth all the time and effort you put into the job.

Identifying Hazards in the Workplace

1. Welder — a welder can be burnt from the sparks and there is always the danger of the work process starting a fire. There is the problem of the intense light which can cause permanent eye damage as well as the fumes given off by the process which can damage the lungs.
2. Mechanic - Depending on the precise nature of a mechanic's duties, there may be safety problems from cuts and falls, etc., and exposure to chemical hazards: oils, solvents, and asbestos and exhaust fumes. Mechanics can also have back and other musculoskeletal problems from lifting heavy parts or bending for long periods.
3. Textile worker - The textile worker faces a variety of problems. First there is the problem of safety with many machines around that are often unguarded, as well as the risk of fire with so much combustible material in the workplace. Then there are the hazards of noise and vibration. There is also exposure to dust from the material which can seriously affect the lungs. Exposure to cotton dust can lead to the occupational disease known as byssinosis.
4. Tractor driver - One of the most serious problems with tractors is that they often overturn and, if they have no safety cab, the driver can easily be crushed. Other problems include noise, vibration and exposure to chemical herbicides and pesticides when being sprayed by tractor.
5. Electronics assembly worker - An electronics assembly worker can suffer eye problems from doing close work, often in poor light. Because such workers sit still for long periods with inadequate seating, they can also suffer from back and other musculoskeletal problems. For some workers there are the dangers of solder fumes or solder “flecks” in the eye when the excess solder is cut off with pliers.

Self- Assessment Exercise

1. What are the aims of occupational health and safety?
2. Occupational health and safety encompasses of the _____, _____ and _____ well begin of workers
3. Mention four (4) costs of occupational injury
4. **I**dentify four (4) Occupations and Hazards in the Workplace

11.7 SUMMARY

Hazards in the workplace can be found in a variety of forms, including chemical, physical, biological, psychological, non-application of ergonomic principles, etc. Because of the multitude of hazards in most workplaces and the overall lack of attention given to health and safety by many employers, work-related accidents and diseases continue to be serious problems in all parts of the world. Therefore, trade unions must insist that employers control hazards at the source and not force workers to adapt to unsafe conditions. Management commitment to health and safety and strong worker participation are two essential elements of any successful workplace health and safety programme. The most effective accident and disease prevention begins when work processes are still in the design stage.

11.8 REFERENCES/FURTHER READINGS

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11.9 POSSIBLE ANSWERS TO SELF- ASSESSMENT EXERCISES

1. a. The promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;

b. The prevention among workers of adverse effects on health caused by their working conditions;

c. The protection of workers in their employment from risks resulting from factors adverse to health;

d. The placing and maintenance of workers in an occupational environment adapted to physical and mental needs;

e. The adaptation of work to humans.

2. Social, physical and mental well begin
3. a. The pain and suffering of the injury or illness;
b. The loss of income;
c. The possible loss of a job;
d. Health-care costs.

4. a. Welder — a welder can be burnt from the sparks and there is always the danger of the work process starting a fire. There is the problem of the intense light which can cause permanent eye damage as well as the fumes given off by the process which can damage the lungs.

b. Mechanic - Depending on the precise nature of a mechanic's duties, there may be safety problems from cuts and falls, etc., and exposure to chemical hazards: oils, solvents, asbestos and exhaust fumes. Mechanics can also have back and other musculoskeletal problems from lifting heavy parts or bending for long periods.

c. Textile worker - The textile worker faces a variety of problems. First there is the problem of safety with many machines around that are often unguarded, as well as the risk of fire with so much combustible material in the workplace. Then there are the hazards of noise and vibration. There is also exposure to dust from the material which can seriously affect the lungs. Exposure to cotton dust can lead to the occupational disease known as byssinosis.

c. Tractor driver - One of the most serious problems with tractors is that they often overturn and, if they have no safety cab, the driver can easily be crushed. Other problems include noise, vibration and exposure to chemical herbicides and pesticides when being sprayed by tractor.

UNIT 12 INDUSTRIAL LEGISLATION

CONTENTS

12.1 INTRODUCTION

The safety of a worker's life in any paid occupation has been a major concern to all governments. The advent of industrialization made people to diver their attention for survival away from agriculture. The essential means of survival could not be achieved without careful technology as a new productive economic approach (Reich and Okubo 1992). Industrialization brought about a change in survival order caused by environmental pollution, industrial accidents and diseases, and unhealthy working conditions. Morbidity and mortality especially among the young and women became a serious issue. Employers of labour were insensitive to the sufferings of workers. This brought about enactment of policies as legislation by both governments implemented by regulatory bodies to save the life of workers. This unit discusses the meaning of industrial legislation, historical development with particular reference to Nigeria; types and purposes of legislation. It also discusses the provisions of factory Act and Workmen's compensation Laws as they apply to Nigeria. Summary of the pertinent Legislation is also included.

12.2 LEARNING OUTCOMES

By the completion of this unit, you should be able to:

- explain the meaning of industrial legislation
- trace the historical development of industrial legislation especially in Nigeria
- describe the types of industrial legislation
- discuss the provisions of factory acts and workmen's compensation laws

- state the pertinent legislations.

12.3 Definition of Industrial Legislation

According to Advanced Learner's Dictionary (2001), "legislation is a set of laws passed by parliament. Legislation is a policy that guides actions". It is accepted that the extra encouragement of potential regulatory action or litigation many organizations would not act upon their implied moral obligations (Ladon, 2006). It means that legislation is a law set up to ensure that employers comply with the rules established to ensure safety of workers in any occupation.

12.3.1 Historical Development of Industrial Legislation

Industrial legislation developed as a burning desire to have full emancipation of workers in industries that were used as slaves before the advent of industrial legislation. In the olden days, slaves were used to build the many wonders of the world like in Egypt, Rome and other parts of the world. War prisoners were not left out who were subjected to may harsh conditions in underground mines and quarries. There was no change until Georgius (1494 – 1555) wrote an article "De Re Metallica" which was published a year after his death. He wrote on the working condition in mines and industries basically on the mining accidents and illnesses, radiation and silicosis. Bernardino Ramazzini, a physician and professor of Medicine in Universities of Mordena and Padua also wrote and published his great work, De morbis Artificum Diatriba" the first systemic study of trade diseases. His contributions earned him the title "father of Occupational Medicine." (Asogwa 2007). He stressed that occupation of patient must sort for while carrying out treatment of patients. Industrial Revolution in Britain started early in the eighteenth century with the invention of Seed drill by Jethro Tull and the use of Coke to smelt iron by Abraham Darby in 1709. This led to the employment of women and children in factories who had to work long hours under unhealthy conditions and harsh circumstances. Medical practioners and laymen wrote and fought against the ills and pressed for reforms.

Doctor Charles turner Thachrah (1795 – 1833) and Lord Anthony Haley Cooper (1801 – 1885) made significant contributions. Dr Thachrah was known as the "Father of British Industrial Medicine." He published a book titled "the Effects of the Principal Arts, Trade and Profession and
Civic State and Habits of living on Health and Longevity, with suggestions for the Removal of many Agents which produce Disease and shortens the Duration of lie."

Lord Cooper, an aristocrat when as a member of the British parliament helped to promote legislation that reduced the hours of work and improved conditions for workwomen and children working in mines, factories and other work places, (Asogwa, 2007). The first direct medical involvement was the appointment of Sir Thomas

Morrison (1863-1932) in 1898 as the first medical factory inspector (occupational health consultant). He introduced the idea of notifying occupational health diseases causatives like lead. He emphasized a number of preventive aspects of occupational health practice known as: Ledge's Aphorisms. "Unless and until the employer has done everything means a good deal the work man can do next to nothing to protect himself, although he is naturally willing to do his share."

"If you can bring an influence to bear externally to the workman, that is one over which he has no control – you will be success and if you cannot or do not, you will never be wholly successful."

"Practically all industrial lead poisoning is due to inhalation of dust and fume and if you stop their inhalation, you stop the poisoning."
"All workmen should be told something of the danger of the material with which they come in contact and not be left to find it out for themselves sometime at the cost of their lives.

As industrialization spread from country to country so also did the diseases and ailments associated with different trades, so occupational health was recognized as district areas of medicine. The oldest international body in modern times concerned with global health and safety of people at work is the international labour organization (ILO). The organization was founded in 1919 under the League of Nations. ILO is a tripartite organization made up of representation of government, employers and workers especially from chemical and industrial risks, hygiene of seamen, social and medical insurance systems and workmen compensation. In collaboration with the world health organization (WHO), it holds a number of joint expert committee meetings in the field of occupational health and safety and publishers inter alia "international medicine Guide for ship' and Guide to ship sanitation."

In the United States between 1890 and 1914 more than 16.5 million migrated from all over the world into the States as industrial growth escalated. These new citizens worked in factories plants, rail roads and mines, creating a new market for manufactured goods. Children and women worked under harsh conditions twelve to fourteen hours shifts, seven days a week under unspeakable conditions of grime dust and physical hazards, smoke, heats cold and noxious fumes. (Ezenduka, 2007). Workers accepted work related illness and injuries as part of the job. The life expectancy was low, people dying at their forties and fifties with workers in some trade dying in their thirties (Allender and Spadlly 1996). Most of the work related diseases like silicosis, lead poisoning and tuberculosis were attributed to other causes. The first research carried out in 1900 and other studies the followed after proved that diseases like tuberculosis were related to the work environment, poor ventilation, overcrowding and unsatisfactory working conditions. Other investigations revealed phosphorous poisoning, radium poisoning watch making and mercury poisoning in those who manufactures felt hats. There was public awakening to the effect of work conditions. The birth of labour movement increased the demand for healthful and safe working conditions.

Different states took different approaches to legislation. In European Union, in 1996, the European Agency for safety and Health at work was founded and this starts with elimination of hazard and ends with personal protective equipment. In the United Kingdom, legislation is drawn and enforced by health and Safety executives and local authorities under the health and Safety at Work Act of 1947. This embraces the concept of risk Assessment.

12.3.2 Types of Industrial Legislations

There are three types of industrial legislations:

- Protective Industrial Legislation.
- Labour relations legislation.
- Collective agreements between unions and employers.

Protective Legislation - this law deals with regulation of maximum hours of work and minimum wages for women and minors. It regulates hazardous practices affecting workers (employees). There are other legislation under protective legislation in which industrial employee is entitled to benefits. It also guarantees workers compensation for industrial accidents and social security legislation such as unemployment insurance and disability insurance. (Encarta
Encyclopedia 2005).

12.3.3 Legislation Related to Occupational Health

The occupational health and safety services provided by the employer are influence by influenced by specific legislation at Federal and State know since the second century (Remazzim 1713), public policy that effectively controlled occupational hazards was not enacted until the 1960s. The mine safety and Health Act of 1968 was the first legislation that specifically required certain prevention programs for workers. This was followed by the Occupational Safety and Health Act of 1970, which established two agencies to carry out the Act's purpose of ensuring "safe and healthful working conditions for working men and women". Within the context of the occupational Safety and Health Act, the Occupational Safety and Health Administration (OSHA), a federal agency within the U.S Department of Labour was created to develop and enforce work place safety and health regulations. OSHA sets the standards that regulate workers exposure to potentially toxic substances, enforcing these at the federal, about compliance can be obtained from federal, regional and state OSHA offices.

The National Institute for Occupational Safety and Health (NIOSH) was established by the Occupational Safety and Health Act of 1970 and is part of the centers for Disease Control and Prevention (CDC). In 1996, NIOSH and its partner agencies (the National Institute of Arthritics and Musculo Skeletal and Skin Disease, the National Institute of Environmental Health Sciences and the National Heart, Lung and Blood institute) unveiled the National Institute for Occupational Research Agenda- (NORA), a frame work to guide occupational safety and health research into the next decade. The NIOSH agency identifies monitors and educates about the incidence, prevalence and prevention of work related illness and injuries and examines potential hazards of new work

technologies and practices. NORA, with its research-priority agenda, is responsible for providing targeted research in areas with the highest likelihood of reducing the still-significant toll of workplace illness and injury.

Even though the National Institute for Occupational Health Administration (OSHA) was created by the same act of congress, they have different functions. The functions of OSHA are:-

1. To determine and set standards for hazardous exposures in the workplace.
2. To enforce the occupational health standards this includes the right of entry for inspection.
3. To educate employers about occupational health and safety.
4. To develop and maintain a database of work related injuries, illness and deaths.
5. To monitor compliance with occupational health and safety standards.

The functions of NIOSH are:
1. To conduct research and review findings and to recommend permissible exposure levels for occupational hazards to OSHA.
2. To identify and research into occupational health and safety hazards.
3. To educate about occupational health and safety.
4. To distribute research findings relevant to occupational health and safety.

12.3.4 Purpose of Legislation

One may ask the purpose of legislation or rule. The purpose of the rule is to reduce the number of job-related fatalities, illness and injuries. The legislation or rule will accomplish this by requiring employers to establish a workplace safety and health program to ensure compliance with set standards by Occupational Safety and Health Administration Act. This act covers all employers except those engaged in construction and Agriculture. This is the situation in U.S.A.

Self- Assessment Exercise

1. Who wrote an article called “De Re Metalica”?
a. Ramazzini
b. Asogwa
c. Georgius
d. Thachrah

2. Mention the three (3) types of industrial legislation

12.4 Basic Obligations

The basic obligation under this rule is that each employer must set up a safety and health program to manage workplace safety and health to reduce injuries, illness and fatalities by systematically achieving compliance with Occupational safety and Health Act

(OSHA) standards and the General Duty Clause. The set programme must be appropriate to conditions of workplace such as the hazards to which employees are exposed and the number of employees there. The rule applies to hazards covered by the General Duty Clause and by OSHA standards.

The programme must have the following elements:
1. Management leadership and employee participation.
2. Hazard identification and assessment.
3. Hazard prevention and control.
4. Information and training, and,
5. Evaluation of program effectiveness.

It is important to note that the employees who have been operating this programme before now should continue. The employer should demonstrate the effectiveness of the employer's programme that differs from these requirements included under the core elements of this rule.

12.5 Management, Leadership and Employee Participation:
It is basic obligation that the employer must demonstrate management leadership of the safety and health program.

The employer can demonstrate this by:-

- Establishing the program responsibilities of managers, supervisors and employers for safety and health in the work place and hold them accountable for carrying out those responsibilities.
- Providing managers, supervisors and employers with the authority, access to relevant information, training and resources they need to carry out their safety and health responsibilities and;
- Identifying at least one manager, supervisor or employee to receive and respond to reports about work place safety and health conditions and where appropriate, to initiate corrective action.

12.6 Employee Participation
The employer's basic obligation here is that the employees must be provided with opportunities for participation in establishing implementing and evaluating the program.

What must the employer do to ensure that employees have opportunities for participation? The employer must:-

- Regularly communicate with employees about work place safety and health matters.
- Provide employees with access to information relevant to the program.
- Provide ways for employees to become involved in hazard's identification and assessment, prioritizing hazards, training and program evaluation.

- Establish a way employee to report job-related facilities, injuries, illnesses, incidents and hazards promptly and to make recommendations about appropriate ways to control those hazards and provide prompt responses to such reports and recommendations.

What must the employer do to safeguard employee participation in the programme? The employer must discourage employees from making reports and recommendations about fatalities, injuries, illnesses, incidents or hazards in the workplace, or from otherwise participating in the workplace safety and health programme.
In order to carry out this portion of the rule, the employer must comply with the National Labour relations Act.

12.7 Hazard Identification
The basic obligation of the employer is that he must systematically identify and assess hazards to which employees are exposed and assess compliance with the General Duty Clause and Occupational and Safety Health Act (OSHA).

What must the employer do to systematically identify and assess hazards and asses compliance? The employer must:

Conduct inspections of the workplace.
1. Review safety and health information.
2. Evaluate new equipment, materials, and processes for hazards before they are introduced into the workplace.
3. Asses the severity of identified hazards and rank those that cannot be corrected immediately according to their severity.
4. It should be noted that some OSHA standards impose additional more specific requirements for hazards identification and assessment. This rule does not displace those requirements.

How often must the employer carry out the hazards identification and assessment process? The employer must carry it out:
Initially as often thereafter as necessary to ensure compliance with the General Duty Clause and OSHA standards and at least two years, and when safety and health information or a change in workplace conditions indicates that a new or increased hazard may be present.

When must the employer investigate safety and health events in the workplace? The employer must investigate each work related death, serious injury or illness or incident (near-miss) having the potential to death or serious physical harm.

What records of safety and health programme activities must the employer keep? The employer must keep records of hazards identified and their assessment and the actions the employer has taken or plans to take to control those hazards.

Exemption – Employers with fewer than ten employees are exempted from the record keeping requirements of this rule.

The basic employer's obligation is to systematically comply with the hazard prevention and control requirements of the General Duty Clause and OSHA standards.

If it is not possible for the employer to comply immediately, the employer must develop a plan for coming into compliance as promptly as possible. This includes setting priorities and deadlines and tracking progress in controlling hazards.

Note
Any hazard identified by the employer's hazard identification and assessment process that is covered by an OSHA standard or the General Duty Clause must be controlled as required by that standard or that Clause as appropriate. Information and training:

(A) What is the employer's basic obligation? The employer must ensure that:
Each employer is provided with information and training in the safety and health programme; and
Each employee exposed to a hazard is provided with information and training in that hazard.

Note
Some OSHA standards impose additional, more specific requirements for information and training. This rule does not displace those requirements.

(B) What information and training must the employer provide to exposed employees? The employer must provide information and training in the following subjects:

1. The nature of hazards to which the employee is exposed and how to recognize them.
2. What is being done to control these hazards?
3. What protective measure the employee must follow to prevent or minimize exposure to these hazards and
4. The provision of applicable standards.

(C) When must the employer provide the information and training required by this rule?

The employer must provide initial information and training as follows: For current employees, before the compliance date specified in point (i) for new employees, before initial assignment to a job involving exposure to a hazard.

Note
The employer is not required to provide initial information and training in any subject in paragraph 3.6.3 (B) for which the employer can demonstrate that the employee has already been adequately trained.

The employer must provide periodic information and training:

As often as necessary to ensure that employees are adequately informed and trained; and
When safety and health information or a change in workplace conditions indicates that a new or increased hazard exits.

(D) What training must the employer provide to employees who have programme responsibilities? The employer must provide all employees who have programme responsibilities with information and training necessary for them to carry out their safety and health responsibilities.

12.8 Industrial Legislation in Nigeria

Industrial legislation in Nigeria has taken place in two periods; pre-independence era under colonial administration and the second was after independence.

Before independence, industrial legislation in Nigeria was Workmen's Ordinance of 1941, Labour Code Ordinance of 1945 and Factories Act of 1955 revised in 1958 were modeled to all intents and purposes in the same pattern as in Britain since independence; the situation has not changed but the basic document has changed minimally from colonial days. From time to time, there had been amendment of one section of the act after another (Asogwa, 2007).

The most significant change was the coming into law of the Factory Act 1990 on account of the deficiencies of the Factories Act of 1958 that the new law was enacted to replace The Factories Act 1990.

The following areas are covered:
Cleanliness: This deal with daily cleanliness of factories washing and painting should be done at regular intervals.

Overcrowding: Factor building must be 9 feet from the floor and the space available for each work should be 40 cubic feet.

Light: Lighting of factories must be adequate.
Drainage of floors: Floors construction must be with a slope to aid drainage into gutters.

Sanitary accommodation: One suitable sanitary convenience should be provided for every 20 females. One for every 25 males.

Safety

- Safety of prime move.
- Safety of transmission machinery.
- Safety of powered machinery.

- Safety of other machinery not covered above.
- Provision to unfenced machinery.
- Construction and maintenance of fencing.
- Safety provisions for vessels containing dangerous liquids.
- Safety of self-acting machine.
- Training and supervision of inexperienced workers.
- Safety keeping and maintenance of hoist and lifts.
- Safety rules for chains, ropes and lifting tackle.
- Safety rules for crane and other lifting machines.
- Keeping registers for chain and other lifting machines.
- Safety means of access and safe places of employment.
- Precautions in places where dangerous fumes are likely to be.
- Precautions in respect of explosives or inflammable dust, gas and vapor.
- Construction of steam containers and receivers with sound materials and their maintenance.
- Safety of air receivers.
- Exceptions as to steam containers and receivers with sound material and their maintenance.
- Safety of air receivers.
- Exceptions as to steam boilers, steam receivers, steam containers and air receivers.
- Prevention of fire.
- Power of air inspector to issue improvement notice it any part of work machinery or plant is in a condition likely to cause injury.
- Power of an inspector to issue prohibition notice as to as factory in a condition to cause injury.
- Right to appeal against prohibitions notice.
- First aid that is readily accessible.

12.8.1 Welfare

According to Asogwa (2000), the general provisions covered the following areas.
Supply of drinking water, washing facilities, Accommodation for clothing.

First aid: There should be a readily accessible first aid box where more than 150 persons are employed and an additional box or cupboard for every additional 150 persons. Exemption for first aid if ambulance room is provided.

12.3.9 Health Safety and Welfare

Special provisions and regulations are made which include:
Removal of dust or fumes, meals in certain dangerous trades.
Protective clothing and appliances, protection of eyes in certain processes, collection of samples of a substance suspected to likely cause bodily injury.

12.3.10 Industrial Health and Welfare Center (IHWC)

Every industry, irrespective of it size should provide as a contiguous unit, if possible an Industrial Health and Welfare center. This should embody: Occupational Health Service Unit, Toilet facilities, a restaurant, canteen or snack bar and a resting room.

Workmen's Compensation Law of 1990

Workmen's compensation, according to Decree1990, a person shall be deemed a workman if either before or after the commencement of this Decree he has entered into or is working under a contact of service or apprenticeship with an employer whether by way of manual labour, clerical work or otherwise, implied, in oral or in writing.

Under listed are the provisions made:
1. Employer's liability for compensation for death or incapacity resulting from accident (not deliberate), which incapacitates the worker for a period of three consecutive days.
2. Compensation in fatal cases – this will be equal to the sum of 42 (forty-two) months' earnings.
3. Compensation in cases of permanent total incapacity shall be equal to 44 (forty0four) months' earnings.
4. Additional compensation of ¼ of 44 months earnings where an injury results in permanent total incapacity of such a nature that the injured workman must the constant help of another person.
5. Compensation for permanent partial incapacity. 6. Medical assessors to be appointed for estimation of degree of disability.
7. Compensation in case of temporary incapacity

Full salary	First 6 months
½ salary	First 3 months
¼ salary	First 15 months

It should be noted that any salary so paid shall be deducted from payable compensation Method of calculating earnings according to Asogwa (2000, p102) a person entitled to compensation is the victim in the case of death his partial of complete dependents.

Distribution of Compensation: it is through the court in case of death of a workman. Among the requirements are notice of accident and application for compensation to be made within six months of illness or death.
Employer should report the death of a workman to a labour officer with seven days stating the circumstances of death if known to him.

Medical Examination and Treatment: The employer once notified shall arrange for the injured workman to have medical examination and treatment free to the workman.
Agreement as to Compensation: This should not be less than amount payable according to the law.

Determination of Claims: To be made in a law court in case of disagreement between workman and employer.
Review of Compensation Paid: This can be made (in case the injury gets worse) with medical advice.
Medical expenses to be defrayed by the employer include.
Medical, surgical and hospital treatment, shill nursing services and supply of medicines and surgical dressings.

The supply, maintenance, repair and renewal of non-articulated artificial limbs and apparatus,
Traveling expenses incurred in the course of receiving medical treatment.
Compensating to include disability caused by occupational diseases.
Compulsory insurance of workman against death or injury arising in the course of his employment.

12.3.11 Legal Protections in Nursing Practice

Laws and strategies are in place to protect the nurse against litigation. Good Samaritan Acts- protects the nurse when giving help in the scene of emergency. The nurse practice Act and standards of practice is a major legal safeguard for nurse. Accurate and complete documentation is also a critical component of legal protection for the nurse. According to (Brooke 2000) in a malpractice suit the content and depth of documents or records can be ones best friends or worst enemy.

12.3.12 Highlights of Pertinent Regulations

The following legislation is available on line in government Health and Safety executive website at HYPERLINK"http://www.hse.go.uk/ legislation hswa.htm" www.hse.go.uk/legislation hswa.htm
The Health and Safety at work etc. Act 1974
Health and safety (first Aid) Regulations 1981
Social Security (industrial injuries) (prescribed diseases) Regulations 1985/2005
The Health and Safety Information for Employees Regulations 1989
The Air Quality Standards Regulations 1989
The Control of Noise at Work Regulations 2005
The Electricity at Work Regulations 1989. The Control of Explosives Regulations 1991. The workplace (health, safety and welfare Regulation 1992.
The Health and Safety (display screen equipment) Regulations 1992 The Personal protective equipment (PPE) Regulation 1992
The Provision and Use of Work Equipment Regulations (PUWER) 1992/1998
The Manual Handling Operations Regulations 1992
The Genetically Modified Organisms (contained use) Regulations 1992
The control of Substances Hazardous to Health (COSHH) Regulation 2002
The construction (Design and Management) Regulation 1994
The Gas Safety (installation and Use) Regulation 1994/1998
Railways (Safety Critical Work) Regulation (SCWR) 1994
The Reporting of Injuries, Diseases and Dangerous Occurrence (RIDDOR) Regulation 1997

The Health and Safety (Consultation with Employees) Regulation 1996
Confined Space Regulation 1997
Diving at Space Regulation 1997
The Working Time Regulation 1998
The employers' Liability (Compulsory Insurance) Regulation 1998
The Control of Lead at Work Regulation 1998
Lifting Operations and Lifting Equipment (LOLER) 1998
The Management of Health and Safety at Work Regulation 1999
Quarries Regulation 1999
The Miners (control of ground movement) Regulation 1999
Railway Safety Regulation 1999 (PDF)
The Food Standards Act 1999
The Ionizing radiation (medical Exposure) Regulation 2000
The Chemicals (Hazard Information and Packaging for Supply) Regulation 2002
Control of asbestos at work Regulation 1987/2002
Control of Lead at Work Regulations 2002
Employment Act 2002
The Control of Substances Hazardous to Health Regulation 2002
Gender Recognition Act 2004
Employment Act 2002 (Dispute Resolution) Regulation 2005
The control of Vibration at Work Regulation 2005
Disability Discrimination Act 2005
Control of Major Accident Hazards (COMAH) Regulation 2005
The chemicals (Hazards Information and Packaging for Supply)
Regulation 2005
Restriction of the Use of certain hazards substance in electrical and
Electronic Equipment Regulation 2005
Employment Equality (Sex Discrimination) Regulation 2005
Workplace Exposure Limits 2005
Work at Height Regulations 2005
Control of Noise at Work Regulation 2005
Offshore Installation (Safety Case) Regulation 2005
The Railway and Other Guided Transport System (Safety) Regulation (ROGS) 2006
Coal Miners (Inhaled Dust) Regulation 2006
Employment Equality (Age) Regulation.

12.5.0 SUMMARY

In this unit, we have learnt that industrial legislations were enacted to protect the health and safety of workers from unhealthy conditions of work environment of industrial legislation especially in Nigeria was discussed. The provisions of the factories Act and Workmen's compensation were discussed. Industrial legislation and governments inability to enforce the laws was discussed but they should provide necessary modalities to enhance productivity and a strong labour force that is free from diseases related to occupations. Industries employing workers sustain costs in the events of accident at work such as legal fees, fines, compensatory damages, loss of production. Loss of customer's good will.

12.3 REFERENCES/FURTHER READINGS

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6.0 TUTOR-MARKED ASSIGNMENT

1. Trace the historical development of industrial legislation in Nigeria.
2. List and explain 10 provisions of factory acts in Nigeri

UNIT 13 INDEPENDENT PRACTICE

Module Contents

13.1 INTRODUCTION

This unit discusses some general and practical aspects of independent occupational health nursing. The first issue for anyone considering independent practice is to recognize what is meant by the term. In the context of this unit it means being self-employed or:

Someone who uses their skills and abilities to create a successful business while assuming total responsibility and risk (RCN 2000 p. 5).

It is recognized that being an 'independent' can in addition mean working with others who are also testing the commercial market.

13.2 OBJECTIVES

By the completion of this unit you should be able to:

- Explain the independent Practice
- State the various skills and abilities necessary for practice
- State the various state towards successful independent practice
- State areas of services which would be offered to clients.

13.3 INDEPENDENT PRACTICE

In setting out for independent practice in occupational health sector, there are several areas the expert involved has to take into critical examination with real self-thought on how he or she can function with maximize credibility. Some independent practices have failed because the SWOT analysis proposal was not taken into veritable consideration with proper planning. Let's look at various areas where success can be achieved.

13.3.1 Skills and Abilities

The decision to launch out as an independent can at first glance seem the ideal. The idealist sees ownership of projects and freedom to choose the clients and work undertaken. The pragmatist will question what projects, what work and what skills they will need.

A SWOT exercise is a good starting point. It may be old hat to some but it is a way to focus on the project of self-employment. The SWOT exercise needs to be specific to the independent.

The SWOT exercise, if completed objectively, can assist the possible independent to decide whether self-employment is really a preference or an ability-based option. The same exercise can be used to assess projects, marketing materials and initiatives.

13.3.2 Steps to Independence

What Do I Want the Business to Be?

There are basically three types of business:

- sole trader,
- partnership and
- limited company.

Sole Trader:

Most independents start out as a sole trader, which is the simplest form of business structure. Registering the business and, if relevant, obtaining licences is relatively inexpensive. The sole trader has complete control of finances and can decide when and how much to take out of or put into the business. Unlike other business structures there is little government control and there are no reports to be filed with government agencies or departments. The business and the sole trader are taxed as a single entity, i.e. the business-generated income is equivalent to the salary.

There is a major risk as a sole trader: personal assets, house, property, car, investments or other valuables can be seized to pay outstanding debts and other liabilities.

Partnership

A partnership is an association of two or more people to carry on a business with the aim of making a profit. To enter in to a partnership you need a contract – oral or written – between all interested parties. The fees and legal expenses are lower than for an incorporated company but higher than for a sole trader. Being in partnership means sharing all decisions, profits and unlimited liabilities of the partnership. Changes in circumstances automatically end the legal identity of the partnership, for example the death of a partner.

A partnership agreement, sometimes referred to as articles of partnership, is essential. The larger the partnership becomes the more complex the agreement. When more than one person is making decisions you need consensus management. A dependence on

consensus management can lead to difficulties and result in partnership conflict. At the risk of sounding pessimistic:

A friendship founded on business is better than a business founded on friendship (John D. Rockefeller, 1874–1960; see Gray 1996).

Dissolving a partnership can result in expenditure of time and legal and administrative costs, as all partners need to agree the terms, which can result in trading difficulties. For example, the withdrawal of capital at termination of a partnership can result in the business being insolvent.

Limited Company

A limited company is a legal entity, with or without share capital, which can be legally established by one or more individuals. The shareholders' (or owners') personal assets are separate from the business and cannot be seized to pay outstanding debts incurred by the business.

It should be noted that there are various tax advantages available to limited companies that are not available to partnerships or sole traders.

However, expert advice before making the decision is essential. Tax planning and annual returns will need to be undertaken with the help of a professional and qualified accountant. The selection of an accountant must be undertaken with care and a decision based on personal recommendation is advised.

Investors find it more attractive to invest in a company with limited liability than to invest in a business whose unlimited liability could involve them in financial responsibility that is greater than the amount of the investment. Long-term financing from lending institutions is more readily available because lenders may use both corporate assets and personal guarantees as security.

The limited company continues to exist and operate regardless of any changes in the shareholders. For example, the death of a shareholder does not mean the termination of the Company.

There are more regulations affecting a limited company than a sole trader or partnership. Companies must report to all levels of government. As can be predicted, it is more expensive to establish and operate a limited company than to operate as a sole trader or in a partnership, because of the additional documents and forms that are required.

In general, it is probably better in tax terms to start a small business as a sole trader or partnership. Once the business is mature and profitable, professional advice may be sought and the needs and implications of becoming incorporated can be researched. This delay ensures a better chance of making an informed decision from an experience base and with some indicators of profit and growth potential.

The choice between setting up as a sole trader or as a partnership is largely dependent on individual preferences and circumstances. Consultants who start as sole practitioners may, when they are established, form a partnership with one or more congenial people. In the final analysis professional advice is required when setting up independent practice.

13.3.3 Service Offering

A key point when starting out as a self-employed person is to decide what services are to be offered to clients and whether the services can be offered within current resources. The range of options is varied and will depend on past experience and the type of work enjoyed.

The work of the independent occupational health nurse practitioner seems to breakdown into several categories. The most popular is providing an independent occupational health nursing service, usually on a set number of days per week or month to a client or clients who contract for the service. The work often entails pre-employment and ongoing health surveillance programmes, training and, in some instances, a treatment service. Another area of independent practice is consultancy, working with senior managers to design strategies, policies and procedures and then managing the implementation of the agreed work. Both elements can be incorporated into a contract for services but the latter offers a greater opportunity to influence the client at a senior level and requires a range of management skills.

Some independent occupational health nurses may have a contract to provide full-time services, which seems to follow a company downsizing or rightsizing. This type of contract ensures a sustained income but the benefits and security of continued employment are often less advantageous for the independent than for someone directly employed. Remember, if the contract is not renewed then the independent practitioner is unemployed and has to start finding new clients. If self-employment is really a preferred choice, the pros and cons of being tied down to one client should be considered carefully – a single contract may be too high a risk.

13.3.4 Important Needs for Effective Practice

An Office and Space

A major decision is whether the office will be in the home or in rented accommodation. Both have their pitfalls and both need to be well thought out.

To work from home has many advantages, such as no travel and tax relief for a room used as an office. However, working from home needs discipline – office hours are office hours. Ideally the office should be a separate room with desk, shelves for reference books, filing cabinets, computer with broadband Internet access, printer, telephone and fax/copier.

To rent accommodation means the need for regular income to offset overheads before making a profit. But the rented office will not intrude on private space. In the end it is a matter of choice and may be based on projected fee earning. Therefore, another essential is capital to set up a functioning and efficient office.

Administrative Support

This is another overhead, which would need to be covered on a regular basis before a profit could be identified. The appointment of an administrative support worker will depend on the type of services to be offered and the independent's computer skills. In consultancy the need is more apparent as there is usually a volume of written communications. The decision may be based on some or all of the following:

- What is the role of the administrative support worker?
- How much time is spent by the income generator on routine administration, e.g. accounts, invoicing, chasing payment, writing reports, chasing clients, marketing, etc.?

- Could this freed time be used to generate more income?
- Is the independent paid for report-writing time?
- How much of the report writing could be done by a third party?
- Is it nice to have or essential?
- Would it enhance the image of the business?

Computers

Buying the best within budget and with lots of memory will help avoid the need to upgrade later. Whatever you think you will need, you should get a system that will do more. Deciding which computer and what programs to buy will depend on your projected needs: this is not as simple as it sounds so it is essential to do some market research. The best advice will be from someone doing the type of work being considered. But remember, everyone has their own favourite. You should identify computer packages that can be upgraded and are flexible. Monitors are important; the bigger they are, the easier they are to use. Of course, all independents will complete their display screen equipment risk assessments and ensure compliance, which is easier to achieve at the set-up stage. Ensure the programs are user-friendly and buy a virus and computer systems checking programme.

As the independent will need to prepare reports, and the reports are a window to the business, a colour printer and a good graphics package are serious considerations.

Seek advice from several Internet suppliers and consider a system, ideally broadband, that best suits your needs. This can be part of a mobile and TV package – dial-up can be used in areas where it is hard to get broadband.

There are some very user-friendly computer accounts packages on the market. Accounts are essential for invoicing clients, for keeping a record of the transacted business and National Insurance, and for the accountant to prepare tax returns. The accounts packages will also calculate
VAT and assist in completing the VAT forms. The paperless office is a laudable objective that is not as easy to achieve as to talk about.

Keeping client files and copies of reports is essential for reference and in case of complaints. External hard or flash (usually USB) disks have fallen rapidly in price and provide a good method for backing up the internal drive. Users can use synchronisation software packages to facilitate backups with the same file structure as the internal drive, but if a good filing system is used it is easy to back up from the root directory.

This requires an understood and consistent system for directories, folders and files: for example, a directory may be labelled ‘Clients’, and each folder constitute a named client, and within the folder the essential files are placed. Retrieving files can be a nightmare, so consistent titling of files going into the appropriate folder in the right directory can be a time saver.

References
Good up-to-date and varied references are essential for the independent. You will need the latest editions of textbooks, subscriptions to the best occupational health journals and broadband Internet access for e-mail communications, research, and receipt of e-bulletins. The risks of making recommendations based on outdated information are real and can result in clients taking action for loss of or detriment to business. The purchase of data is a tax-deductible item, as are office equipment and consumables such as paper, folders, and pens.

13.3.5 Government Registrations, Tax and National Insurance

At a certain level of income a self-employed person must register for VAT. Current information can be obtained from one's bank or an accountant, or the local Customs and Excise office. The advice varies from accountants about when to register but in fact you can register at any time. The advantages of registering are that you claim back VAT spent on any purchases that are made solely for business purposes: petrol, stationery, equipment, etc. A disadvantage is that for non-VAT registered clients you must add VAT to all invoices, which for some clients such as charities can make the fees seem high.

The Customs and Excise will issue a refund if you spend more on VAT for the running of the business than clients pay in VAT for your services, which is likely to be the situation in the early days of the business.

The basic requirement is to inform the appropriate local Inspector of Taxes of your intention to be self-employed as soon as the decision has been made. The relevant notification forms can be obtained from the local tax office. If you are no longer employed at the time of informing the Inspector of Taxes, the tax office will require the last P45 provided by your most recent employer

It is imperative to consider the issue of National Insurance (NI). The independent must notify the Department for Works and Pensions, even if the self-employment is part-time. If employed while establishing independence you can be designated as employed and self-employed and the NI contributions can be deferred until you reach a certain level of income. Up-to-date information can be obtained from the Department for Works and Pensions.

If the decision is made to employ staff in the business you may have to deduct Pay As You Earn (PAYE) and National Insurance. In general terms it is better to employ an accountant to address these regulatory requirements.

Do I Need Business Insurance?
Employer's liability insurance is a must if staff are employed. A pitfall to be aware of is when other independent consultants are sub-contracted to fulfil a client's needs. It is prudent to check their professional insurance position and to seek legal guidance regarding the difference between contract for services and contract of services.

Some client contracts will require the principal independent to obtain insurance for several million pounds as part of the contract requirements. This is then factored into the contract price.

The independent professional must have appropriate professional indemnity insurance. This can be obtained either through the independent's professional body or from an insurance company. If private insurance is needed, a reputable insurance broker can assist.

Car and equipment insurance are also needed and once again insurance brokers are the best initial contact. It is recommended that several brokers be approached, as the cost of insurance can vary considerably. One issue that is becoming easier is to insure your office equipment when the office is home-based. An increasing number of insurance companies are now providing this cover, often as part of the home contents insurance. Sometimes there are restrictions to the cover – for example, clients visiting the home office – so the business plan should reflect this need.

It is essential to notify the insurers that your car will be used for business purposes and there is merit in asking about cover for car contents, e.g. general equipment for service provision, laptop, etc.

There are other insurance considerations, such as insurance for life and health, loss of earnings, cash and cheques, theft, fire and damage to buildings. It sounds a minefield but a reputable broker can assist, as can the professional bodies. The necessity is to obtain sound advice, make an informed judgement of actual needs and avoid the trap of gold star cover if the nature of the client work and services provided can be covered by professional indemnity and car and equipment insurances. All the overheads mount up before a profit can be made. It is easier to spend than recoup.

13.3.6 Finance Management and Pension Scheme?

Bank managers can be sympathetic to small businesses and if there is doubt about cash flow in the first few months it is better to discuss setting up a business account at the start. Bank charges can be high; for example, for every transaction in or out of an account there will be a bank charge and so it is worth shopping around. There is merit in obtaining a business credit card, which will assist in keeping private expenditure separate from the business and reduce the number of transactions in and out of the business account. The bank manager may request a business plan.

This is another area where independent financial advice must be obtained. Remember that banks are likely to recommend to customers their own policies. You will need advice regarding your existing pension scheme(s). Is it better to freeze an existing pension or to transfer the cash to a personal pension scheme? The essence is to decide which of the many options the best one for your particular circumstances is.

If you employ staff you may be required to offer pension advice and to consider whether the company will offer a pension to staff.

13.3.7 Business Plan?

A business plan identifies the amount of financing or investment required and identifies when it will be required. It demonstrates that you have considered all aspects of self-employment and that you recognize the opportunities and threats to the business. It is also a means to persuade an investor or bank manager that you are a good risk. In the longer term, if the objectives identified in the business plan have not been achieved, you are in a better position to identify the financial needs of the moment and to take appropriate action. Discussing the business plan with your financial backer or bank manager will enable focused discussions.

Banks, Chambers of Commerce, Business Link offices and the Internet may provide templates for use when preparing your business plan. Local Chambers of Commerce run short courses for people setting up their own business. Some sample topics are: accounting for small businesses, marketing and basic management skills. Various areas should be covered in a business plan (see Figure 5.2). Any business plan needs to be well laid out and cross-referenced for ease of evaluation.

13.4 General Practice

The decision is made, advice has been evaluated and required notifications have been completed. Now the hard work starts.

What Shall I Call the Business?

What is in a name? Careful thought is required. Is the name of the business to reflect the independent themself, such as Jane or John Doe, or does the name of the business reflect that there are associates, such as J. Doe and Associates, or what the business provides, such as Essential Occupational Health Services (my apologies to all J. Does and any business of the name used as an example!).

Once the name has been agreed, the question of a logo needs to be considered. It is not essential but it does give the feel of an established organisation and can be used on business cards, business headed notepaper and marketing brochures.

What will Be Offered to Clients?

Working as an independent is very different from working as an employed person; the type of service offered to clients will dictate how different. If providing an occupational health service such as pre-employment and risk-focused health surveillance programmes, the expectations of the client will range from sustaining existing programmes to creating programmes and then implementing them. If the latter work is required, the independent may have to create, tailor, recommend and then implement policies and procedures based on statutory requirements, risk or needs assessments and best practice. This is when the perils of self-employment become more easily recognised and where references, knowledge and experience come into play.

Training may also be a service that clients require. The trainer is expected to be knowledgeable not only concerning best practice but concerning the client's individual

and specific needs. Prior to embarking on this type of work it is prudent to complete a training needs analysis – What do they have? Where does the client need to be? Preparation, supported course notes and lively presentations using computer-generated graphics are really the norm today.

Remember:
Good teaching is one-fourth preparation and three-fourths theatre (Gail Godwin; see Kelly and Kelly 1989).
Consultancy is another type of service that can be offered to clients. A consultant is a person that other people or Organisations ask for advice and look to for guidance, instruction and/or information. Again, there is a range of consultancy services that can be offered to clients, from working with company teams to improve the implementation of policies and procedures of an occupational health department, to assisting the client to turn the advice into action, to working at a corporate level and facilitating strategic planning, policy and procedure designs and methods to achieve progress.

Other forms of consultancy are auditing, assessment of needs and helping companies to managing compliance. The real issue for a consultant is to identify what is needed and not just accept what the client believes they need; this is a form of specialized project management.

Project management can be broken down into several steps or phases and each step should be carefully designed, tested and presented. Once presented, it can constitute a contract for services. Consider the steps outlined below;

- Define the objectives: what objectives need to be set to meet the needs of the project and when is the project to be completed?
- Establish terms of reference: how can the objectives be met?
- Construct a realistic and achievable work schedule, breaking the project down into phases, identifying who will do what and by when, noting resource needs both hard and soft. Hard needs include computers, facilities, assistance, etc.; soft needs encompass experience, creative thinking, flexibility, strategic planning, etc.
- Plan for quality: demonstrable facts are important in every output and activity.
- Plan time scales: each phase of the project will have a time frame for completion. This is the means to drive the project forward.
- Deliver outputs to client specifications, with regular reports to clients to keep them abreast of developments.
- Conduct SWOT of project quality of delivery: constant improvement may be made by learning from success and failures.
- Consider the cost of the project: if the independent needs to provide the hard resources this will be a cost factor.

In preparing a proposal, the detail can be broken down into the above elements. However, it is important to realize that not all elements of the project management list will be appropriate to all contracts.

How Will the Clients Be Found?
Remember the golden rule: it is easier to spend than to recoup. So be focused and accept that marketing is expensive, and that general marketing such as a general mailshot is not usually cost-effective for the small, specialist business.

Contracting a company to call possible clients is expensive and in general does not generate many leads. However, if a couple of leads are the targets then cold calling may be a considered approach. Cold calling simply means that you telephone and try to reach the right person to persuade them that, whatever you are offering, the prospective client cannot do without. Preparation is needed, such as:

- Identifying the types of companies in the area in which work is sought.
- Going to the library and researching the names and positions of key managers or directors, purchasing directories of local companies or purchasing lists of companies of interest from the local Chamber of Commerce, for example.
- Preparing the introduction and sales pitch.
- Ringing to sell yourself and the services to be offered.
- Keeping comprehensive notes.

The aim is to get an appointment to meet. Be prepared for talented blocking maneuvers by receptionists through to personal assistants.
The business card and headed notepaper are forms of marketing. These tools must be used, so keep your pockets full of business cards wherever you go. Make sure your business card states clearly what you do.

A carefully worded advertisement in carefully selected journals can result in leads. Whichever avenue is selected, it is important to remember that the lead-in time from contact to work can be months and in some cases years.

Another method of working as an independent is to register with a reputable agency, which will do the marketing and put you in touch with clients. It is possible to obtain work from a range of clients, ensuring a full diary with a variety of companies or involvement in a variety of projects. The agencies must be registered if they are recruiting or placing nurses, and the agency will pay NI. It can be a low-risk way to real independence.

How much is to be charged?
If the work is found via an agency they will have a range of fees to offer, so be sure to negotiate. A golden rule is to remember that the independent is selling a service and aiming to run a profitable business. Occupational health nurses seem reluctant to be realistic about the fees to be charged and in essence offer services at a low rate and then

regret the decision. If the services and the experience are to be valued they must be realistically cost.

If working as a true independent, it is essential to sit down with a calculator and do some sums. There are some personally tried and tested golden rules for setting fees listed below;

- What do you need to generate to ensure the business is solvent? Identify overheads – rent, insurances, staff costs, telephone, etc.
- Work out a day and hourly rate based on the above, with a profit margin. Remember just covering costs is no way to run a business and make a profit.
- Find out what other independents are charging in the area (there seem to be regional variations in fees).
- Decide either to charge expenses separately or to make the fee inclusive (plus VAT if registered).

Specific Points to Consider

- Is the work occupational health nursing or consultancy? (The latter tends to generate a higher fee.)
- What does the project management profile identify as the real needs and time commitments for the practitioner?
- When a contract for services is pending it is also worth considering the client and the length of the contract. Short-term contracts tend to be costed at a higher rate, as the independent needs to work and find other clients.
- If equipment is required, the cost of hiring it should also be included in the fees.

How to Keep Clients

An independent must ensure they provide the services agreed to a standard expected by the client. It is prudent to agree the detail at the start of the contract for services. There are several issues that need to be considered before entering into an agreement to provide services, such as:

- The duration of the contract and terms of termination.
- The fact that the independent contractor is not entitled or eligible to participate in any benefit programmes or tax-withholding obligations on the part of client.
- The detail of the services to be offered.
- Who will do what – ensure both parties agree.
- Confidentiality of information obtained during the term of contract.
- Liability to the business. This can be limited by adding a clause that states liability for loss or detriment to the client will be equal to the amount of the contract.
- The period of payment of invoices. Consider charging a penalty for late payment. Late payment of invoices sent to the client can have a serious impact

on the business, as there will be companies and people waiting for payment from the independent.

- Working as an independent occupational health nurse practitioner can be rewarding and certainly challenging, but it is not for everyone.

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UNIT 14 EVALUATION OF OCCUPATIONAL HEALTH PRACTICES
CONTENTS

14.1 INTRODUCTION

This unit discusses evaluation of occupational health practices with a view to correct areas of deficiency or neglect or areas that will have implication(s) on the health of the people and provide solution. It looks at the meaning of evaluation, types what should be evaluated and conclusions were drawn.

14.2 OBJECTIVES

By the completion of this unit you should be able to:

- Explain the meaning of occupational health evaluation
- State the types of evaluation
- Explain the aims for evaluating occupational health practices
- State areas of occupational health that should be evaluated.

14.3 What to Evaluation

Evaluation refers to the process by which we can measure the extent to which our objectives have been met. For evaluation to be effective, the broad and specific objectives of the programme to be evaluated must have been clearly stated or defined right from planning stage. Evaluation entails measuring the extent to which these objectives have been met (Akinsola 1993).

Types of Evaluation

There are two different types of evaluation namely: process evaluation and outcome evaluation.

Process Evaluation
Refers to an evaluation of the process by which the programme is being implemented. This is an examination of the procedures and methods, their merits and demerits.

Outcome Evaluation
It refers to detailed examination or assessment of the achievements of the programme. Example, what changes have taken place in the rate at which injuries occur in the factory or industry? Evaluation would be also be categorized as continuous and terminal evaluation.

In occupational health practice, one can carry out evaluation at the end of a programme or during the programme; that is, process evaluation. There have been records of several deaths and injuries in various working environments as a result of failure to either assess the health of the workers, their environment or the work process. Evaluation of occupational health practices is concerned with ensuring that both health of the workers and the working environments are in good conditions in order to avoid recording casualties at the places of work, and to ensure greater productivity.

Aims of Occupational Health Programme/Practices
The main aims of the occupational health programme include:
i. To protect the workers against any health hazards that may arise out of their work or the condition in which it is carried out.
ii. To contribute positively towards the workers physical, and mental adjustment and particularly the adaptation of the work to workers and their assignments to job for which they are suited.
iii. To contribute to the establishment of jobs to the highest possible degree of physical and mental wellbeing of workers.

14.4 Working Environment
Things to evaluate are those that can promote the health of workers. They include:
It is the responsibilities of the safety engineer or occupational hygienist where available to evaluate the working environment. Where these two categories are not available, the doctor or nurse does it. Treatment services in the industry can be used as an indicator of problem areas. If many people come with pneumoniocosis, it means something has to be done about the level of dust to that environment. The dust measurement has to be taken to know how much of it in the air. Also if workers in the plants with a high intensity of noise who show by audiometry, evidence of hearing loss, sound level measurement will be taken to determine their intensities. The doctor must advise the engineers for reduction of such hazardous elements in the working environment. In order to be able to give the advice to reduce the level of sound, the doctor must keep records of annual incidence of the diseases in question in order to discern trends. If in an industry, accidents rate is high, provision of guard for dangerous machinery and education of workers result in reduction in the accidents rates (Asogwa, 2007). Aside

from the level of hazards in the environment, the structures are evaluated. How many employees are in the employment of the factory or industry? It has to be determined whether the structure available is alright, and if they are enough, consider the number of employees it has.

The general condition of the factory has to be evaluated as good or bad. How is the house keeping on the factory which will include light, heating, ventilation, disposal of waste and garbage, kitchen facilities for washing, available portable drinking water, space, cloak room, safety methods organized example machine guard, protective clothing, masks precaution against fire disasters, hazard encountered example notice of faulty machines, dust, toxic wastes, health services available. Measurement of acid mist in electroplating work or the use of gas detector tubes for carbon monoxide, hydrogen sulphide of methane level. As this evaluation or assessment is going on, actions are planned and taken to take care of each problem accordingly (Alakija, 2000).

14.5 Supervision on Correct Use of Protective Clothing and Equipment

14.5.1 Supervision on Correct Use of Safety Materials

Ideally, every work process should be designed as to ensure the wearing of protective equipments such goggles, respirators, gloves. The employee must ensure that the plant is well designed and meet the safety requirements, specification and makes the work process safe. In realizing that it is not possible, to make all work process fully safe, insurance and proper wearing of safety equipment/clothing by the workers is essential.

The nurse will also work in co-operation with other professionals whose function includes safety in the work place. The nurse may come to realize that some experienced operators tend to cut corners or may leave out or avoid the use of protective clothing and equipment during a process thereby exposing themselves and other workers to avoidable risks. The design of most protective clothing and equipment are meant for the temperate climates and are sometimes cumbersome for use in the tropical climate. However, the nurse must encourage the use until more suitable and equally effective alternative equipment is made. (Akinlolu, 2004)

14.6 Personal Health of the Workers

The medical information needed is recorded in a pre-employment examination form. The design of the form varies with different occupations and depends on whether the workers are literate or not, the form is completed. The result of the medical examination is communicated to the management in terms of whether the work is fit or unfit. Divulging details of medical finding to management or anybody for that matter is against medical professional code of conduct. The form of the medical examination should be stored in a confidential file. If any detailed information is needed by management about the employee, this should only be provided with prior consent of the workers.

14.7 Types of Medical Examination

Pre-Employment Health Assessment

The examination is carried out before employment. A successful medical examination should be a pre-requisite for employment. The information obtained enables the doctor (and management also) to know the state of health of the employee. It provided base-line data, which are invaluable for follow up in subsequent years. However, it has been found that the majority of people who submit themselves for medical examinations are sufficiently in good health to be passed as "normal" and consequently, can be first screened by the nurse. Only those cases requiring more detailed examination should be left for the doctor. The nurse is therefore, permitted to pass somebody as "fit" but not "unfit". It is the doctor's responsibility to declare somebody unfit for any particular job in the organization. The use of the nurse in this way saves doctors valuable time to attend to more serious problems (Asogwa, 2007).

14.8 Characteristics of Pre-Employment Health Assessment

It must give the indices of health states such as name, age, sex, temperature and blood pressure, urine analysis, blood profile, chest x-ray results, state of the skin, visual acuity, and history of previous ill health or surgical intervention. In women the menstrual history must be taken and recorded for future references.

14.8.1 Advantages of Pre-Employment Health Assessment

i. It provides a base-line data with which the employees' subsequent health record can be compared.
ii. It is a valuable means for diagnosing and treatment of physical defects as revealed during the pre-employment evaluation.

The basic purpose of this test is in two folds: to ensure that the employee will not suffer ill health as a result of the work to be engaged in. Secondly, it helps to ensure that other workers will not be endangered as a result of any defect in the employment.

14.8.2 Pre-Placement Health Assessment

This type of examination can take the form of the initial pre-employment health assessment or a special medical examination where the job may require some specific attributes as regards the mental and physical demand of the job to be performed. If a person is found during a pre- employment medical examination to be unfit for a particular job within the Organisation but fit for another job, the doctor should advise that he be employed and placed in the job he is best suited for. For example, if during the pre-employment medical examination of unskilled workers seeking employment in the catering services, one is found to be malnourished he could still be employed, but instead of doing general duties, he could be kitchen porter.

Pre-placement medical examination could be a special medical examination following illness or injury when management requests that work men be reassessed for suitability to return to his previous job. This is often called "request medical". After a worker has been medically examined, the doctor will be able to advice management on the best employment for him according to his present state of health vis-à-vis the various jobs available in the plant.

The problem that may arise from pre-placement medical examination is failure of either the worker or management or both to accept the position recommended. The worker may reject the position on the grounds that he did not initially apply for the position or because the salary is too low or the working conditions unacceptable. Management may not have the type of job best suited to the person at the particular time. The issue may have to be resolved by a discussion between the parties (workers), management and the doctor to arrive at a mutually accepted solution. Occasionally, inspite of all efforts, suitable employment cannot be offered to the worker by the organization and he is therefore, rejected on medical grounds.

14.8.3 Periodic Health Assessment

The period medical examination should be carried out at regular intervals after the initial medical examination. It is not always necessary to conduct a full-scale medical examination of workers during these routine periodic tests, especially if there are no overt signs of illness. The nature of this selective medical examination should depend on special risks involved and to what extent the worker has been disabled. This examination is to ensure that the employees working in certain occupation environment example quarries, mines, oil rigs, those employed in lead industries etc. continue to be in good health. This is in line with the ILO recommendations of improving the quality of life by advising on preventive measures to people exposed through their occupation to physical and psychological risks.

In some occupations or trades, it is mandatory that periodic health assessment is carried out. The period between each will depend on the type of health risks involved, example, constant exposure of radiographers to radiation, cement workers to dust and laundry workers to higher level of noise. People who are exposed to radiation should be examined every six (6) months or every three months depending on the degree of radiation hazards to which the worker is exposed. Similarly, those who work in noise environment such as the engineer's rooms of a ship, require audiometry as the most important test. Coal miners and others working in organic and inorganic environments need radiological examination of the chest and lung function test to detect various forms of obstructive and restrictive lung diseases. They also need special emphasis on the respiratory system during clinical examination.

If the worker is found to be ill during the period of medical examination, he should be referred to the doctor for thorough medical examination including laboratory investigations. A special form needs to be designed with emphasis on the most relevant aspects. If after the medical examination, the doctor discovers that the worker is no longer fit for that particular job or should be placed on "light duty", the management should be informed and they discuss on what should be done to save the life of the employee.

After the medical examination and the appropriate action, the record should be filed in the workers confidential file which should be only accessible to the doctor or nurse if so delegated. Details of the worker's health condition can only be communicated to the

management on written consent by the worker. High degree of confidence on the side of both doctor and nurse is very necessary.

Return to Work for Injury or Illness Assessment or Request Medical Examination

From time to time, management requests the doctor to conduct a medical examination on a worker so as to recommend the best job he is able to do following illness or injury. This examination has to be conducted by the doctor and not to be delegated to the nurse. The medical examination should consist of the usual history and physical examination, laboratory and other investigations including radiography if indicated, may be carried out. After, the doctor should interview the worker with regards to his job before illness or injury and what job he would like to do, giving his present limitations.

The doctor has to weigh the possibilities of the workers continuing in his former job by retaining him against fresh training for a new job. Request medical examination is also carried out to be certain that a man who has applied to be retired on health grounds should go. The evaluation will aid the health unit to update its records and will also help the employee who may be required to be placed in a job that will not endanger or precipitate other problems. It also helps in planning the rehabilitation of the employee.

14.8.4 Pre-Retirement Health Assessment/Outcome Evaluation

Though very desirable, not all employers of labour subscribe to the assessment. The assessment is undertaken to measure the health status of a staff that is about to retire. This information obtained during the preretirement assessment will offer the health care provider opportunity to counsel the client on maintenance in retirement. The advice given should include education on adequate diet, exercise in moderation and the importance of taking prescribed medication. Ailment or disease may be discovered during the exercise, that client should be referred for expert management.

14.9 SUMMARY

In this unit, we have discussed various types of evaluation and how each can be used in ensuring effective means of ensuring and protecting the health and safety of workers.

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14.11 Answers to TUTOR-MARKED ASSIGNMENT

Explain the term evaluation as it relates to occupational health practice.

UNIT 15 WORKPLACE HEALTH MANAGEMENT

Module Structure

MODULE 3 OCCUPATIONAL SAFETY REQUIREMENT AND PRACTICE

15.0 INTRODUCTION

This unit provides guidance to employers and employees on establishing workplace health management systems within their own organizations. On how to determine and develop the role and functions of the occupational health nursing specialist within each enterprise and where to go for additional help and advice in relation to occupational health nursing.

15.2 Learning Outcomes

By the end of this unit you should be able to:

- Describe the Changing nature of working life and the new challenges.
- Describe he need for improved workplace health management.
- State the role of the World Health Organization and International Labour Organisation
- State various steps of Workplace Health Policies
- State the benefits of workplace health management

15.3 Workplace Health Management

There are four key components of workplace health management:

- Occupational Health and Safety
- Workplace Health Promotion
- Social and lifestyle determinants of health
- Environmental Health Management

In the past occupational health policy was frequently driven solely by compliance with legislation. Thus in some countries like the Countries of Central and Eastern Europe (CEE) or Newly Independent States (NIS) health and safety legislation was very detailed with an attempt to describe almost every procedure needed for appropriate health and safety practice. In the new approach to workplace health management, policy development is driven by both legislative requirements and by health targets set on a voluntary basis by the working community within each enterprise.

In order to be effective Workplace Health Management needs to be based on knowledge, experience and practice accumulated in three disciplines: occupational health, workplace health promotion and environmental health. It is important to see workplace health management as a process not only for continuous improvement and health gain within the enterprise, but also as framework for involvement between various agencies in the community. It offers a platform for co-operation between the local authorities and business leaders on community development through the improvement of public and environmental health and contributes towards the development of social capital. Social capital is understood here as the capacity of the local community to provide all of its citizens with a good living and working life in a sustainable way.

Workplace health management implies that industrial enterprises and other organizations actively manage their health, environment and safety performances. Efforts involving education, housing, public works and community groups, including businesses, schools and universities and religious, civic and cultural organizations, are aimed at enabling people in their communities to ensure sustainable development. Furthermore, businesses and industries, including transitional corporations, should recognize environmental management as among the highest priorities and as a key determinant to sustainable development.

15.3.1 The Healthy Workplace Setting

The Luxembourg Declaration of the European Union Network for Workplace Health Promotion (WHP) (November 1997) defined WHP as the combined effort of employers, employees and society to improve the health and wellbeing of people at work.

This can be achieved through a combination of:

- Improving the work organization and the working environment
- Promoting active participation of employees in health activities
- Encouraging personal development

Workplace health promotion is seen in the EU network Luxembourg Declaration as a modern corporate strategy which aims at preventing ill health at work and enhancing health promoting potential and wellbeing in the workforce. Documented benefits for workplace health programs include decreased absenteeism, reduced cardiovascular risk, reduced health care claims, decreased turnover, decreased musculo-skeletal

injuries, increased productivity, and increased organizational effectiveness and the potential of a return on investment. However, many of these improvements require the sustained involvement of employees, employers and society in the activities required to make a difference. This is achieved through the empowerment of employees enabling them to make decisions about their own health. Occupational Health Nurses are well placed to carry out needs assessment for health promotion initiatives with the working populations they serve, to prioritize these initiatives alongside other occupational health and safety initiatives which may be underway, and to co-ordinate the activities at the enterprise level to ensure that initiatives which are planned are delivered.
In the past occupational health services have been involved in the assessment of fitness to work and in assessing levels of disability for insurance purposes for many years. The concept of maintaining working ability, in the otherwise healthy working population, has been developed by some innovative occupational health services. In some cases these efforts have been developed in response to the growing challenge caused by the aging workforce and the ever-increasing cost of social security. Occupational health nurses have often been at the forefront of these developments.

There is a need to develop further the focus of all occupational health services in Europe to include efforts to maintain work ability and to prevent non-occupational workplace preventable conditions by interventions at the workplace. This will require some occupational health services to become more pro-actively involved in workplace health promotion, without reducing the attention paid to preventing occupational accidents and diseases. Occupational health nurses, with their close contact with employees, sometimes over many years, are in a good position to plan, deliver and evaluate health promotion and maintenance of work ability interventions at the workplace.

Health promotion at work has grown in importance over the last decade as employers and employees recognize the respective benefits. Working people spend about half of their non-sleeping day at work and this provides an ideal opportunity for employees to share and receive various health messages and for employers to create healthy working environments. The scope of health promotion depends upon the needs of each group. Some of the most common health promotion activities are smoking cession, healthy nutrition or physical exercise programs, prevention and abatement of drug and alcohol abuse. However, health promotion may also be directed towards other social, cultural and environmental health determinants, if the people within the enterprise consider that these factors are important for the improvement of their health, wellbeing and quality of life. In this case factors such as improving work organization, motivation, reducing stress and burnout, introducing flexible working hours, personal development plans and career enhancement may also help to contribute to overall health and wellbeing of the working community.

15.3.2 The Healthy Community Setting

In addition to occupational health and workplace health promotion there is also another important aspect to Workplace Health Management. It is related to the impact that each enterprise may have on the surrounding ambient environment, and through pollutants or products or services provided to others, its impact on distant environments. Although

the environmental health impact of enterprises is controlled by different legislation to that which applies to health and safety at work, there is a strong relationship between safeguarding the working environment, improving work organization and working culture within the enterprise, and its approach to environmental health management. Many leading enterprises already combine occupational health and safety with environmental health management to optimally use the available human resources within the enterprise and to avoid duplication of effort. Occupational health nurses can make a contribution towards environmental health management, particularly in those enterprises that do not employ environmental health specialists.

The strengthening of environmental management in enterprises in order to promote a process of continuous improvement was one of major commitments reached at the Fourth Ministerial "Environment for Europe" Conference, Aarhus, Denmark, June 1998. As specified in the Policy Statement on Environment Management in Enterprises in CEEC/NIS prepared by the Environmental Action Plan (EAP) Task Force Secretariat the commitment should involve all relevant Ministries or preferably the government as a whole. The governments should invite all relevant stakeholders to commit themselves to support this process as well as establish a policy framework that provides appropriate incentives for enterprises to adopt good environment management practices in enterprises.

The UNEP International Declaration on Cleaner Production in 1998 defines it as “the continuous application of an integrated, preventive environmental strategy applied to processes, products and services to produce economic, health, safety and environmental benefits”. The Declaration promotes the use of sustainable production and consumption practices. It is certain that workplace health management in enterprises can be used to help fulfil the above commitments reached in Aarhus and by those who sign the UNEP Declaration.

Workplace health management, as defined in the new workplace health policies developed at the enterprise level, are therefore seen to be vital for the improvement of living and working conditions in Europe, for building human resources, and for the eco-efficient use of natural resources. Improving and sustaining the use of human and natural resources and being innovative and competitive, is not only important for the success of the enterprise itself, but also for the health and safety of its employees, the quality of working life and for the protection of the local and wider environment.

15.4 Changing Nature of Working Life and Challenges

The world of work has undergone enormous change in the last hundred years. To a large extent the very heavy, dirty and dangerous industries have gone, and the burden of disease, which came with them, in most European countries, has declined. However, the new working environments and conditions of work that have replaced them have given rise to new and different concerns about the health of the working population. Exposure to physical, chemical, biological and psychosocial risk factors at work are now much more clearly linked to health outcomes in the mind of the general public. Expectations of society in regard to health at work have also changed, with increasing

demands for better standards of protection at work and for the improvement of the quality of working life. Employers are also recognizing that health-related issues, such as sickness absence, litigation and compensation costs, increasing insurance premiums, are expensive, ignoring them can lead to serious economic consequences. The best employers' emphasize the important message that good health is good business, and that much can be achieved in this field simply by introducing good management practices.

15.5 New Workplace Health Policies

15.5.1 Key Steps In Developing Workplace Health Policies

The direct commitment of senior management and the participation of employees in the development of workplace health policies are an essential prerequisite to the successful implementation of policies that are designed to address the real needs of the working community.

The following main steps and/or activities should be considered in the development and implementation of workplace health management at the enterprise level:

- Develop a short policy statement from the employer or senior executive that explicitly states senior management’s commitment to and acceptance of responsibility for the workplace health management strategy within the enterprise.
- Educate managers and workers on the impact of environmental, occupational and lifestyle determinants on their health and social wellbeing and on the economic situation and competing ability of the enterprise to facilitate their participation in workplace health management
- Determine the role of the medical, nursing, environmental and safety experts and other professionals needed to assist in the implementation of the workplace health management strategy in the enterprise
- Discuss economic appraisal of existing and projected outcomes to health, safety, and environmental health from the activities of the enterprise (the material flow analysis guidelines of UNEP may be particularly useful).
- Train staff in quality management principles and standards to be used for the workplace health management system. These are the same as those applied to quality assurance in the management of manufacturing, servicing or marketing operations
- Assure participation of management and employees in the development and implementation of workplace health management systems in the enterprise
- Develop adequate tools for monitoring and evaluation of health, safety, social, economic and environmental
- Outcomes (resources used and pollution/waste created = material flow) to determine the impact on wellbeing of employees and competitiveness of the enterprise
- Introduce systematic internal auditing and evaluation to be able to make necessary adjustments to the workplace health management system of the enterprise.
- External audit by a recognized certifying body, if necessary.

15.5.2 Key Steps in Implementing Workplace Health Policies

The prerequisite for establishing good practice in workplace health management in enterprises is the conscious and creative support as well as the fullest possible participation of senior management, employees and their trade union representatives. They would co-operate in the development of the workplace health policy and in its implementation with the assistance of appropriate experts, e.g. from occupational health services, environmental health services or health promotion agencies, preferably from multidisciplinary preventive services. Quality management systems and internal and external auditing is believed to be supportive to the creation and maintenance of a healthy enterprise.

Leading enterprises are increasingly integrating their health management and environment management into the overall corporate management system. The health and environment policy of the enterprise determines targets, define processes, and assure financial and human recourses necessary to act on the health determinants and improve social and physical environments in order to:

- Create the greatest gain in health and working ability for the entire staff, and if possible, also for their families
- Provide a safe and healthy working environment for employees
- While preserving the general environment and health of people living outside the premises provide healthy and environmentally friendly products and services
- Ensure human rights of the entire staff
- Build up social capital.

15.6 Key Benefits of Workplace Health Management

Economic growth has been fundamental to the general improvement in health in the Region during the last century. Health gain was achieved within a process of building up social capital and also as a result of increasing investment in improving the working environment, housing, nutrition, education, and health care and by addressing the other needs of the whole population. Economic development has also recently been associated with increased investments to reduce or eliminate pollution of different environmental media. However, major differences in health status and economic development still persist between countries of the European Region, and these differences are largely associated with the economic and social policies dominating in a particular country.

The average age of the work force is increasing very rapidly in several European countries. With the current disability pension systems, a major proportion of the aged work force fraction will be assumed to leave working life, and this trend will inevitably be enforced by a higher rate of long-term unemployment amongst the elderly work force. There is a need for a major reconsideration of the social policy and social insurance policy in Europe, with an investment in protecting and promoting the working ability of the economically active working population. The current trends will otherwise lead to considerable problems in financing social security systems and maintaining the important safety net that they provide. This will require changes to the social security systems which operate in Europe to include systems of incentives that reward active

participation in working life and early return to work following any period of illness or infirmity. The active participation of employers, and their occupational health services, will be required to achieve these goals. Occupational health nurses are well placed to initiate, support and evaluate interventions which can be used to promote early, safe and successful rehabilitation programs at the workplace. Investment in protection and promotion of health, may not only support the wellbeing of the individual, but can be justified on purely economic grounds. The World Development Report indicates that improved health can contribute to economic growth in four ways.

1. It reduces production losses caused by worker illness;
2. It permits the use of natural resources that had been totally or nearly inaccessible because of disease;
3. It increases the enrolment of children in school and makes them better able to learn and increase their opportunity to have higher income in future; and
4. It frees for other uses resources that would be spent on treating illness.

The implementation of the new workplace health management in the enterprises that respond to national policies in public health, health and safety, workplace health promotion and environmental health management, as part of a comprehensive workplace health management system can expect to reap some or all of the following benefits.

Economic Benefits

- improves sustainable development at a national and enterprise level
- helps to protect the economic independence of the working population
- improved integration of disabled people into the economically active workforce
- increased productivity, competitiveness and profitability
- increased probability of economic investment
- improved self-regulation and adjustment of insurance system to seek benefits of preventives activities
- increase probability of reduce social insurance premium
- increase probability of reduced costs of health care system
- more efficient use of existing knowledge and skills
- improved economic stability

Health Benefits

- increase life expectancy
- increase disability-free life expectancy
- increase working ability
- increased age of employees' working potential
- increase proportion of employees free from occupational and work related diseases and injuries
- increase percentage of employees and pensioners free from serious disability due to chronic communicable diseases

- increased proportion of society with healthy lifestyle
- increased equity in health between different professions, economic sectors and countries

Social and Wellbeing Benefits

- Improved social image of enterprise
- Improved self-esteem of employees
- Increased quality of working life
- Improved compliance with existing legislation
- Increase employment opportunities for people with slight work disability due to chronic diseases or injures
- Increased participation of employees in organization of their own work
- Increased awareness of society on social. environmental, occupational and lifestyle health and wellbeing determinants
- Increase knowledge on effective use on natural resources
- Increased professional skills of employees
- Increase managerial skills of employees
- Increase ability of employees to cope with demands of working life
- Increased knowledge of employees on legal requirements and their rationale concerning health and safety at work and environment management in enterprises
- Increase employability
- Increase potential for social justice
- Increase awareness of characteristics and social value of good enterprise management
- Increased transparency in HESM evaluation and decision making process
- Broader role of enterprise in social capital development
- Increased efficiency in using scientific research results in building up social capital
- Increase society awareness of determinants of sustainable production and consumption
- Increased efficiency of building up social capital through better understanding, confidence and mutual support of political, social and economic society leaders

Environmental Benefits

- Increased efficiency in using natural recourses
- Increased number of enterprises with improved pollution prevention mechanisms and reduced wastes
- Increased number of enterprises managing environmental issue in compliance with legal requirements
- Increased number of enterprises managing environmental issue using principles and methods of such strategies as Cleaner Production, Eco-efficiency, Green Productivity, and Pollution Prevention

Occupational health nurses, working independently or as part of a multi professional occupational health service can make a significant contribution to the achievement of these goals. As occupational health nurses are the single largest group of health care professionals involved in delivering occupational health services in Europe their active participation in and support of Workplace Health Management is essential if this strategy is to succeed.

15.7 The Role of the World Health Organization and International Labour Organisation

To assist countries in addressing these problems the 49th World Health Assembly endorsed the Global Strategy: Occupational Health for All (12). Preventing occupational accidents and diseases, protecting workers health and improving the quality of working life is one of the priority objectives of the International Labour Organisation (ILO). The ILO Conventions, particularly 155 and 161 as well as the Recommendations and Resolutions in the field of occupational health and safety represent important agreements between nations on strategies to improve workers health and safety, and by so doing contribute to sustainable economic and social development within those nations.

The Twelfth Session of the Joint ILO/WHO Committee on Occupational Health revised the definition of occupational health in 1995 (previously agreed in 1950) to focus primarily on three key objectives:

1. The maintenance and promotion of workers' health and working capacity.
2. The improvement of working environment and work to become conducive to safety and health; and
3. The development of work organization and working cultures in a direction, which supports health and safety at work and in doing so also, promotes a positive social climate and smooth operation and may enhance the productivity of the undertaking.

The concept of working culture is intended, in this context, to mean a reflection of the essential value systems adopted by the undertaking concerned. Such a culture is reflected in practice in the managerial systems, personnel policies, and principles for participation, training policies and quality management of the undertaking.

This change demonstrates a broadening of the concept of occupational health from its traditional primary role in preventing occupational injury and disease, which is still

important, to extend further to include both occupational and non-occupational workplace preventable diseases. Efforts to maintain work ability, prevent disability, promote early rehabilitation and address all of the factors, which have an impact on the health of the working population, now fall clearly within the remit of occupational health.

It is recognized that state authorities, or inspection and enforcement agencies alone cannot address these problems, but government agencies, industry, trade unions, employees and health care professionals must be involved in a partnership approach. By demonstrating that good Workplace Health Management is a key part of good business management, with many economic, health and social benefits, including increased productivity, reduced staff turnover, improved attendance and better motivation within the enterprise, it is hoped that all enterprises will recognize the important benefits which this approach is intended to achieve.

15.8 Summary

This unit describes the role of the occupational health nurse in workplace health management, a new and exciting concept designed to improve the management of health and health related problems in the workplace. Specialist occupational health nurses can play a major role in protecting and improving the health of the working population as part of this strategy.

Occupational health nurses can also make a major contribution to the sustainable development, improved competitiveness, job security and increased profitability in enterprises and communities by addressing those factors which are related to the health of the working population. By helping to reduce ill health, occupational health nurses can contribute to the increased profitability and performance of organizations and reduce health care costs. Occupational health nurses can also help to reduce the externalization of costs onto the taxpayer, by preventing disability and social exclusion, and by improving rehabilitation services at work. By protecting and promoting the health of the working population, and by promoting social inclusion, occupational health nurses can also make a significant contribution towards building social capital in their various place of work.

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15.10 Answers

UNIT 16 WORKPLACE REGULATORY REQUIREMENT
Module Structure
MODULE 3 OCCUPATIONAL SAFETY REQUIREMENT AND PRACTICE

Unit 16 Workplace Regulatory Requirement
Unit Structure

16.1 INTRODUCTION

There are numerous regulatory concerns that must be taken into consideration that affect workers and workplaces. Occupational health nurses (OHN) should be keenly aware of the regulations that affect their specific workplace and strive to assist the employer in achieving compliance. This chapter provides a summary of some common workplace regulatory requirements; however this is in no means exhaustive.

16.2 LEARNING OUTCOMES

At the end of this unit, the learner will be able to:

- describe the occupational safety and health act
- describe the hazard communication program
- state chemical safety measures

- discuss the various emergency action plan standard
- state the federal mine safety and health act

19.3 WORKPLACE REGULATORY REQUIREMENT

19.3.1 Occupational Safety and Health Act

The Occupational Safety and Health Act (OSH Act), established in 1970, is intended to "assure safe and healthful working conditions for working men and women" (OSHA, 2011). The primary intention was to develop and enforce standards that would lead to safe and healthful working conditions and to provide the mechanism for research, information, education, and training in the field of occupational health and safety. This Act led to the development of federal standards, but also allows states to develop and enforce their own standards as long as they are at least as stringent as the federal standards. The Act is administered by the Occupational Health and Safety Administration (OSHA), a division of the U.S. Department of Labor, with leadership from the assistant secretary of labor. The OSH Act addresses safety and health conditions in most industries, including some public sector employers. Any employer covered by the Act must comply with the regulations and standards. The prime principle of the Act is that employers have a "general duty" to provide workers with a workplace free from recognized hazards. The provisions of the Act are enforced by OSHA through inspections and investigations. OSHA, through a consultation service, also provides proactive assistance to employers to assist in the development of safety programs to ensure compliance. This consultation is confidential and provided at no cost to the employer. However, there is a caveat. If the employer does not heed the recommendations of the consultation and correct serious hazards within the timetable recommended, the consultation service will report the infractions to OSHA. The workplace may then be subject to formal inspection. The OSH Act is a comprehensive law, and it covers most employers.

OSHA's General Duty Clause states that "no employee will suffer impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life." (OSHA, 2011). The expectation is that all workers have the right to work in a workplace that is free from recognized hazards that can cause or are likely to cause death or physical harm. It also requires that all workers are must be compliant with OSHA standards, along with other rules and regulations that are applicable to their work actions and job functions. The OSH Act requires employers to notify workers, through awareness and training programs, of hazards that exist in the workplace, and the employer is required to maintain observant awareness of such hazards. Once aware of any hazards, the employer is required to determine the approach to protect workers

(1) By eliminating the hazard,
(2) By containing the hazard, or
(3) By providing protection for workers.

The employer is then responsible for measuring and monitoring the level of hazard exposure, as appropriate. The Act also requires the employer to establish a mechanism for periodic health examinations and testing of workers who are exposed to specific hazards that could adversely affect their health. These examinations are to be made available by the employer at no cost to the worker.

To enforce the Act, provisions authorize an OSHA compliance officer to enter any workplace at any time to inspect and investigate the conditions and operations of the workplace and to validate adherence to the applicable standards. The visit from an OSHA compliance officer may be unannounced, meaning the officer may show up at the workplace unexpectedly. Visits may also be triggered by notice of or by frequency of accidents or even upon complaint from a worker. Should the employer attempt to refuse access to the workplace by the compliance officer, the officer has the right to obtain a legal warrant to inspect.

After the inspection tour, a closing conference is held between the compliance officer and the employer and/or the employer representative. This provides an opportunity for open discussion of findings and identification of any deficiencies, and it is a time for questions and answers. If the inspection leads to evidence that the employer has violated any section of the Act, the compliance officer is authorized to issue a citation to the employer. Each citation is issued in writing and includes a description of the nature of the violation, with reference to the standard, rule, regulation, or order that has allegedly been violated. The citation includes a proposed resolution and the reasonable time frame for compliance. The officer also has the right to levy fines against the employer for violations. The employer is then required to post a copy of the issued citation in a prominent location on company premises, thus visible to all workers. The citation remains posted for 3 days or until the violation is abated, whichever is longer.

Employers have a right to appeal citations to Occupational Safety and Health Review Commission (OSHRC) and may request an informal meeting with OSHA's area director to discuss the case. Workers also have the right to request an informal conference with OSHA to discuss findings of the inspection, the citation, and notice of proposed penalty.

The Act also requires employers to maintain accurate records connected to work-related deaths, injuries, and illnesses that involve medical treatment or for those that result in modification of the workers' duties as a result of a work incident. These reports are submitted to OSHA for the purposes of compiling the data for comparison to industry standards. OSHA is also authorized to use this data for research purposes and may publish the findings of any inspection or data from this record keeping.

OSHA also sponsors a Voluntary Protection Program (VPP). This program serves to recognize the efforts of employers to provide worker protection by exceeding the minimum standards required by OSHA. There are three VPP categories: Star, Merit, and Demonstration. These VPP recognitions by OSHA serve to acknowledge outstanding achievement by workplaces that have incorporated a comprehensive health and safety approach their total management system through self-initiated efforts and cooperation, rather than just meeting minimum standards out of regulatory necessity. This means that the employers have voluntarily invited OSHA to conduct a comprehensive inspection of their workplace. This inspection consists of a rigorous,

interactive methodology that includes active participation by not only management, but also by all workers.
Workplaces that achieve VPP status are recognized at an OSHA award ceremony, receiving a certificate of approval and a VPP flag that can be proudly displayed at their worksite and on marketing material. VPP Star sites must apply for recertification every 3 years.

The OSHA Training Institute (OTI) Education Center Program provides support for OSHA's training and education mission through a variety of safety and health programs, including community outreach efforts. These programs are offered through community-based training and educational institutions and serve to conduct approved OSHA Training Institute courses. These institutions are selected through a national competitive process and support OSHA training based on their normal tuition and fee structures. This program serves as a valuable resource for employers for training management and workers in the basics of occupational safety and health. Common courses include training on occupational safety and health standards for general industry and construction, hazardous materials, machine guarding, ergonomics, confined space, excavation, electrical safety, and fall protection.

The OSH Act also served to create a National Institute of Occupational Safety and Health (NIOSH), part of The Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention. NIOSH is the research body that serves to provide assistance to OSHA by conducting research on workplace risks and workplace health hazards. The findings of NIOSH research become the foundation for OSHA standards, supporting new or revised safety and health standards, and for the development of criteria for protection against toxic substances and physical agents. The research conducted by NIOSH is based on findings of investigations and information from worksites. Workers in certain industrial categories may also be summoned to participate in NIOSH research efforts through medical monitoring and physical examination for research purposes. The findings of such research serve to provide information related to the incidence of work-related illnesses among groups of workers.

NIOSH also provides competitive funding for 17 university-based Education and Research Centers (ERCs). These centers provide academic programs, continuing education, training, and research opportunities in the core areas of industrial hygiene, occupational health nursing, occupational medicine, and occupational safety. The ERCs serve to educate occupational safety and health professionals in order to provide an "adequate supply of qualified personnel to carry out the purposes of the Occupational Safety and Health Act" (NIOSH, 2011).

16.3.1.1 OSHA Standards for General Industry

The following outlines some of the most common OSHA standards for general industry (29 CFR 1910). OSHA guidelines call for a systematic identification, evaluation, and prevention or control of general workplace hazards and the hazards involved in specific jobs and tasks.

16.4 Hazard Communication Program

This program is designed to ensure that employers and workers are aware of the hazardous chemicals in the workplace and the protection that is necessary as a safeguard to avoid exposure to chemicals that may be harmful. The employer is required to establish and implement a written hazard communication program in order to comply with the requirements of the standard. The basic concept of the standard is *the right to know*, that employees have both a need and a right to know the hazards and the identities of the chemicals they are exposed to when working. They also have the right to know what protective measures are recommended and available to prevent adverse health effects. The Hazard Communication Standard defines requirements for the evaluation of all chemicals imported into, produced, or used in U.S. workplaces. This information is to be made available to workers who may be affected by or exposed to these chemicals. Hazard information must be provided through labels on containers and through material safety data sheets (MSDSs). The employer is responsible for awareness and training efforts for workers to inform them about the hazards of specific chemicals used in their workplace.

16.5 Chemical Safety

Chemicals in sealed containers are required to have affixed labels that must remain intact. The employer must maintain on file and provide workers access to MSDSs. A written hazardous chemical program must detail the requirements for labels and other forms of warning, material safety data sheets, and the process for employee information and training. The employer's training for workers must include information on the use of the chemical and what actions to take in the event of a spill or leak.

The employer should ensure a standard approach to establishing compliance with the Hazard Communication standard by following these steps:

1. Obtain a copy of the rule
2. Determine if the standard applies to the workplace
3. Identify responsible staff
4. Establish policies and procedures to maintain and evaluate the effectiveness of the program
5. Identify hazardous substances in the workplace
6. Prepare and implement the program
7. Ensure that all containers are properly labeled
8. Obtain and make available to workers material safety data sheets for each chemical
9. Conduct employee awareness and training

All chemicals have the potential to cause health hazards. Exposures to chemicals may occur by absorption, commonly through contact with the skin, splashes to mucous membranes (such as the eye). Exposures may also occur through ingestion, or by inhalation. Exposures that cause or may lead to acute health issues should be referred to the OHN or to a healthcare facility immediately. When a worker has a significant exposure to a hazardous chemical, first aid intervention is critical and the employer is required to have supplies and equipment available for swift intervention. The second

step is to retrieve a copy of the MSDS for that particular chemical to see what first aid interventions are warranted and to identify potential health hazards that may result from the exposure. If the worker is sent to an outside healthcare facility for further evaluation, the MSDS should accompany the worker as a resource for the healthcare provider.

Because of the focus on chemical safety within this standard, most exposures are now prevented by the use of protective clothing or apparatus; such as goggles, respirators, impervious gloves and aprons, etc. One must remember, however that exposure to chemicals may also have a cumulative effect and lead to chronic health conditions, such as cancers, birth defects, blood dyscrasias, liver and lung diseases. Therefore, the standard calls for routine health monitoring of workers exposed to specific chemicals.

16.6 Emergency Action Plan (EAP) Standard

OSHA recommends that all employers have a plan that addresses emergencies that may reasonably occur in the workplace. There are also conditions in which an EAP is specifically mandatory when required by an OSHA standard. An EAP describes the actions workers should take to ensure their safety in the event of emergencies such as floods, hurricanes and tornados, fires, release of toxic gases or chemicals, irradiation accidents, or explosions. Workplaces are also required to have established emergency action plans in the event of workplace violence.

An EAP is a written document that addresses the procedures for reporting workplace emergencies. It includes evacuation procedures and emergency escape routes, assignment of employees who are critical to business operations during evacuation, procedures to account for all workers after an emergency evacuation, along with rescue and first aid duties for certain workers.

The emergency escape plan should define who is authorized to order an evacuation and under what conditions an evacuation would be necessary. The plan should also outline how workers will evacuate, and what routes they will take. Exit diagrams are typically used for this purpose.

The plan should also define the workers who are critical to business operations during and after evacuation. Such workers would be required to operate fire extinguishers or shut down gas and/or electrical systems. They may also be responsible for operation of equipment that is critical to business functions or address operational issues that could create additional hazards during emergency response efforts. The plan should also include procedures to account for workers after evacuation to ensure that all workers have safely evacuated. Workers who evacuate should be assigned to specific assembly areas, and the plan should identify a person responsible for conducting a roll call of workers. The plan may also outline specific rescue duties of certain workers, those well-trained in emergency response and first aid, to ensure appropriate triage for workers in need of further health evaluation.

Additional aspects of the standard require that an alarm system be in place to notify workers of such an emergency, and to ensure all workers know the actions to take

should the alarm activate. The standard has provisions for training of all employees on initial hire and at times when revisions are made to the plan.

Although not specifically defined in the standard, it is prudent for the employer to ensure provisions are made for workers with impairments or disabilities. Examples would include evacuation alarm notices that have provisions for hearing-impaired workers; such alarms would not only be audible, but also visual. Evacuation plans should include providing support to sight impaired workers and those who are physically incapacitated.

16.6.1 Walking/Working Surfaces Standard

The OSHA standards for walking and working surfaces applies to all permanent places of employment The only exceptions are those in which domestic, mining, or agricultural work is performed. The standard addressed requirements regarding breaks in elevation and single points of access/egress to allow for ample passage by workers. The standard also addresses requirements for fall protection for elevated work surfaces, stairways, and ladders. A requirement for floor guarding for openings and holes in flooring or ground surfaces is also addressed. The standard also includes recommendations for the use of mobile ladders, scaffolds, man-lifts, and mounted and powered platforms.

16.6.2 Medical and First Aid Standard (29 CFR 1910.151)

OSHA requires employers to make provisions for first-aid interventions and health evaluations of workers. The specifics of a workplace health and first-aid program are dependent on the unique operations of each workplace, the hazards involved, and its resources. The aim is to provide prompt attention to workplace incidents and injuries in order to minimize these events. The employer is required to provide first aid supplies and equipment that are readily accessible to workers and to first aid providers.

The employer is also expected to establish a relationship with community emergency medical services (EMS) and local fire rescue. For industries with high risk operations, it is also prudent to establish relationships with local healthcare providers and emergency departments. The OSHA First Aid standard also requires “trained first-aid providers at all workplaces of any size if there is no infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees” (OSHA, 2011). In workplaces where there is risk of extreme exertion, asphyxiation, electrocution, or other such danger, the OSHA standard requires training of workers in cardiopulmonary resuscitation (CPR). This requirement specifically applies to workplaces with confined spaces, logging operations, electric power generation, and dive operations.

The American National Standards Institute (ANSI, 2011) defines standards for workplace first aid kits (ANSI standard, Z308.1-2003). Kits sold to and purchased by employers for use in the workplace must meet the performance standards set forth by ANSI. There are specific classifications for kits used in the workplace:

Type I: This kit is intended for indoor use only. It is appropriate for office or service industries, as well as for light manufacturing settings. The kit is not intended to be portable and should be place in a fixed location, most likely mounted to the wall.

Type II: This kit, intended also for indoor use, is usually equipped with carrying handles, thus making it portable and valuable for response to remote locations. This type is suitable for use in services, light manufacturing, or light industrial settings.

Type III: The kit is appropriate for use in heavy manufacturing, construction, transportation, and other heavy industrial settings because it is moisture resistant, has little potential for damage, and is portable.

Recent advances in technology have provided the availability of automated external defibrillators (AEDs) that can be placed in workplaces. These AEDs are appropriate for work settings with high potential for sudden cardiac arrest. The presence of an AED in the work setting is not only a benefit for workers, it is also a benefit for the general public who frequent that setting. Common settings for AEDs aside from high-risk industry include shopping malls, public libraries, government or municipal buildings, theaters, and event locations.

Each workplace should assess its own requirements for an AED program as part of establishing a first aid response protocol. Issues that should be considered when implementing a workplace AED program include physician oversight to write the prescription for the AED and provide medical direction; compliance with local, state, and federal regulations; location of the AED in the work or public setting; coordination with local EMSs; a quality assurance program; and medical director review of events requiring use of the AED.

Additional information and guidance for developing an AED program for the worksite can be found at the following websites:
• OSHA at www.osha.gov
• American College of Occupational and Environmental Medicine at www.acoem.org
• American Heart Association at www.americanheart.org
• American Red Cross at www.redcross.org
• Federal Occupational Health at www.foh.dhhs.gov
• National Center for Early Defibrillation at www.early-defib.org

16.6.3 Machine Guarding Standard (29 CFR 1910 Subpart O)
Employers with workers who operate machinery (e.g., saws, power presses, moving conveyors, etc.) are required to comply with the machine-guarding requirements.

Many hazards can be created by moving machine parts, leading to crushed hands and arms, lacerated fingers, extremity amputations, and other serious injuries. The OSHA standard for machine guarding requires that “any machine part, function, or process which many cause injury must be safeguarded. When the operation of a machine or

accidental contact with it can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated." (OSHA, 2011)

There are four strategies to machine guarding:
1. Prevent contact: Protection of hands, arms, and any other part of a worker's body eliminates the possibility of the worker or other workers placing parts of their bodies near hazardous moving parts.
2. Secure: The machine guard should not be able to easily remove or tamper with and must be firmly secured to the machine.
3. Protect from falling objects: Care must be taken to avoid falling objects that can land on moving parts of the machinery.
4. Create no new hazards: A safeguard should not create a hazard in and of itself.
5. Create no interference: The safeguard should not impede a worker from performing the job efficiently. If so, it may provoke the workers to override or disregard the machine guarding.
6. Allow for safe lubrication of the machine: Maintenance workers should be able to lubricate the machine without removing the safeguards.

Machine operator training should involve instruction or hands-on training that includes identification of hazards and their specific safeguards; the purpose of and reasons for the safeguards; how and for what reasons machine guards can be removed; and steps to take when a machine guard is missing or when it malfunctions.

16.6.4 Lockout/Tagout Standard

Employers are required to establish measures for controlling hazardous energy (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, and other energy sources) as a safeguard for workers. This requires that those servicing machinery or equipment provide the necessary safeguards against the unexpected startup of the machinery or equipment. This is done by affixing appropriate lockout or tagout notices to the device. This standard was established to avoid physical harm as a result of the discharge of hazardous energy while the machinery or equipment is being serviced. It also serves as a safeguard to prevent the machine or equipment being turned on by another worker while it is being serviced. The standard requires that machines or equipment be de-energized (lockout) or tagged with appropriate notice (tagout) to provide a level of safety by providing adequate notice to workers. Lockout prevents use of the machine or equipment by disabling its operations so workers cannot turn on the machine/equipment. Tagout prevents use by providing appropriate written notice on the machine that it should not be used. This tag would be located at the area where the machine could be powered on.

The standard also requires that workers receive training regarding the control of hazardous energy and avoiding serious physical harm to or death of workers. Workers must receive training on procedures related to the unexpected energy discharge or unexpected start-up of the machinery or equipment should it occur. Workers must also receive training on how to apply the appropriate lockout or tagout devices. Training is

intended to ensure that workers understand and follow the appropriate provisions for the lockout/tagout out program.

16.6.5 Electrical Hazards Standard

Electrical and wiring deficiencies are among the most common violations that receive OSHA citations. OSHA's Electrical Hazards Standard includes recommendations for design of electrical systems and safety-related work practices. The standard applies to engineers, electricians, and other professionals who work with electricity directly, including those working on overhead lines, cable harnesses, and circuit assemblies. The standard establishes electrical safety requirements necessary for the practical afeguarding of employees in their workplaces (OSHA, 2011).
The standard addresses four components for electrical safety:
(1) design safety standards for electrical systems;
(2) safety-related work practices;
(3) safety-related maintenance requirements, and
(4) safety requirements for special equipment.

16.6.6 Personal Protective Equipment (PPE) Standard

The first line of defence in protecting workers from hazards involves engineering controls physically changing a machine or work environment by removing or controlling the hazard. The second line of defense, if the hazard cannot be eliminated or controlled, involves implementing and training workers on ways to perform the job to reduce their exposure to workplace hazards.
OSHA generally considers PPE to be the third and last option for controlling worker exposure. If the employer determines that it is necessary for workers to use PPE, the employer must select the appropriate PPE for the hazard and require its use.

Examples of PPE include, but are not limited to, face shields, safety glasses/ goggles, hard hats, safety shoes, coveralls, gloves, vests, aprons, earplugs, and respirators. Employers are required to communicate the requirement for and availability of PPE for workers; however, this is not enough. The burden is on the employer to routinely monitor workers' compliance with the use of PPE and reinforce the standard.

16.6.7 Respiratory Protection Standard (29 CFR 1910.134)

OSHA's respiratory protection program applies to workers who are exposed to airborne contaminants at a hazardous level (dust, grains, lead, pesticides, airborne bacteria, etc.) and for work conditions where the air is oxygen-deficient (mines, confined spaces, fires, etc.). The standard clearly states that the use of a respirator for protection should be considered only after exhausting all engineering control efforts, or while these controls are being instituted. Several other OSHA regulations specifically require the use of respirators for health hazard protection when workers are exposed to certain health-compromising contaminants.

The required components of a respiratory protection program include provisions for selection of the respirator, medical clearance for respirator users, procedures for proper use, respirator fit testing, and respirator maintenance procedures. In other words, the

worker must be medically fit to wear the respirator and must wear the appropriate respirator for the associated work conditions. In order to do so, the worker must undergo health evaluation and testing to ensure that the respirator is the appropriate fit for protection. The cost of these evaluations must be covered by the employer. The employer must also ensure that the worker receives adequate training on the proper use and Maintenance of the respirator.

Types of Respirators

There are different types of respirators used in the workplace. The first type is the air-purifying respirator.

• Particulate respirators capture particles in the air, such as dusts, mists, and fumes. Typically called face-filtering respirators, they do not protect against gases and vapors.
• Gas/vapor respirators are used when there are hazardous gases and vapors in the air. They contain chemical filters (cartridges or canisters) and are made to protect against specific gases or vapors.
• Combination respirators have both particulate filters and gas/vapor filters.Another type of respirator used in the workplace is the atmosphere-supply respirator.
• Air-supplied respirators provide a supply of clean air for long periods of time. They are lightweight and use a hose to deliver clean air from a fixed source of compressed air. Use of this type of respirator limits the mobility of the wearer.
• Self-contained breathing apparatus (SCBA) consists of a wearable supply pack of clean air, and as a result kit does not restrict movement of the wearer. Common use of SCBA is in firefighting. For work performed underwater, a self-contained underwater breathing apparatus (SCUBA) should be used.

Combination respirators have an auxiliary wearable supply pack of clean air that can be used if the primary fixed supply fails. It is typically used for work in confined spaces.

16.6.8 Occupational Noise Standard

Since there are no visible effects of hearing loss, it often goes undetected until it has an effect on communication and responsiveness on the part of the worker. OHSA's Occupational Noise Standard is designed to protect the hearing of workers who are exposed to significant noise as a part of their work duties.

This standard is based on the principle that the health effects of noise exposure are dependent on the intensity and duration of the exposure. The health effect is primarily a loss of or reduction in the worker's hearing. These effects may be temporary, usually as a result of short-term exposure, after which normal hearing returns. Or, the effect can be permanent, usually related to exposure to high-pitched noise over a prolonged period of time. OSHA requires employers to determine if workers are exposed to excessive noise in the workplace. If so, the employer may be required to implement a hearing conservation program.

The standard requires employers to monitor noise exposure in areas of the workplace to determine if workers are exposed to noise at or above 85 decibels (dB) over an 8-hour work shift (8-hour time-weighted average [TWA]).

These work areas are usually in places where noise is generated by machinery, power tools, or other operational causes. If the noise level exceeds the permissible exposure limit (PEL), the employer must first consider engineering or administrative controls to reduce the noise level. If the noise cannot be eliminated or controlled, the employer must implement a hearing conservation program.

A hearing conservation program consists of worker training, the use of hearing protection, and periodic audiometric (hearing) evaluations of the workers. The employer must provide hearing protectors to all workers exposed to an 8-hour TWA noise level of 85 dB or higher. The protectors must be effective in reducing the workers' exposure to the noise to 90 dB or lower. The employer must then establish and maintain an audiometric testing program. The testing program is intended to test all workers at the time they begin work in the noise-induced area in order to provide a baseline of the worker's current hearing. Annual audiograms are performed thereafter, as long as the worker remains in the noise-induced work area. A comparison of the annual audiogram to the baseline test is conducted to determine if the worker has incurred hearing loss, defined as a standard threshold shift (STS), as a result of working in the noise-induced area. An STS is determined by calculating the results of the audiometric tests at 2,000, 3,000, and 4,000 hertz. If an average shift in either ear of 10 dB or more is identified, and no other causes of hearing loss can be identified by the occupational healthcare provider, the worker must receive additional training and counseling on hearing protection or be removed from the noise-induced area. Workers who terminate employment or transfer to a non-noise area of the workplace participate in an exit audiogram to memorialize the hearing of the worker at that time they exit the hearing conservation program.

The standard requires training, at least annually, of workers who are in the hearing conservation program. The training includes information on the effects of noise exposure, the purpose of the use of hearing protectors, the proper selection, fit, and care of the hearing protectors, and the purpose of audiometric testing. The standard also requires employers to maintain record keeping of the workplace noise exposure measurement results for 2 years and must also maintain records of the worker's audiometric test results for the duration of the worker's employment. The employer is also required to make these records available to current workers, former workers, representatives of the workers, and to OSHA.

16.6.9 Confined Spaces Standard

Many workplaces contain spaces that are considered "confined" because their configurations hinder the movement of the worker who must enter, work in, and exit from them. Examples of confined work spaces would include work in vessels, sewer lines, mines, containers, crawl spaces, etc. A general principle of a confined space is that the worker must enter and exit through narrow openings and/or perform work tasks

while in a limited space, thus preventing free movement. It also takes into consideration the type of work the worker is performing while in the confined space. Some work performed in a confined space can lead to the potential for the worker to be exposed to a variety of hazards, including toxic or flammable gases/vapors, oxygen-deficient air, and airborne contaminants. The potential for asphyxiation, incapacitation, and the inability of self rescue, injury, or even death are possible in confined spaces.

If the employer determines that a worker must perform work in a confined space, a confined space entry permit may be required. Some key principles in evaluating the workplace to determine if any spaces are permit-required confined spaces include:

1. Is the space large enough that a worker can bodily enter?
2. Is the space configured so that a worker can enter to perform work fully or partially inside?
3. Does the space in question have limited or restricted means for entry or exit?

If permit spaces are present and workers are required to enter such spaces, the employer must develop and implement a confined space program, which is an overall plan for protecting workers. An important element of the requirement is that entry of workers into confined spaces is allowed only by a written entry permit issued by the employer. The employer is required to identify confined spaces with signs, and entry must be limited to only authorized workers. The standard specifies strict procedures for evaluation and atmospheric testing of a confined space before and during entry by workers. When workers are performing work in a confined space, the standard requires that the confined space entry be attended outside the space by an attendant who is trained and equipped to respond to emergencies that may occur with the worker in the confined space. Provisions must also be made for rescue of the worker in the event of an emergency. The standard specifies training requirements and specific duties for authorized entrants, attendants, and supervisors. Rescue service provisions are required, and where feasible, rescue must be facilitated by a non-entry retrieval system, such as a harness and cable attached to a mechanical hoist.

16.6.10 Bloodborne Pathogens (BBP) Standard

Recognizing that exposure to bloodborne pathogens present risk of serious and sometimes life-threatening illnesses, the BBP standard requires the use of engineering and work practice controls to eliminate or minimize exposure to bloodborne pathogens. This standard is applicable to all healthcare and emergency response workers. It is not only applicable in healthcare-related workplaces, but also applies when workers are assigned as emergency or first aid responders in the general workplace. In addition, the standard applies to workers who are not direct caregivers, those who handle potentially infectious waste (janitors, maintenance workers, medical devise handlers), and those who may be exposed to risk as a part of other job duties (housekeeping, linen facilities).

The standard requires that such employers establish an exposure control plan, a written plan intended to eliminate or minimize the risk of be BPP exposures. The written plan identifies workers in job classifications that would be at risk and a list of job duties

performed by those workers that might result in exposure. The employer is required to update the plan annually.

A hallmark of the standard is the use of universal precautions. The key principle of universal precautions is that all human blood and other potentially infected material is considered to be infectious and puts the worker at risk for a blood borne pathogen exposure. As a result, specific procedures must be in place for handling and disposing of contaminated sharps and medical instruments, handling of specimens, disposing of contaminated waste, and handling of soiled laundry. The standard has led to the development of many improvements, such as impervious sharps disposal containers, safer medical devices and procedures, and self-retracting or self-sheathing needles. Sharps containers and containers of contaminated waste must be labeled and identified as communicable hazards. Regulations for the storage, transport, and shipment of potentially infected material were also established as part of this standard.

The employer must provide personal protective equipment (PPE) to all workers at risk of exposure. This includes gloves, gowns, eye protection, and masks. The standard also requires employers to provide training regarding the potential for exposure and the use of PPE, and to make available hepatitis B vaccinations to all workers with the potential for bloodborne pathogen exposure. This training and the offer of vaccination must take place within the first 10 days of initial assignment to a job with potential exposure. Should the worker decline vaccination for hepatitis B, a signed notice of declination should be placed in the workers file. Training must also include information on the possible mechanisms of exposure to blood or other potentially infectious material, including incidents in which the worker incurs exposures by penetration of the skin and through splashes onto the skin or into mucous membranes. Workers must receive training on the appropriate methods of reporting such exposures, and the employer is required to provide medical evaluation regarding the exposure at no cost to the worker. The standard requires healthcare employers to maintain a sharps injury log as part of their record keeping and reporting of occupational injuries and illnesses.

16.6.11 Powered Industrial Trucks Standard

This standard defines powered industrial trucks as anything used to carry, push, pull, lift, stack, or tier materials. This standard was developed in an attempt to reduce injuries and illnesses as result of careless use of mobile equipment as part of the worker's job duties. Injuries occur not only to the mobile equipment operator, but incidents involving mobile equipment can also lead to considerable damage to company property and injury to others. Examples of such incidents and injuries include mobile equipment accidents, pedestrian incidents as a result of being struck by mobile equipment, material that falls while being stacked at elevated levels, driving mobile equipment off an elevated platform or dock, and damage to overhead structures by lift equipment. It is acknowledged that most incidents and injuries are a result of unsafe use and operation of the equipment because workers have received insufficient or inadequate training on mobile equipment safety (OSHA, 2011).

The standard requires the employer to provide training to mobile equipment operators on a variety of topics. Among these topics are vehicle inspection and maintenance that the operator will be required to perform. The standard requires that all mobile equipment be examined at least daily before being placed in service. Forklifts used on a round-the-clock basis must be examined after each shift.

• **Pre-operation**
Workers must be trained on pre-operation inspection of the equipment. This includes knowing when equipment should be removed from service and when maintenance is indicated.

• **Traveling and maneuvering**
Workers must receive training on mounting and dismounting the equipment. Instructions must be given on starting and stopping, appropriate operating speeds, audible notice to pedestrians, changes in direction, and parking. Practices for safe travel, including travel on inclines and on even surfaces must be covered. Procedures for pedestrian safety and procedures in the event of tip-over must also be covered.

• **Load handling**
Mobile equipment is most often used to handle product. Training must include procedures for appropriately positioning the mobile equipment, lifting and lowering the load, and entry into other vehicles, such as truck trailers and railroad cars.

The employer is required to certify that each mobile equipment operator has received the appropriate training and has been evaluated and determined competent to operate the equipment. Although testing is not required, it is prudent for the employer to ensure the worker has a firm knowledge about the operation of the equipment. A written training certificate should include the date of the training, the date of the evaluation and the evaluator’s signature. Annual recertification is not required; however, retraining is indicated whenever the worker has been observed operating the equipment in an unsafe manner, when the worker incurs a near-miss incident, or when the worker is involved in an accident. The worker must also receive training if they are assigned to operate a different type of equipment or when the workplace conditions change significantly.

Although not required by regulatory statute, it is prudent that the employer establish that the worker is physically fit and capable of performing the essential functions of operating mobile equipment on the job. Key aspects of medical evaluation should include review of a comprehensive medical history to identify any medical conditions of concern, such as uncontrolled high blood pressure, vision disorders, cardiac arrhythmias, and neurological disorders.
The examination should include evaluation of the blood pressure and vision, at a minimum. A sample evaluation form for mobile equipment operator fitness for duty is provided in Appendix 9.

In addition to the preceding Standards for General Industry, OSHA also publishes a set of standards specific to the construction, maritime, and agriculture industries. Although

these industries must also comply with the general industry standards, the industry-specific standards supersede the rules intended for general industry (Rogers, 2004).

16.7 Summary

The OHN plays a key role in developing health and safety policies and procedures for the workplace. In order to be most effective in this role, the OHN must know which specific regulations apply to company operations.

The regulations discussed in this unit all fall under the realm of the OHN in efforts to establish and maintain mechanisms for regulatory compliance. Management commitment to maintaining a safe and healthful workplace is crucial, and the OHN must ensure that management understands their responsibility for protection of workers through compliance with appropriate regulations. Workplace hazards are identified through comprehensive hazard assessments and periodic monitoring and plans to eliminate or control hazards and protect workers should be a priority. Safety and health training for all workers, including management will not only ensure compliance with certain regulatory standards, but will also serve to create awareness of the potential impact of workplace hazards on the health and well-being of workers.

The OHN must strive to stay abreast of any additions or revisions to these laws. In most cases, these changes will not be published directly to the employer. It is the professional obligation of those involved in health and safety to proactively stay abreast of changes through research and professional networking.

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UNIT 17 WORKPLACE INJURY MANAGEMENT
Module Structure
MODULE 3 OCCUPATIONAL SAFETY REQUIREMENT AND PRACTICE

Unit 17 Workplace Injury Management
Unit Structure

17.1 INTRODUCTION
This unit discusses the evaluation of occupational health practices with a view to access the workplace injury management. There is a significant inverse relationship between workers' compensation costs and business success. High injury rates and higher insurance costs can lead to lower profits. The occupational health nurse plays a key role in developing a strategic approach to managing workers' compensation costs, thus contributing to the profitability of the company.

17.2 LEARNING OUTCOMES
At the end of this unit, the learner will be able to:

- describe the workers' compensation insurance plan
- state the workplace injury and illness calculation
- state the various benefits for an injured worker
- determine mechanism of injury of workplace management
- state different strategies for success towards workplace injury management

17.3 WORKPLACE INJURY MANAGEMENT

Workers' compensation laws were enacted in the early 1900s to cover the cost of medical care and benefits for workers who become injured or ill on the job. As a result, there are workers' compensation statutes, regulated by each state, providing rules and guidance for employers to provide certain benefits to workers when they are injured or become ill as a result of their jobs. These benefits cover the cost of medical expenses, death benefits, rehabilitation expenses, and time away from work related to the job injury. The workers' compensation statutes vary from state to state, and it is important for the employer and the occupational health nurse (OHN) to maintain keen knowledge of these regulations.

Employers with workers in multiple states must abide by the regulations specific to each state in which workers are employed. These state regulations define specific criteria that constitute the workers' rights to the worker's compensation benefit and also define the parameters of payment through mandated fee schedules for healthcare providers who render services for the injured worker. Failure to carry workers' compensation insurance or otherwise meet a state's regulatory requirements may expose the employer to not only paying for these benefits out of pocket, but also to paying penalties levied by the state. Most state workers' compensation regulations require the employer to provide benefits as long as the incident arises out of the worker's employment and the injury occurs during the course and scope of performing job duties. Unlike other types of insurance coverage, such as health benefits or automobile Coverage that have deductibles and dollar limits, workers' compensation insurance does not require the worker to share any cost and does not have a maximum dollar amount limit. Once a claim is filed, the employer is obligated to cover unlimited expenses as long as the costs fall under the purview of the state's requirement for covered benefits. Income replacement as payment for lost work time under workers' compensation is usually calculated as a percentage of the average weekly wage and is not subject to federal income tax for the employer or worker.

A fault of many employers is viewing this benefit as only a regulatory requirement or as a "necessary evil" and therefore leaving the management of the claims to those they pay to provide this service. On the other hand, the selection of partnerships with consultants, insurers' claims administrators, healthcare providers, and legal counsel is critical to a successfully executed program. Employers who take an interest in not only preventing injuries, but also in actively participating in the worker's recovery and return to work find, in most cases, a high degree of both worker and employer satisfaction. The strategy for success, however, starts way before the injury occurs. This chapter outlines the key components to managing workers' compensation benefits.

17.3.1 Workers' Compensation Insurance

Most employers are required to provide workers' compensation benefit coverage for their workers. Employers exempt from this requirement include sole proprietors and partnerships (unless they have workers who are not owners) and employers whose workers are paid solely by commission. Some state laws also exempt certain categories of workers from coverage, such as domestic workers, agricultural workers, and manual laborers. The burden is on employers to know who is covered under the definition of "employee" in their specific state's workers' compensation regulations. And it is important to note that employers should be aware of how the state views coverage for independent contractors and leased workers. Employers must also maintain an awareness of coverage provided for workers when they establish business relationships with employee leasing agencies, contractors, and subcontractors. The terms of the agreement with these types of workers should define the obligations of coverage for workers' compensation benefits that is consistent with state regulations, and an astute employer will not only define the obligation in the contract, but will also require proof of up-to-date coverage by providing a copy of the coverage certificate that will be kept on file with the contract.

17.3.2 Types of Insurance Coverage

There are currently three systems in place for states to design their worker's compensations programs. Monopolistic states have special legislation that requires workers compensation coverage be provided exclusively through the state's workers compensation funded program. Insurance through private insurance companies is not permitted, and the workers' compensation system is administered by the state. This includes the processes of monitoring data and trends, setting insurance rates, and sometimes settling disputes. The second system is where states have their own independent bureau of workers' compensation rules and regulations that govern insurance classifications, premium computation, and experience ratings, thus allowing employers to choose between private insurance companies or a state-administered workers compensation fund.

Most states, however, manage their workers' compensation insurance programs based on data from the National Council on Compensation Insurance, Inc. (NCCI). NCCI is a national agency that manages the largest database of workers' compensation insurance information by analyzing industry trends. The agency also prepares workers compensation insurance rate recommendations, calculates proposed insurance rates, develops experience and retrospective ratings plans, analyzes the potential cost of changes in legislation, and provides a variety of services and tools to maintain an effective Workers Compensation system (NCCI, 2011).

Employers in non-monopolistic states have the choice of purchasing workers' compensation insurance in a variety of ways. The insurance may be purchased through commercial insurance carriers, through a state purchasing fund, or the employer may choose to set up a self-insured fund. There are certain benefits, risks, and considerations to each option.

17.3.2.1 Traditional Commercial Plan

Employers choosing to insure through a commercial insurance product have a variety of insurance carriers from which to choose. This sets the stage for a competitive market in that the insurance companies each vie for the opportunity to provide the employer coverage. In this case, the insurance product or coverage is consistent across insurers but is dependent on the type of policy selected. Under a fully insured commercial plan, the insurance company is responsible for the costs of all claims that arise under the employer's workers' compensation benefit in the states covered by the policy.

17.3.2.2 Guaranteed Plan

Under a guaranteed plan, the employer's premium rate remains consistent and predictable and is calculated based on the standard classification code (SIC) of the business, taking into consideration data and an experience modification factor (mod factor). The employer has no control over the SIC classification since the assignment is based on the nature and risk of the business operations.

Payroll data is based on the average number of workers and the average wage of all workers covered under the plan. The mod factor is an equation based on actual claims versus expected claims for the employer's industry. The published NCCI data is typically used to establish the expected claims experience for the employer's particular industry. In calculating the mod factor, the expected claims experience (or average) is factored at 1.0. If the company has more claims than the expected industry standard, the calculated mod factor will be greater than 1.0, or greater than average. If the employer has incurred a lower number of claims than expected, the mod factor will be less than 1.0, or less than average. Therefore, an employer with less experience (i.e., fewer injuries or less severe injuries) will be rated at a lower premium cost. Conversely, an employer with high rates and/or high severity of injuries will be rated with a much higher premium cost.

17.3.2.3 Retrospective Rating

Employers who focus on controlling claims costs may find retrospective rating to their advantage. This type of rating takes a look back, usually over a prior 3-year period, at the volume and cost of claims actually incurred and uses this value as a basis for establishing premium cost. Since the employer has some control over the mod factor, this plan provides the employer an opportunity to reduce its premium costs and reap reward by establishing and maintaining a safe workplace sustained over a longer period of time.

17.3.2.4 Assigned Risk Pool

An assigned risk pool is designed by each state for those employers who may find the purchase of an individual commercial product too expensive. Under this premium plan, the employer joins a pool of other businesses for the purposes of purchasing a more affordable plan. This approach is sometimes advantageous for small businesses, since the employer can often purchase the same policy at a more reasonable rate, just by nature of the fact that they have joined a group purchasing pool. Most times, employers

in similar industries are assigned to the same purchasing pool since the premium is gauged on similar industry risk.

17.3.2.5 Self-Insurance

Employers can choose to be self-insured, rather than purchase insurance, which involves setting aside funds from their operating budget in anticipation of paying workers' compensation claims. Each state has regulations through its department of insurance with established standards for the employer to set aside financial bonds to assure financial security as a self-insured plan. Under this type of plan, instead of paying premiums to an insurance company, employers are able to use their own funds to directly pay claims costs. This self-insured option is also available to small businesses in the form of a group purchasing pool, where like employers form groups to insure themselves.

The disadvantage of this approach is that all employers share the risk of every other employer in their same group. Therefore, if one employer has increased claims experience, the effect is felt by all members of the group despite the fact that those employers may have less than average experience strategy, when managed effectively, can reap a significant return on investment for the business.

17.4 Benefits for the Injured Worker

The level and scope of benefits provided to injured workers under the workers' compensation system is guided by state regulations. Changes to these regulations require statutory reform by the state government, an, as a result, political forces and lobbying efforts of special interest groups may come into play (Balge & Krieger, 2000). The workers' compensation laws provide some protection for the employer by limiting liability regarding the employer's responsibility for benefit payment and compensation.

Although regulations are decided at the state level, most are very similar in defining parameters of coverage. Each state law provides definitions related to compensability and coverage. If the injury meets the definition of being work related under the state regulation, medical benefits are covered in full for evaluation and treatment of the injured worker, without limits and without contribution from the injured worker in the way of copayments or deductibles. Few states allow the injured worker free choice of his or her medical provider, while most allow the employer to make the designation or require selection by the injured worker or employer from a network panel. Covered medical benefits include office visits, hospitalizations, surgical and interventional procedures, diagnostic procedures, rehabilitation services, pharmaceuticals, durable medical supplies, and other support services.

The injured worker is also entitled to wage-replacement benefits for lost work time, although some states require an eligibility waiting period before wage replacement goes into effect. The wage-replacement benefits are usually calculated as a percentage of the worker's wage; however, this income is not subject to state or federal taxation for either the worker or the employer. Depending on the worker's income level, the earnings under workers' compensation may be quite comparable to the worker's regular take-home pay after taxation.

Injured workers are also entitled to disability benefits based on the level of impairment as a result of the work injury. If the worker incurs a temporary permanent disability or impairment, he or she is entitled to financial compensation to replace lost income or to supplement a reduced earnings capacity. If the worker is unable to return to the same occupation after maximum recovery, he or she may also be eligible for vocational rehabilitation benefits for retraining and job placement assistance.

Since benefits under workers' compensation provide the worker with unlimited medical care and wage replacement (as long as medically necessary), the employer must be aware that it may be perceived as a better option for the worker who does not have healthcare insurance or for those who face copays and large deductibles under their group health plan. Therefore, incident investigations to assure the validity of the nature and extent of the injury are of prime importance. Once the incident that contributed to the worker's injury has been validated, a structured approach to claims management will assure the assignment of a fair and balanced benefit for all.

17.5 Management of Claims

The selection of key partnerships in the management of the workers' compensation program is critical to its success. As mentioned earlier, the selection of insurance consultants, brokers, and advisers sets a foundation for the program. Claims administrators, such as adjusters and case managers, are on the front lines dealing with injured workers and coordinating efforts with the healthcare provider managing the care. A synergy must exist among all individuals, considered stakeholders, who interact with the injured worker. The company's workers' compensation benefits administrator, along with the OHN, should set the tone for expectation with stakeholders. This includes department, safety, and human resources managers since interaction with the injured worker within the company can significantly influence the outcome of the claim. The employer's corporate and labor law attorneys must also share the same philosophy since often other employment-related issues may surface during the course of the claim. The employer must secure a solid legal workers' compensation defense attorney to represent the employer in adjudicating claims and defending the employer's stance regarding benefits eligibility and entitlement.

Stakeholders outside the company include any service provider who touches the injured worker during the course of the claim. These providers should share the philosophy of providing excellent service and quality care to the injured worker in a cost-efficient manner. Any opposing force in regard to this philosophy by any stakeholder can have an adverse effect on the attitude of the injured worker and on the outcome of the claim. For instance, if the healthcare provider has assigned medically appropriate restrictions and released the injured worker back to modified duty, the employer should support a return to work philosophy and provide accommodation for medically appropriate work restrictions related to the injury. This means they will keep the worker productive and on the job.

17.6 Determining Mechanism of Injury

There must be a causal connection between injury/illness and employment in order for the medical findings to be considered work-related. The term *mechanism of injury* is used to describe the events or incident that led to the injury or illness. In other words: How did the injury or illness occur? Was there some risk incidental to or connected with employment? Did the injury/illness flow from employment as natural result? Did the injury occur within a period of time when the worker was where they were reasonably expected to be while performing essential duties related to their work? Was the worker doing what they were supposed to be doing at the time and place they were supposed to be doing it? These key questions must be considered in order to determine compensability of the claim under workers' compensation. A thorough investigation of the incident and point of contact with the workers involved in the incident will provide information regarding the mechanism of injury. Since a thorough interview and documentation of mechanism of injury can prove valuable in determining compensability of the claim, these key questions should be addressed during the interview and investigation process.

17.6.1 Defining the Diagnosis

It is the responsibility of the healthcare provider to interview and clearly define the subjective complaints of the worker and to conduct an objective evaluation of the clinical symptoms and complaints. A thorough, focused, and well-documented examination of the injured body parts will provide clinical information that supports medical decision making in regard to work-relatedness. The healthcare provider should obtain diagnostic tests that are appropriate to the injury or illness, that are widely accepted among practicing providers, and that are based on scientific criteria. The injured worker's subjective complaints should correlate with abnormal anatomical findings and diagnostic test results. Subjective complaints, in the absence of objective relevant medical findings, should not be considered the sole criteria for the diagnosis. The diagnosis and its relationship to the mechanism of injury set the foundation for determining compensability.

17.6.2 Rendering Opinion of Work-Relatedness

Some state workers' compensation statutes require the healthcare provider to render opinion in regard to major contributing cause and work-relatedness. Some states also require the healthcare provider to render opinion in regard to the influence of any preexisting, coexisting, and comorbid conditions and their relation to the findings. In other words, do the clinical findings relate to mechanism of injury and to what degree do other conditions influence the clinical findings? Determination of causation is usually straightforward; however, this requires careful analysis of mechanism of injury and clinical findings. The healthcare provider must weigh all causal or associated factors and use clearly defined terminology to describe findings as part of the medical record. The opinion of the healthcare provider is key to the determination of whether the workplace is the only cause, among other contributing causes, or one of several possible causes contributing to the injured worker's symptoms. Healthcare professionals involved in the care of injured workers have an obligation to the worker, the employer, the workers' system, and to their professions to have an astute body of knowledge related to about state-specific rules on compensability (Foster, 2009). Questions to consider that support decisions in regard to work-relatedness include: Do the symptoms fit the injury? Do the physical findings correlate with the injury and symptoms? Are there preexisting, coexisting, or comorbid conditions that should be considered?

17.6.3 Providing Quality Care

Any medical service, prescription, or medical supply that is used to treat an illness or injury must be appropriate to the diagnosis. Ongoing treatment must be based on the status of recovery and must be supported by applicable practice guidelines. The healthcare provider must initiate only the medical and pharmaceutical interventions that are appropriate for the level of injury or illness. Treatment, using a sports medicine approach of high-intensity and short duration, focusing on early recovery and restoration of function, is important. The treatment plan must be appropriate and must match the documented physiological and clinical problem.

17.6.4 Managing Work Status

Return to work is an integral part of the treatment plan. The assignment of work status should focus on the worker's capabilities. Work restrictions should be assigned that remove essential job functions or physical demands that are appropriate to the injury or illness and would have an adverse effect on recovery. The role of the healthcare provider is to determine restrictions that are appropriate to the level of injury. Advancing work status by removing restrictions and limitations as early as appropriate should be considered at each visit and should be a part of the treatment plan on a continuous basis. The assignment of restrictions and limitations should be reviewed with the injured worker at each visit and upon receipt of new information such as reports from physical therapy and specialty providers. The healthcare provider must communicate with the employer and insurance carrier any information regarding the treatment plan and the injured worker's work status for the timely and appropriate management of the workers' compensation claim. The OHN should assist with the assignment of modified duty and transition work assignments for the injured worker compatible with medically appropriate physical restrictions, assuring the restrictions are based upon the presence or absence of objective relevant medical findings. These processes are key to managing return to work and to facilitating maximum recovery.

17.7 Strategies for Success

The engagement of all involved to employ ***SMARTER**** strategies help to create an effective workers' compensation program that meets the needs of injured workers while providing a high-quality, cost-effective benefit. By instituting these strategies, the employer is able to demonstrate value for both the injured workers and for the company.

17.7.1 Select Key Partnerships

It is common to use benefits consultants or insurance agents when securing coverage for workers' compensation benefits. The consultant or agent assists the employer in choosing the appropriate insurance coverage for workers' compensation. The consultant/agent should have the employer's best interests in mind and share the philosophy of recommending the most cost-effective option for the coverage, based on company size and history of experience.

The consultant/agent should hold comprehensive knowledge regarding other aspects of the employee benefits program, such as group health benefits and disability insurance since there is often significant interplay. Although the calculation of such benefits is dependent on the makeup of the workforce, work hazards, and wage levels, many other influences may come into play. Negotiated terms of labor unions may also influence worker entitlement and coverage under certain benefits. And, decisions to increase copays and deductibles under the group health benefits may influence workers to perceive workers' compensation benefits as a much more attractive benefit. The consultant/agent must take all influencers into consideration when providing guidance to the employer.

Performance expectations should be considered during the selection process for the insurer or TPA. The insurer/TPA must provide the employer with an efficient means for reporting claims and should also have an efficient internal process for administering

claims. The adjusters assigned to the claims are on the front lines in regard to administrative management of the claims, with responsibility for claim investigation by obtaining information from the injured worker, witnesses, the employer, the workers' compensation medical providers, and they should obtain information related to the current and past health history of the injured worker. The claims adjuster also holds the power to authorize medical treatment and makes decisions related to assignment of benefits and claims settlements. Case managers may be assigned to certain claims to direct medical care by developing appropriate recovery plans for the injured worker. This is of particular value with complex and catastrophic claims or troublesome cases. Being the prime communicators with other stakeholders, adjusters, and case managers holds significant potential to influence the outcome of the claim by holding responsibility for managing claims without harassment, coercion, or intimidation toward the injured worker, the employer, or the healthcare providers. Therefore, the selection of adjusters and case managers as key partners, with their agreement to subscribe to the company's philosophy related to claims and case management, is of vital importance.

The selection of key partners who will render care and services to injured workers has significant positive impact on the outcome of the claim. As long as statutory guidelines permit, the employer should engage in securing relationships with healthcare providers who render consistent, high-quality service in an efficient manner. These providers should be able to articulate a comprehensive knowledge of the state's workers' compensation system and execute their services accordingly. Healthcare providers should render care consistent with that authorized by the adjuster and within the parameters of care that are medically indicated for the level of the injury or illness, founded on scientific evidence- based guidelines. Appropriate and timely documentation of diagnostic results, medical findings, recommended treatment, and the injured worker's response to treatment assist the adjuster and case manager in handling the claim. Of utmost importance, these providers should demonstrate a willingness to openly communicate with the employer and other stakeholders involved in the claim, knowing there is always "another side to the story."

The employer's workers' compensation defense attorney plays a key role in providing advice related to the management and settlement of litigated claims. However, there is a role for the defense attorney to take a more proactive part as a key partner providing advice to the employer related to insurance coverage, hazard and risk reduction, and claims management based on analysis of potential exposure. The defense attorney should be involved up front in regard to development of the philosophical decisions related to policies and procedures for the overall workers' compensation benefit program to assure consistency with their approaches to claims defense. Of additional value is the integration of philosophical agreement between defense attorney and the company's labor law attorney since there is significant interplay between workers' compensation and employment labor laws.

Key partnerships must also be engaged within the company. The human resources and risk managers must work together to assure a firm, fair, and consistent approach to

investigation of incidents and injury management. Management at all levels of the company should strive to consistently apply policies and procedures and maintain a safe work environment. Managers should be well versed in the steps to take when an incident or injury arises and provide appropriate guidance and intervention. And not of least importance are the workers. All workers must be made aware of the proper steps to take to report incidents and injuries that occur in the workplace. Appropriate notice should be posted to direct workers what to do should they be in need of medical intervention. Through the engagement of stakeholders at all levels within the company, acknowledging and understanding the importance of a safe and healthy workplace, the employer can reap the benefit of support at all levels. Through the selection of key partnerships, the employer is able to engage a comprehensive philosophical approach to managing workers' compensation benefits shared by stakeholders from all perspectives. By taking charge early in the life of a claim and securing healthcare services focused on quality, injured workers will receive appropriate and timely benefits focused on positive outcomes and a swift recovery.

17.7.2 Managing Health and Safety

The employer's fitness for duty program provides the foundation for the workers' compensation program. Employers who conduct pre-placement health evaluations gain benefit from documenting a baseline of the worker's health history at the time of placement, as well as assuring that the worker is the right fit for the job. The establishment of a drug-free workplace also serves to support a safe and healthful work environment. Health and wellness initiatives, through education, screening, and disease management assist workers in achieving high levels of safety and health, and as a result the employer benefits from reduced risks and a more productive workforce.

Philosophical support for developing and maintaining focus on health and safety must start at the top of the organization. A top-down expectation for reducing hazards and risks, for regulatory compliance, and for a safety-first management approach is vital. A focus on incident reporting, rather than just injury reporting, enables the employer to gain insight into near misses and trends that may prove a threat, thus creating an expectation for focus on intense investigation aimed at eliminating or minimizing injuries.

The selection of healthcare providers focused on quality that will provide care to workers under both group health and workers' compensation serves to support the workplace philosophy of good health. Although some employers focus on healthcare cost containment, an outcome-focused approach for quality care and efficient return to work will result in improved health and productivity of the workforce.

17.7.3 Assess Effectiveness

The assessment of organization effectiveness focuses on responsibility for health and safety at all levels. For all stakeholders there should be a keen awareness of the impact of incidents, injuries, and worker absences on company profitability. All workers should be knowledgeable about safety procedures, and management must maintain keen attention to incident and injury reporting, while staying engaged in all cost-

containment efforts. Chargebacks to the department level for costs related to incidents and injuries serves to create awareness among managers of the cost implications and may provide additional motivation for department managers and supervisors to remain engaged in incident investigation procedures and the return-to-work process for injured workers.

Program effectiveness is assessed through consistent collection of data aimed at identifying the true cost drivers and should be coupled with the intent to implement strategies for potential savings. This can be accomplished through benchmarking the company's performance with prior history of claims experience, comparison to industry standards, and identification of best practices that will lead to improved cost effectiveness. Establishment of key performance indicators at all stakeholder levels, such as business units, division, or locations, provides the employer with objective information on measuring performance and the effect on the workers' compensation program.

17.7.4 Return to Work

Keeping workers healthy and on the job should be the focus of any employer wishing to maintain a productive workforce. Research and experience tell us that injured workers who remain off work recover less quickly and have poorer clinical outcomes as compared to those who maintain the social connection with the workplace and with coworkers (ACOEM, 2006).

The injured worker's ability to work should be assessed based on three factors (ACOEM, 2006):

- Functional capacity: What can the injured worker do today?
- Functional impairments or limitations: What can't the injured worker do now that he or she normally could do?
- Medically appropriate restrictions: What should the injured worker not do to avoid more harm?

The employer should strive to have a plan for return to work for all injured workers. A modified duty or transitional work assignment should be available that supports the worker's physical abilities while honoring the medically appropriate limitations or restrictions. This is accomplished by removing certain essential functions or by placing the worker in a different job where the limitations can be better accommodated. The assignment of modified or transitional duty should maintain respect for the worker's abilities while also maintaining compliance with regulatory standards and requirements, company policies, and respect for all safety concerns. Of utmost importance, in order to maintain a sense of self-fulfillment, the worker should be assigned to work that is meaningful and contributes to workplace productivity.

A strong return-to-work philosophy supports the employer's workers' compensation program by mitigating loss by keeping the worker gainfully employed and reducing indemnity benefits. While this is a very positive approach, one must be mindful of inherent risks as well, such as re-injury of the injured worker, aggravation of the

condition, and varying attitudes of coworkers. Therefore, the employer must institute strategies for evaluating the effectiveness of the work assignments and should be aware of the need to garner support among all stakeholders for this strategy. This can be accomplished by staying in close communication with the injured worker (even when he or she is taken off work), the adjusters and case managers, and healthcare providers.

17.7.5 Training and Communication

Safety first. This should be communicated loudly and clearly to all levels of the organization. The employer must have written policies and procedures for safety and for incident and injury reporting. This is made clear by using a variety of communication vehicles, including wall posters, brochures, web messaging, e-mail messages, company newsletters, and wallet card reminders for those who may work in remote locations. Communication of expectations cannot be understated and cannot be overdone. One must only look at how workers' compensation plaintiff attorneys get their messages across through the use of billboards, television and radio ads, Web messaging, and the phone directory. If this is the first message workers remember at the time they are injured, surely they will be drawn to that resource for direction.

Training for workers must be at the reading level of the user and must be mindful of language preferences. Training material should also be attractive to the reader in order to stimulate interest. Efforts should clearly communicate expectations at all levels and should be reinforced through ongoing training for workers, supervisory staff, and managers at all levels.

17.7.6 Early Engagement

The RIMS Benchmark Survey (2010) established a direct correlation between early return to work and lower experience modification factors. Additionally, focus on prompt attention to the needs of the injured worker and access to appropriate services in the early part of the life span of the claim have proved successful. Early intervention at all stages of the claim proves effective: early incident investigation, early medical attention, early legal intervention.

Early engagement means the employer should make it easy for the worker to access the workers' compensation system when needed, for instance, report forms that are easy to find and easy to complete and communication regarding use of the worker's system that is easy to read and understand. Otherwise, the employer fails to obtain the information it needs regarding incident investigation, and the worker fails to get the appropriate message regarding his or her rights and responsibilities.

Early engagement also includes getting the injured worker quick and efficient access to the appropriate healthcare provider. Successful strategies used by employers include using the OHN as the first point of contact to provide immediate intervention and assess the need for further evaluation and treatment. Engagement with the OHN or other telephonic nurse case managers provides an efficient means of triage that gets the injured worker the care most appropriate for the level of injury. Most often, this serves to avert costly emergency room charges and avoids allowing the injured worker to

navigate his or her own way through the system in search for medical care. Once the injured worker gets lost in the system, the claims most likely will have an untoward outcome. The engagement of select healthcare providers will lead to better outcomes. Providers should offer efficient appointments, establish appropriate diagnosis and treatment plans, and define appropriate apportionment of the injury when necessary. This leads to a faster recovery for the injured worker and efficient closure of the claim. With time as the enemy, early engagement by all stakeholders is good for all.

17.7.7 Responsibility and Reliability

All stakeholders hold certain responsibilities under the workers' compensation program, and in order to have positive outcomes, everyone must be held accountable for those responsibilities.

Worker Responsibilities

The worker holds the responsibility to report incidents and injuries in a timely manner, consistent with company policy. The worker then holds responsibility for following company policies and procedures, as well as guidelines established by the state's workers' compensation program, in accessing the system for benefit entitlement. Once the claim is filed, the claims administrator sends the injured workers information regarding their rights and responsibilities, and the workers hold the obligation to follow those guidelines.

The injured worker is responsible for open communication with other stakeholders, providing the claims administrator and medical providers with accurate information related to the incident. As well, the worker is responsible for accurately describing the resultant physical complaints or injuries, providing information related to past health history, and for accurately describing the effects of treatment modalities. The worker is also responsible for interaction with the employer, following the appropriate steps to communicate his or her assigned duty status and for returning to work as assigned. Once returned to work, the worker holds the responsibility for reliably showing up for work as scheduled and for working at his or her full potential, within the assigned medical limitations, thus remaining a productive contributor to the workplace.

Employer Responsibility

The employer holds responsibility for posting all notices related to the state's workers' compensation system and for communicating and reinforcing all aspects of company policies and procedures related to incident and injury reporting. The employer is responsible for ensuring workers know what to do when an injury occurs and must post the approved workers' compensation healthcare providers in those states in which the employer selects the medical provider or noting the workers' right to select their own provider if they choose to do so.

The employer is obligated to conduct a full investigation of all incidents, obtaining written statements from the injured worker, from all witnesses, and from the worker's supervisor. The employer is responsible for gathering reliable information that will assist in claims administration, including copies of any pre-placement health history

forms; identifying patterns of absences or patterns of other workers' compensation claims; and providing the appropriate payroll information.

It is the employer's responsibility to then file the claim with the insurer/TPA, and there is usually a state mandate regarding the time frame for reporting. This notice is the trigger to initiate the injured worker's access to benefits, knowing that failure to do so causes delays in authorizations for medical care and treatment.

The employer's responsibility for communication starts the day of the incident and continues throughout the life of the claim. The employer should stay in contact with the injured worker and with the claims administrator. Maintaining communications provides reliability that the worker is obtaining the appropriate benefits for recovery and may reduce the risk of the development of any adversarial relationship between stakeholders, thus reducing the chance the claim will become litigated.

The employer is also responsible for having an effective return-to-work program, providing modified duty assignments or transitional work plan. Training of supervisors provides assurance that the injured worker will be welcomed back into the workplace as a productive contributor, despite having been injured. The OHN is often responsible for establishing the return to work plan with supervisors and is responsible for evaluating the effectiveness of the plan. Having more than one option available for the modified or transitional duty provides reliability that the worker can return to work and remain productive.

Healthcare Provider Responsibility

Appropriate medical management is crucial to controlling claim costs and effecting claim outcomes. Appropriate medical management means that the healthcare provider is responsible for making the correct diagnosis, defining causal relationships, rendering appropriate treatment, and assigning the appropriate level of impairment or disability, if indicated. The medical provider is responsible for defining the diagnosis while addressing coexisting and preexisting conditions that may come into play. This diagnosis is based on relevant, objective evidence and should be consistent with the explained mechanism of injury. Treatment should be criteria-based and appropriate to the work-related injury. The medical provider should focus on returning the worker to duty on the first visit, unless medically contraindicated. According to ACOEM studies on preventing needless disability (2006), only a small fraction of medically excused days off work are medically necessary, and injured workers can generally work at something productive as soon as there is no specific medical condition to keep them from working.

The employer and claims adjuster need to know that they can rely on all healthcare providers to deliver services in an efficient, cost-effective, and consistent manner, providing injured workers exactly what they need – nothing less and nothing more than medically necessary. Decision making needs to be consistent and reliable across all claims to provide a reliable product for the employer that supports the company's philosophy. All healthcare providers, including medical, diagnostic, and rehabilitation,

should support the injured worker's need for efficient access to services. All providers should also provide reliable, accurate documentation that will support decision making for the claim.

Claims Administrator Responsibilities

The claims administrator should be willing to meet face-to-face on a regular basis with the employer to evaluate the effectiveness of the program and to identify opportunities for improvement. Quarterly claims reviews with employer should include the workers' compensation medical provider and defense attorney in this meeting. This sets the tone for effective interaction and review of open claims while serving to reinforce stakeholder commitment to the company's philosophy for treating injured workers and managing claims.

In managing claims, the adjuster is responsible for initiating a three-point contact, usually within 24–48 hours from the time of claim notice. Contact is made with the three primary players that the adjuster will be in touch with during the course of the open claim: the injured worker, the employer, and the medical provider. Exchange of information takes place during this contact as the adjuster strives to investigate the claim in a timely and through manner. The use of consistent intake questionnaires to gather the same information on each claim provides the adjuster with reliable information that will assist in setting aside appropriate reserve funds anticipated for the claim. The adjuster is responsible for identifying workers with preexisting risk factors for prolonged disability and managing these cases more intensively from the onset (ACOEM, 2006).

Through the life of the claim, the claims administrator is responsible for maintaining open communication with stakeholders with the intention of providing the injured worker with a swift recovery and closing the claim. Reliability is achieved through consistent handling of every claim, adhering to the steps of the plan.

17.8 Summary

Although employers must assume the costs of injuries, illnesses, and deaths that occur on the job, without regard to fault, several strategies can be employed to provide a quality, cost-effective benefit for injured workers. Stakeholder involvement and commitment at all levels is vital for success.

The employer should have policies and procedures to direct workers on what to do when an injury or illness occurs as a result of their work, and the procedures should provide clear direction on how to access healthcare services under the workers' compensation system. When a worker becomes injured or ill as a result of his or her work, the employer or insurer should provide authorization for an efficient referral to the most appropriate healthcare provider as defined in the state workers' compensation statute.

The employer should strive to align incentives for all stakeholders in the system, while holding them accountable for performance and adherence to expectations. Claims administrators should be held accountable for managing the finances of the claim in the best interest of the employer. All must understand that it is the employer's money that is being spent, and careless use of financial resources can have a lasting effect on the employer's experience modification factor and insurance rating. Additionally, bad decisions in regard to compensability for claims can have an effect on the company. If a claim is accepted for one employee for a health condition that is not supported by scientific evidence or state statute to be work-related, it may cause an epidemic in the workplace for other workers who perceive entitlement to the same benefit. It must be clearly acknowledged that workers' compensation claims can become a contagion in the workplace, so fair and balanced decision making is required at all levels.

Healthcare providers rendering services under the workers' compensation system must have an excellent understanding of the statutory regulations. Being familiar with the criteria of the workers' compensation statutes of the state in which the injury or illness occurs is of vital importance. Besides providing the healthcare services that are medically indicated, the healthcare provider is often required to render opinion on whether the injury or illness is related to work. Because healthcare provider decisions are critical to the quality and cost of workers' compensation claims, the healthcare provider must render care in a quality-oriented, cost-conscious manner using cognitive expertise related to the specialty of workers' compensation.

On-the-job recovery holds a valuable role by keeping the injured worker engaged and productive, yet requires a determined commitment by management at all levels of the company. Supervisors must be held accountable for supporting modified duty assignments with an attitude of caring for the injured worker. One of the strongest predictors of untoward outcomes from a workers' compensation claim is job dissatisfaction, or a lack of support from coworkers and supervisors. Home and family considerations are also factors that lead to concern from the injured worker since the injury may have a significant impact on their personal life, as well. By keeping the injured worker engaged, the employer is able to identify and investigate workplace and social issues that may have an impact on the claim and institute appropriate intervention and support (ACOEM, 2006).

Human reactions will revolve around all aspects of the claim, not just with the injured worker, but with all stakeholders. For example, if the injury was a result of a safety violation, supervisors, managers, and even the company can be held accountable. If company policies define such, workers who are injured as a result of failure to use proper safety devices can be faced with disciplinary action, up to and including termination of employment. Some state statutes also allow for a reduction in covered benefits for the worker under this circumstance. Workers who are found to be under the influence of drugs and alcohol may face denial of benefits and even termination of employment. These types of situations set an entirely different set of circumstances that have profound effects on the claim. The employer needs to address bad behavior at all levels with issues related to worker performance, attitudes of supervisors and managers,

issues of professionalism and ethics in regard to claims administrators and healthcare providers, and even attempted interference from labor union representatives.

Criminal violations up to and including felony indictments can be imposed on stakeholders for violation of the workers' compensation statutes. A worker who files false claims, provides misleading information, or exaggerates injuries can be considered to have intent to defraud or deceive the employer or insurer and may be subject to punishment. Employers who knowingly fail to provide workers' compensation insurance coverage or who intentionally provide inaccurate information that misclassifies or fails to define accurate payroll or employee information are also subject to punishment. Healthcare providers who knowingly conspire with or assist individuals with the intent to commit fraud or those who submit fraudulent billing are subject to punishment and may lose rights to provide further services under the state's workers' compensation system.

Penalties can be assessed against the insurer for failure to report claims to the state's insurance division or to disallow or provide late payment of benefits or fees. Penalties can be assessed by the state's division of insurance for untimely reporting, inaccurate calculation of benefits and payment, or failing to meet audit standards.

Despite every effort by the employer to establish and maintain a quality oriented health and safety program, workers will continue to get injured on the job. It is expected that future claims will be driven by three major factors: obesity, the aging workforce, and distracted driving. Statistics indicate that obese workers are twice as likely to file a workers' compensation claim. With individuals working beyond the typical retirement age, this aging workforce will bring a host of challenges to the workers' compensation landscape. Preexisting and coexisting health conditions confound the claims and impact recovery, having an effect on lost time, claim age, and cost of claim. Highway accidents and incidents related to the use of mobile equipment continue to create challenges in regard to safety. Highway incidents are the leading cause of occupational deaths and also represent a significant risk to public safety (Fuge, 2009).

As the employer strives to establish an effective workers' compensation program, decision making should be focused on controlling costs, improving outcomes, and maintaining productivity. Despite the negative reputation and horror stories conveyed throughout the workers' compensation arena, the benefit it brings to the employer and to injured workers is exceptional. Aligned philosophies are important, and a philosophy of caring can make the difference.

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17.10 Possible Answers to Self-Assessment Exercises

MODULE 4: INDUSTRIAL LEGISLATION AND LABOUR ORGANIZATION

Unit 18 Health Professional Involved in Evaluation
Unit 19 Occupational Rehabilitation
Unit 20 International Labour Organisation

UNIT 18 HEALTH PROFESSIONALS INVOLVED IN EVALUATION

CONTENTS

18.0 INTRODUCTION

The evaluation of occupational health programme would not be completed if the functions of some professionals apart from doctors and nurses are not mentioned. These are professionals who should evaluate at one point or the other.

18.2 Learning Outcome

At the end of this unit, the learner is expected to:

- Identify the professionals involved in evaluation of occupational health
- Describe the function(s) of professionals involved in evaluation of occupational health.

18.3 HEALTH PROFESSIONALS INVOLVED IN EVALUATION

18.3.1 Safety Engineer

A safety engineer usually heads safety departments and is specially trained in safety and must ensure that safety of the work, making the worker to be in job best suited to him and the work environment suitable for the worker. If there is anything that will constitute a hazard, he is the one that takes care of it. He over-sees general safety in a plant. He is also a member of the safety committee in any organization. The safety engineers take record of injuries and investigate accidents which have already occurred. They use the statistics to advise management on how to avoid the occurrence of such accidents. They are always available to advice on accident prevention in the plant.

Functions of Safety Engineers

The safety engineer works in the area relating to protection of people, property and environment.

- Analyses, identify and evaluate hazardous conditions and practices.
- Develops hazard control designs, method, procedures and programmes.
- Implements, administer and advise others on hazard control programmes.
- Measures, audits and evaluates the effectiveness of hazards control programmes.
- Measures, audits and evaluates the effectiveness of hazards control programmes.
- Drafts a future safety plan and statement based on real time experiences and facts.

.18.3.2 Counsellor

A counselor is one who assists another in making an informed decision concerning a career. In occupational health, an occupational rehabilitation counsellor helps people or workers with physical disabilities such as cardiac weakness tuberculosis or structural

defects produced by any disease condition that are in greater need of counseling because of greatly restricted range of career open to them. The process of choosing a career calls for such extensive knowledge about job on the one hand and the extent of ability of the worker on the other hand in relation to his health.

An occupational rehabilitation counsellor provides five principal types of services following medical restoration of physical functions:

- Diagnosis of vocational and educational aptitudes and interest by means of psychological test and other devices.
- Personal assistance and information necessary to the choice of occupational goals and the making of plans for training and retaining.
- Helps the securing of financial assistance for training and retaining.

Continued counselling and assistance while training is being secured. Special assistance in finding a job which utilizes the training secured and in which physical disabilities are minimized with respect to requirements for the job and for the individual's success and satisfaction. The above description is made in terms of people/workers who find it necessary to seek counselling again because diseases or accidents have disqualified them for their former work or job. In a real sense, all clients handled by counselors are handicapped in one way or the other (Williamson and Bordin 1995).

18.3.3 Toxicologist

Toxicology is the science of adverse effects of chemical substance on living organisms. Living organisms include the algae in the sea, animal and people. A toxicologist is one who specialized in toxicology. Toxicological studies aim to assess the adverse effects related to different drug doses in order to find the "acceptable safe" level of chemicals or chemical substances. The work is carried out in two phases, first, by collecting data on the properties of chemicals, results of studies and accidental misuse of chemicals, second by predicting the effects of chemicals in different situations. To make relevant predictions there must be information available on:

- The substance and its chemical and physical properties.
- The biological system affected
- The effects or response caused by the substance.
- The exposure (dose, time, situation)

This information is obtained from laboratory test with cells bacteria, animals and accidents involving the substance. Routes through which toxic substances may enter the body under normal working condition are: Inhalation, through the skin and ingestion.

18.3.4 Recreational and Occupational Therapists

Recreational therapy is a planned, organized, and therapeutic recreation programme designed to help workers develop social skills and learn to participate in leisure group activities. The focus of recreational rehabilitative programmes for people with disabilities involves the following,

- Involving the worker in leisure activities
- Developing or restore social functions
- Preventing loss of physical capacities.

A recreational therapist is the person that specializes on recreational therapy. Functions of recreational therapist(s) are many. Recreational therapists have learned that play can heal. They share with occupational therapists view that seemingly ordinary activities can put a disabled person on the road to recover or lead to improvement, at any rate. It is also known as therapeutic recreation specialist, a job title that draws attention to the fact that theirs is a health profession.

They use recreational and leisure activities as a form of treatment, much as other professionals use surgery, drugs, nutrition, exercise, or psychotherapy. The primary goal of the recreation therapist to enhance the workers' ability to function in everyday life. Apart from sheer enjoyment, the activities they devise provide opportunities for exercise and social participation. Other goals of recreational therapist include relieving of anxiety, building confidence, and promoting independence. The programmes are designed to meet the patients' capabilities, needs, and interest. The creational therapist may guide or instruct patients in several areas such as:

- Relaxation technique such as deep breathing, to help reduce stress or tension.
- Stretching and limbering exercises.
- Individual and group sport activities.
- Leisure activities such as arts and crafts, games or dramatics.
- Special outings such as ball games, sightseeing or picnics.

In general, recreational therapists assess the patients' ability to function, develop a treatment plan, lead activities, and monitor progress as plan is carried out. During the initial session with a patient, the recreation therapist might chat for a while with a worker and family, trying to put them at ease before directing the conversation towards the worker hobbies or other interests. By discovering what kind of things the patient likes to do, the therapist will be able to increase voluntary involvement and participation. The therapist also needs information about the patient's worker mental and emotional status in order to set realistic goals and recommend suitable activities. To gather this information, the therapist goes over medical records, talks with other members of the staff, and observes the patient's behavior.

Having learned what the patient both can do and like to do, the therapist prepares a list of activities that capitalize on the patient's strengths and interests. While patients engage in activities, recreational therapists carefully observe their reactions. Observation such as these provides the basis for the therapist's period review and modification of each patient's activity programme. Another important function of recreational therapist is keeping records. Among them are the initial evaluation, memoranda of periodic reviews, reports of the initial evaluation, memoranda of periodic reviews, reports to the physician, internal staff notes Medicare records, and discharge evaluations. These records are used to keep track of the patient's condition, document treatment and monitor progress (Gamliel, 1985).

The recreational therapist conducts therapeutic recreational programmes for clients' families and groups, including but not limited to outdoor adventure/wilderness programme (ropes course, rock climbing), physical activities programme (sports, group games, dancing), creative expressive programmes (dramatics, music, arts and crafts), and special events and programmes. Works intensively with groups and individual clients as part of their treatment programme, coughing and supervising them in active sports, grouping games, dancing, dramatics, and related activities, and participates, if necessary, to encourages participation.

The specifics of the recreational therapist's job vary with the populations served and the work settling, such as a hospital, nursing, and home, in patient's rehabilitation centers, factories and industries:

- Long term are facilities.
- Facilities or company choice
- Residential Facilities
- Schools (U.S. Dept. of Labour 2006).

Occupational Therapist

Occupational therapy is skilled treatment that helps individuals achieve independence in all facets of their lives. Occupational therapist gives people the "skills for the job of living" that are needed for independence and satisfying lives. Service typically includes:

- Customized treatment programmes aimed at improving abilities to carry out the activities of daily living.
- Comprehensive evaluation of home and job environments and recommendations on necessary adaptation.
- Assessment and treatment for performance skills.
- Recommendation and training in the use of adaptive equipment example wheelchairs etc.
- Guidance to family members and care givers as well as employees and co-workers. Occupational therapy practitioners are skilled professionals whose education includes the study of human growth and development with specific emphasis on the social, emotional and physiological effects of illness and injury.

Functions of Occupational Therapists

Occupational therapists (OTS) work with individuals who have conditions that are mentally, physically, developmentally, or emotionally disabling. Occupational therapists assist individual to develop, recover or maintain daily living and work skills. They help people improve their ability to perform tasks in their daily living and work environments. They also help clients not only to improve their basic motor functions and reasoning abilities, but also to compensate for permanent loss of function. Their goals are to help clients have independent, productive and satisfying lives. Occupational therapists assist clients in performing activities of all types, ranging from using a computer to caring for daily needs such as dressing, cooking and eating. Physical exercises may be chosen to improve visual acuity and ability to discern patterns.

Occupational therapists also use computer programs to help clients improve decision-making, abstract reasoning, problem - solving, and perceptual skills, as well as memory, sequencing and coordination - all of which are important for independent living. Therapists instruct those with permanent disabilities, such as spinal cord injuries, cerebral palsy, or muscular dystrophy, in the use of adaptive equipment, including wheel chairs, orthotics, and aids for eating and dressing. They also design or make special equipment needed at home or at work.

Therapists develop computer-aided adaptive equipment and teach clients with severe limitations how to use that equipment in order to communicate better and control various aspects of their environment. Some occupational therapists treat individuals whose ability to function in a work environment has been impaired. These practitioners arranged, evaluate the work environment, plan work activities, and assess the client's progress. Therapists also may collaborate with the client and the employer to modify the work environment so that he works can be successfully completed. Occupational therapists may work exclusively with individuals in a particular age group or with particular disabilities. In schools, for example, they evaluate children's abilities, recommend and provide therapy, modify classroom equipment, and help children participate as fully as possible in school programs and activities.

A therapist may work with children individually, lead small groups in the classroom, consult with a teacher, or serve on a curriculum or other administrative committee. Early intervention therapy services are provided to infants and toddlers who have, or at the risk of having developmental delays. Specific therapies may include facilitating the use of the hand, promoting skills for listening and following directions, fostering social play skills, or teaching dressing and grooming skills. Occupational therapy also is beneficial to the elderly population. Therapists help the elderly lead more productive, active, and independence, lives through a variety of methods, including the use of adaptive equipment. Therapists with specialized training in driver rehabilitation assess an individual's ability to drive using both clinical and on-the-road tests. The evaluations allow the therapist to make recommendations from adaptive equipment, training to prolong driving independence, and alternative transportation options. Occupational therapists also work with the clients to assess the home and work site hazards and to identify environmental factors that contribute to falls.

Occupational therapists in mental settings treat individuals who are mentally ill, mentally retarded, or emotionally disturbed. To treat these problems, therapists choose activities that help people learn to engage in and cope with daily life. Activities include time management skills, budgeting, shopping, home making, and the use of public transportation. Occupational therapists also may work with individuals who are dealing with alcoholism, drug abuse, depression, eating disorders, or stress related disorders. Assessing and recording a client's activities and progress is an important part of an occupational therapist's job. Accurate recording is essential for evaluating clients, for billing, and for reporting to physicians and other health care providers.

18.3.5 Occupational Epidemiologist

Epidemiology is the study of the effects of workplace exposures on the frequency and distribution of diseases and injuries in the population and thus falls into a category of exposure-oriented sub-discipline. It is the study of factors affecting health and illness of populations and serves as the foundation and logic and intervention made in the interest of public health and preventive medicine. An occupational epidemiologist studies the occurrence of disease symptoms among factory workers.

18.3.6 Medial Laboratory Scientists

Medical laboratory technologists or clinical laboratory scientists play important role in the clinical laboratory. They are responsible for performing routine as well as highly specialized tests to diagnose diseases, troubleshooting (preventing and solving problems with results, specimens, or instruments); and communicating technical information, including test results to the pathologists or treating physician. They may also train other personnel (Asaduate Prospects, 2007).

18.3.7 Laboratory Technicians

Scientific laboratory technicians are responsible for laboratory - based tasks, which include sampling, testing, measuring, recording and analyzing results in biological, chemical, physical and life sciences. They also provide all the required technical support to enable the laboratory to function effectively, while adhering to correct procedures and health and safety guidelines. Scientific laboratory technicians carry out fundamental tests and part of a scientific team. These tests assist in the advancement and development of modern medicine and science.

Typical Work Activities

The main function of a scientific laboratory technician is to perform the specific procedure that allows scientist to perform more complex analytical processes of the laboratory.

Task Typically Involve

- Carrying out routine tasks accurately
- Performing a limited number of repetitive laboratory tests in order to produce reliable and precise data to support scientific investigations.
- Following strict methodology to carry out analysis.
- Preparing specimen and samples.
- Constructing, maintaining and operating standard laboratory equipment, for example centrifuges, tetrapterous, pipetting machines and pH meters. - Recording and sometimes interpreting results to present to senior colleagues.
- Using computers and performing mathematical calculations for the preparation of graphs.
- Keeping up to health with technical developments, especially those which can save time and improve reliability.
- Demonstrating procedures if working in education.
- Conducting searches on identified topics relevant to the research.

- Following strict safety procedures and safety checks. The actual nature of the work will depend on the organization. For example:
- With a local authority environmental health development, the work may involve analyzing food samples to consider prosecution and to protect public health.
- Within the water industry, the work will mainly focus on the collection and analysis of water samples.

18.3.8 Physical Therapists

Physical therapy is the planning organizing and implementing programmes for individuals whose ability to function is impaired or threatened by disease or injury. Physical therapy focuses primarily on neuromuscular, skeletal, pulmonary and cardiovascular systems and includes evaluation of the system and selection and application of appropriate therapeutic procedures to maintain improve or restore functions. Physical therapists are persons who are specialized in physical therapy. They prepare patient, treatment area, and/or equipment, implementing the treatment program and modifying the treatment program as outlined in the plan of care. They perform therapeutic exercise for individual muscles or muscle groups, including postural exercise, manual muscle testing and gait analysis, training and balance. They select exercise for specific results i.e. increasing strength, coordination, endurance, flexibility and balance. (Wabash Valley College, 2007).

Physical therapists provide treatment to relieve pain, limit or prevent permanent physical disability, and improve the morbidity of people who have injury, disease, or disability. These professionals use the properties of heat, cold, exercise, electricity, ultrasound, massage, and education to relieve pain, promote healing, and improve function.

Settings for Physical Therapy

- Schools
- Homes
- Factories/Industries/companies.

Physical therapists who work in the schools, work with other members of the special education team and the family to identify the problems interfering with a students' education programme. During an assessment of the student, the physical therapist might measure walking and other mobility skills, daily activities such as dressing and toileting, and positioning and posture during classroom learning, play, and on the school bus. The physical therapist will also measure joint range of motion and mobility, muscle strength, limb length and circumference, and sensor motor performance.

In school settings, physical therapists usually work as a team with occupational therapists, speech-language pathologists, special education teachers, and other professionals. In addition to this collaboration treatment, the physical therapist also serves as a resource to the school faculty. A physiotherapist is a physical therapist.

18.3.9 Industrial Hygienists

Industrial hygienist recognizes evaluates and controls health hazards in the work place from biological, chemical and physical sources. Industrial hygienists' expertise can be a vital resource for government agencies, private response organization and local emergency planning committee when preparing for or responding to emergency situations. Qualified industrial hygienists can provide effective guidance on methods to identify, manage, and ultimately control risks associated with natural disasters, hazardous materials, accidents and terrorist attacks. To help emergency planners,

incident commanders and community leaders take full advantages of the experience, training are education of industrial hygiene professionals. Industrial hygienists are qualified and able to perform a number of incidence command functions, such as:

- Participating in pre-planning for a major incident.
- Developing and implementing exposure assessment method to identify and prioritize hazards during the incident response and consequences management.
- Interpret data from sampling activities and direct reading instrumentation appropriately.
- Advising on, developing, and implementing the appropriate controls for elimination of chemical, biological and physical hazards.
- Advising on, developing, and implementing appropriate personal protective equipment (PPE) to minimize exposures.
- Advising on, developing, and implementing personal decontamination procedures.
- Effectively communication risks based on complex scientific and field data (UNA, 2007).

18.4 SUMMARY

The functions of each professional likely to contribute in evaluation of the practice are highlighted.

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QQ: Enumerate the roles of four professionals involved in programme evaluation.

UNIT 19 OCCUPATIONAL REHABILITATION

Module Contents

19.1 INTRODUCTION

Rehabilitation is an integral part of nursing because every major illness or injury carries the threat of disability or impairment, which involves a loss of function or an abnormality. The principles of rehabilitation are basic to the care of all patients, and rehabilitation efforts should begin during the initial contact with a patient. The goal of rehabilitation is to restore the patient's ability to function independently or at a pre-illness or pre-injury level of functioning as quickly as possible. If this is not possible, the aims of rehabilitation are maximal independence and a quality of life acceptable to the patient. Realistic goals based on individual patient assessment are established with the patient to guide the rehabilitation programme.

19.2 LEARNING OUTCOMES

At the end of this unit, the learner will be able to:

- Describe the concept and process of rehabilitation

- Identify those involve in rehabilitation
- Identify the principles of rehabilitation.

19.3 OCCUPATIONAL REHABILITATION

19.3.1 The Concept of Rehabilitation

Rehabilitation is a dynamic, health oriented process that assists an ill person or a person with disability (restriction in performance or function in everyday activities to achieve the greatest possible level of physical, mental, spiritual, social, and economic functioning. The rehabilitation process helps the patient achieve an acceptable quality of life with dignity, self-respect, and independence is designed for people with physical, mental or emotional disabilities. During rehabilitation, the patient adjusts to the disability by learning how to use resources and to focus on existing abilities. In habilitation, abilities, not disabilities, are emphasized.

Rehabilitation services are required by more people than ever before because of advances in technology that save or prolong the lives of seriously ill, injured, and disabled patients. Increasing numbers of patients who are recovering from serious illnesses or injuries are returning to their homes and communities with ongoing needs. Every patient, regardless of age, gender, ethnic group, socioeconomic status, or diagnosis, has a right to rehabilitation services.

A person is considered to have a disability, such as a restriction in performance or function in everyday activities. If he or she has difficulty talking, hearing, seeing, walking, climbing stairs, lifting or carrying objects, performing activities of daily living, doing school work, or working at a job. A severe disability is present if a person is unable to perform one or more activities, uses an assistive device for mobility, or needs help from another person to accomplish basic activities.
Individuals are also considered severely disabled if they receive federal benefits based on an inability to work.

19.3.2 Access to Health Care and Health Promotion

For years, people with disabilities have been discriminated against in employment, public accommodations, public and private services including health care. The needs of the disabled in health care settings produce many challenges to health care providers: how to communicate effectively if there are communication deficits, the additional physical demands for mobility, and time required to provide assistance with self-care routines during hospitalization. Physicians and nurses may not know the specific needs of individuals with disability and may fail to provide services for them. For example, an obstetrician may advise a woman spinal cord injury not to become pregnant because the physician and nurses caring for an expectant woman with disability may not know specific transfer techniques to help her unto an examining table or how to advise her on bowel, bladder, and skin care issues during pregnancy. Before labour and delivery, the medical team needs to be educated about the special needs of a woman with a cervical spinal cord injury in regards to management of autonomic hyperreflexia. Often, the person with disability must educate the health care professionals.

Because of unfavorable interactions with health care providers, including negative attitudes, insensitivity and lack of knowledge, people with disability may avoid seeking medical interventions or health promotion programme and activities. For this reason, and because the number of individuals with disability is increasing, nurses must acquire knowledge and skills and be accessible to assist these individuals in maintaining a high level of wellness.

Nurses are therefore positioned to influence the architectural design of health care settings and the selection of equipment that promotes ease of access and health. Padded examination tables that can be raised or lowered make transfers easier for the disabled. Birthing chairs benefit women with disability during yearly pelvic examinations and pap smears and for urologic evaluations. Ramps, grab bars, raised and padded toilet seats benefit many persons who have orthopedic disabilities and need routine physical examination and monitoring (e.g. bone density measurements). Just as people without disability should have regular screening tests, such as mammography or testicular and prostate examinations, so should people with disability. The health care professionals who provide these screening and monitoring procedures are in a position to influence decisions about how equipment and procedures can be adapted to meet the special needs of their patients, whether these needs are cognitive, motor or communicative.

19.3.3 Nurses Expectations

Nurses are expected to provide health promotion education classes that are targeted to the disabled. Classes on nutrition and weight management are extremely important to individuals who are wheelchair dependent by adolescents and young adults with spinal cord or traumatic brain injury, because the threats of acquired immunodeficiency syndrome (AIDS) and unplanned pregnancy exist for these populations just as they do for the population in general. Other healthy behaviors about which neurologically disabled persons need education include avoiding alcohol and non-prescription medications while taking antispasmodic and anti-seizure medications. Nurses should teach all stroke survivors and patients with diabetes how to monitor their own blood pressure or glucose levels. The warning signs and symptoms of stroke, heart attack and cancer as well as how to access help, should also be taught to all disabled persons.

As active members of the society, people with disabilities are no longer an invisible minority. An increased awareness of the needs of people with disabilities will bring about changes to improve their access and accommodate their needs. Modification of the physical environment permits access to public and private facilities and services, including health care, and nurses can serve as advocates for the disabled to eliminate discriminatory practices.

Self- Assessment Exercise 1

19.4 Focus of Rehabilitation

Disability can occur at any age and may result from an acute incident, such as stroke or trauma or from the progression of a chronic condition, such as arthritis or multiple sclerosis. A person with disability experiences many losses, including loss of function, independence, social role, status and income. A patient and his or her family members experience a range of emotional reactions to these losses. The reactions may progress from disorganization and confusion to denial of the disability, grief over the lost function or body part, depression, anger, and finally acceptance of the disability. The reactions may subtle over time and may recur at a later time, especially if chronic illness is progressive and results in increasing losses. Not all patients experience all of the stages, although most do exhibit grief. Patients who exhibit grief should not be blithely encouraged to “cheer up.”

The nurse should show a willingness to listen to the patient talk about the disability and should understand that grief, anger, regret and resentment are all part of the healing process.

The patient’s preexisting coping abilities play an important role in the adaptation process: one patient may be particularly independent and determined, while another may be dependent and seem to lack personal power.

19.5 The Rehabilitation Team

Rehabilitation is a creative, dynamic process that requires a team of professionals working together with the patient and the family. The team members represent a variety of disciplines, with each health professional making a unique contribution. Each health

professionals assess the patient, identifies patient's needs within the discipline's domain and sets rehabilitative goals. Team members hold group sessions at frequent intervals to collaborate, evaluate progress, and modify goals as needed to facilitate rehabilitation and to promote independence, self-respect, and an acceptable quality of life for the patient.

The Rehabilitation Team includes:

- The patient
- Patient's family
- The rehabilitation nurse.

The **patient** is the key member of the rehabilitation team. He or she is the focus of the team effort and the one who determines the final outcomes of the process. The patient participates in goal setting, in learning to function using remaining abilities and in adjusting to living with disabilities.

The **patient's family** is also incorporated into the team. The family is a dynamic system. So disability of one member affects the other family members. Only by incorporating the family into the rehabilitation process can the family system adapt to the change in one of its members. The family provides ongoing support, participates in problem solving and should learn to provide necessary ongoing care.

The **rehabilitation nurse** develops a therapeutic and supportive relationship with the patient and the family. The nurse always emphasizes the patient's assets and strengths, positively reinforcing his or her efforts to improve self-concept and self-care abilities. During nurse patient interaction, the nurse actively listens, encourages and shares the patient's successes.

Using the nursing process, the nurse develops a plan of care designed to facilitate rehabilitation, restore and maintain optimum health and prevent complications. The nurse helps the patient identify strengths and past successes and develop new goals. Coping with the disability, self-care, mobility, skin care and bowel and bladder management are frequently areas for nursing intervention. The nurse assumes the roles of caregiver, teacher, counselor, patient advocates and consultant. The nurse is often the case manager responsible for coordinating the total rehabilitative plan, collaborating with and coordinating the services provided by all members of the health care team including the home care nurse who is responsible for directing the patient's care after return to the home.

Other members of the rehabilitation team may include: a physician, nurse practitioner, psychiatrist, physical therapist, occupational therapist, speech-language therapist, psychologist, psychiatric liaison nurse, social worker, vocational counselor, orthotics or prosthesis, rehabilitation engineer and sex counselor or therapist.

19.6 Areas of Special Rehabilitation Practice

Although rehabilitation is a component of every patient's care, there are specialty rehabilitation programs established in general hospitals, freestanding rehabilitation hospitals, and outpatient facilities. The Commission for the Accreditation of Rehabilitation Facilities (CARF) sets standards for these programs and monitors compliance with them.

Special rehabilitation programs often meet the needs of patients with neurological disabilities. Stroke recovery programs and traumatic brain injury rehabilitation emphasize cognitive remediation: assisting patients to compensate for memory, perpetual, judgment, and safety deficits as well as teaching self-care and mobility skills. Other goals include assisting patients to swallow food safely and to communicate effectively. In addition to stroke and brain injury, other neurological disorders treated include multiple sclerosis, Parkinson's disease, amyotrophic lateral sclerosis and nervous system tumors.

The number of spinal cord injury rehabilitation programs has increased since World War II. Integral components of the programs include understanding the effects and complications of spinal cord injury; neurogenic bowel and bladder management; sexuality and male fertility enhancement; self-care including prevention of skin breakdown; bed mobility and transfers; and driving with adaptive equipment. The programs also focus on vocational assessment, training and reentry into employment and the community.

Orthopedic rehabilitation programs provide comprehensive services to traumatic or non-traumatic amputee patients, patients undergoing joint replacements, and patients with arthritis. The goals of the programme include: pain management, learning to be independent with prosthesis or a new joint, energy conservation and joint protection.

Patients with myocardial begins rehabilitation during acute hospitalization and continues on an outpatient basis. The goals are on monitoring, progressive exercise, nutritional counseling; stress management and sexuality.

Others are simplified in this table:

Cases	Rehabilitative programme	Goals of rehabilitation
Patient with restrictive or chronic obstructive pulmonary disease	Pulmonary	Effective breathing patterns; energy conservation, self-medication and home ventillatory mgt.

Chronic pain	Alternative pain Treatment modalities	Exercise, supportive counselling and vocational evaluation
Burn rehabilitation	Intensive burn care	Joint mobility, self-care and counselling

Nurses Responsibilities towards all rehabilitation cases

- Skilful and knowledgeable about patients case
- Assessment of actual or potential substance abuse
- Thorough physical and psychological evaluation
- Detoxification
- Counselling
- Medical treatment
- Psychological assistance for the patient and family
- Treatment of any coexisting psychiatric illness
- Referral to community resources for social, legal, spiritual or vocational assistance.
- Encourage self-help groups
- Application of nursing process in rehabilitation.

19.7 Assessment of Functional Abilities

Comprehensive assessment of functional capacity is the basis for developing a rehabilitation programme. Functional capacity measures a person's ability to perform activities of ADLs and IADLS. ADLs include activities performed to meet basic needs, such as personal hygiene, dressing, and toileting, eating and moving. IADLs include activities that are necessary for independent living such as the ability to shop for and prepare meals, use the telephone. Clean, manage finances and travel.

The nurse observes the patient performing specific activities (e.g. eating, dressing) and notes the degree of independence; the time taken; the patient's mobility, coordination, endurance and the amount of assistance required. Good joint motion, muscular strength, cardiovascular reserve and an intact neurological system are also carefully assessed, because functional ability depends on these factors as well. These tools provide a way to standardize assessment parameters and supply a scale or score against which improvements may be measured. They also clearly communicate the patient's level of functioning to all members of the rehabilitation team. Rehabilitation staffs use these tools to provide an initial assessment of the patient's abilities and to monitor the patient's progress in independence.

One of the most frequently used tools to assess the patient's level of independence is the Functional Independence Measure (FIM). The FIM is a minimum data set, measuring 18 items. The self-care items measured are eating, bathing, grooming,

dressing upper body, toileting, bladder Management, and bowel management. The FM addresses transfers and the ability to ambulate and climb stairs and also includes communication and social cognition items.

A **WeeFIM instrument** is used for children. For both children and adults, scoring is based on a seven-point scale with items used to assess the patient's level of independence.

The **PULSES** profile is used to assess the following

- physical condition(e.g. health/illness status)
- upper extremity functions (e.g. eating, bathing)
- lower extremity functions (e.g. transfer, ambulation)
- sensory function (e.g. vision, hearing, speech)
- excretory function (i.e. control of bowel or bladder),
- situational factors (e.g. social and financial support

Each of these areas is rated on a scale from one (independent) to four (greatest dependency).
The **Barthel Index** is used to measure the patient's level of independence in ADLs (feeding, bathing, dressing, grooming), continence, toileting, transfers and ambulation (or wheelchair mobility). This scale does not address communicative or cognitive abilities.

The **Patient Evaluation Conference System (PECS)** contains 15 categories. This comprehensive assessment scale includes such as medications, pain, and nutrition, use of assistive devices, psychological status, vocation and recreation. There are many other assessment tools designed to evaluate function in persons with specific disabling conditions.

In addition to the detailed functional assessment, the nurse assesses the patient's physical, mental, emotional, spiritual, social and economic status. Secondary problems related to the disability such as muscle atrophy and deconditioning are assessed as are residual strengths unaffected by disease or disability.

Other areas that require nursing assessment include:

- potential for altered skin integrity
- altered bowel and bladder control
- sexual dysfunction

19.8 SUMMARY

The goal of rehabilitation is to help the patient gain a positive self-image through effective coping. The nurse must recognize different coping abilities and identify when the patient is not coping well or not adjusting to the disability. The patient and family may benefit from participating in a support group or talking with a mental health professional to achieve this goal.

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19.10 Answers to TUTOR-MARKED ASSIGNMENT

Describe the nurses' role in rehabilitation.

UNIT 20 INTERNATIONAL LABOUR ORGANIZATION

CONTENTS

20.1 INTRODUCTION

The International Labour Organization (ILO) was created in 1919 by Part XIII of the Versatile Peace Treaty ending in World War 1. It grew out of nineteenth century labour and social movement which culminated in widespread demands for social justice and higher standards for the world's working people. In 1946, after the demise of the League of Nations, the ILO became the first specialized agency associated with the United Nations. The original membership of forty-five countries in 1919 has grown to 121 in 1971.

20.2 Learning Outcomes

At the end of this unit you are expected to:

- Describe the structure of International Labour Organization
- State how ILO works
- Examine the contributions of ILO to United Nations AIDS.

20.3 INTERNATIONAL LABOUR ORGANIZATION

The annual International Labour Conference, the ILO supreme deliberative body, is composed of four representatives from each member country: two government delegates, one worker and one employer delegate, each of whom may speak and vote independently. Between conferences, the work of the ILO is guided by the Governing Body, comprising twenty-four government, twelve worker and twelve employer member twelve deputy members from each of these three groups. The International Labour Office in Geneva, Switzerland, is the organization's secretariat, operational headquarters, research center and publishing house. Its operations are staffed at headquarters and around the world by more than 3,000 people of some 100 nationalities. Activities are decentralized to regional, area and branch offices in over forty countries.

The ILO has three major tasks, the first of which is the adoption of International Labour Standards called conventions and recommendations for implementation by member states. The convention and recommendations guidelines contain guidelines on child labour, protection of women workers, hours of work, rest and holidays with pay, labour inspection, vocational guidance and training, social security protection, workers' housing, occupational health and safety, conditions of work at sea and protection of migrant workers.

They also cover questions of basic human rights, among them, freedom of association, collective bargaining, the abolition of forced labour, the elimination of discrimination in employment and the promotion of full employment. By 1970, 134 conventions and 142 recommendations had been adopted by the International Labour Organization. Each of them is a stimulus, as well as a model for national legislation and for practical application in member countries.

A second major task which has steadily expanded for the past two decades is that of technical cooperation to assist developing nations. More than half of ILO's resources are devoted to technical cooperation programme carried out in close association with the United Nations Development Programme and often with other UN specialized

agencies. These activities are concentrated in four major areas: development of human resources through vocational training and management development, employment planning and promotion; the development of social institutions in such fields as labour administration, labour relations, cooperatives and rural development; conditions of work and life – for example, occupational safety and health, social security, remunerations, hours of work, welfare, etc. Marking the beginning of its second half-century, the ILO launched the World Employment programme, designed to help provide employment and training opportunities for their swelling populations. The World Employment programme will be the ILO's main contribution to the United Nations Second Development Decade.

There are some 900 ILO experts of fifty-five different nationalities work on more than 300 technical cooperation projects in over 100 countries around the world.
Third, standard setting and technical cooperation are bolstered by an extensive research, training, education and publication programme. The ILO is a major source of publications and documentation on labour and social matters. It has established two specialized educational institutions: the International Institute for Labour Studies in Geneva and the International Centre for Advanced Technical and Vocational Training in Turin, Italy.
Since its inception the ILO has had six Directors-General: Albert Thomas (1919-1932) of France: Harold B. Butler (1932-1938) of the United Kingdom: John G. Ireland; David A. Morse (1948-1970) of the United States; Wilfred Jenks (1970) of the United Kingdom

3.1 How International Labour Organization Works

3.1.1 International Labour Conference

The member states of the ILO meet at the International Labour Conference in June of each year in Geneva. Two governments delegated, an employer delegate and a worker delegate represent each member state. Technical advisors assist the delegations which are usually headed by Cabinet Ministers who take the floor on behalf of their governments.

Employer and worker delegates can freely express themselves and vote according to instructions received from their organizations. They sometimes vote against each other or even against their government representatives.

The Conference establishes and adopts International Labour Standards and is a forum for discussion of key social and labour questions. It also adopts the organization's budget and elects the governing body.

3.1.2 The Governing Body

The Governing Body is the executive council of the ILO and meets three times a year in Geneva. It takes decisions on ILO policy and establishes the programme and the budget which it then submits to the Conference for adoption. It also elects the Director-General.

The ILO Governing Body is composed of 28 government members, 14 employer members and 14 worker member states of chief industrial importance permanently hold ten of the government seats. Government representatives are elected at the Conference every three years, taking into account geographical distribution. The employers and workers elect their own representatives respectively.

3.2 The International Labour Office

The International Labour Office is the permanent secretariat of the International Labour Organization. It is the focal point for ILO's overall activities, which it prepares under scrutiny of the Governing Body and under the leadership of a Director-General, who is elected for a five year renewable term. The office employs some 1,900 officials of over 110 nationalities at the Geneva headquarters and in 40 fields around the world. In addition, some 600 experts undertake missions in all regions of the world under the programme of technical cooperation. The office also contains a research and documentation centre and a printing facility, which issue many specialized studies, reports and periodicals.

3.3 The International Labour Organization (ILO) and contributions to United Nations Agency for International Developments (UNAIDS

The International Labour Organization (ILO) is the United Nations Agency with special responsibility for the world of labour.

The ILO's goal is productive and remunerative employment for all based on the principles of social justice and equality.

The epidemic is a threat to all of the organization's four strategic objectives: fundamental principles and rights at work: employment, income generation and skills; social protection and social dialogue.

Worldwide, at least 26 million workers in their productive prime are infected with HIV. The epidemic is a labour and workplace issue because it threatens livelihoods, productivity, rights at work and economic growth. It also worsens existing problems of inadequate social protection, gender inequalities and child labour.

AIDS is a development crisis that can only be resolved with a multispectral response. The ILO's particular contribution to UNAIDS includes:

1. A tripartite membership encouraging the mobilization of governments, employers and
   workers against HIV;

2. Direct access to the workplace with its opportunities for HIV prevention as well as care,
   support and treatment;

3. long- standing experience in framing international standards to protect the rights of workers;

4. A global network of field offices and technical cooperation projects and substantial capacity for research, information sharing and training.

5.0 SUMMARY

In structure, the ILO is unique among world organizations in that the representatives of the workers and of the employers have an equal voice with those of governments in formulating its policies.

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6.0 TUTOR-MARKED ASSIGNMENT

Describe the structure of International Labour Organization and explain its mode of operation.