NEBOSH

DO – CONTROLLING WORKPLACE HEALTH ISSUES (INTERNATIONAL)

UNIT DI2:

For: NEBOSH Level 6 International Diploma for Occupational Health and Safety Management Professionals

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Guidance to learners

This assessment is not invigilated, and you are free to use any learning resources to which you have access, eg your course notes, or the HSE website, etc.

By submitting this completed assessment for marking, you are declaring it is entirely your own work. Knowingly claiming work to be your own when it is someone else's work is malpractice, which carries severe penalties. This means that you must **not** collaborate with or copy work from others. Neither should you 'cut and paste' blocks of text from the Internet or other sources.

The examination begins with a scenario to set the scene. You will then need to complete a series of tasks based on this scenario. Each task will consist of one or more questions.

Your responses to **most** of these tasks should wholly, or partly, draw on relevant information from the scenario. The task will clearly state the extent to which this is required.

The marks available are shown in brackets to the right of each question, or part of each question. This will help guide you to the amount of information required in your response. In general, one mark is given for each correct technical point that is clearly demonstrated. Avoid writing too little as this will make it difficult for the Examiner to award marks. Single word answers or lists are unlikely to gain marks as this would not normally be enough to show understanding or a connection with the scenario.

You will have 2 weeks (10 working days) to complete the assessment.

Please refer to your registration confirmation email for the upload deadline.

Please note that NEBOSH will be unable to accept your assessment once the deadline has passed.

You **must** use the available answer template.

SCENARIO

Interventu Hospital is a large hospital. On the hospital site there are several buildings that accommodate a variety of departments and facilities. These include operating theatres, an X-ray and imaging department, a 24-hour emergency department, and wards where patients are cared for. Some of the buildings are modern multi-storey buildings, where the wards and departments are linked by wide corridors and lifts. Other buildings are single storey, and some of these are 40 years' old. The hospital employs 10000 people, with a variety of workers including doctors, surgeons, nurses, and other clinical specialists such as radiographers and infection control experts. There is also a large team of non-clinical workers who are crucial in delivering services to patients. These non-clinical workers include porters, receptionists and cleaners. Staff shortages are a significant concern, often resulting in overworked staff and compromises in patient care quality.

X-ray and imaging department

The hospital has a large X-ray and imaging department, that has four X-ray machines and other types of specialist imaging equipment. There are 10 radiographers who work in the department taking X-rays, and an X-ray department manager. In addition, there are non-clinical workers, who co-ordinate the appointments and patients, and keep medical records updated.

Radiographers regularly take a range of X-rays for patients. Chest X-rays are the most complicated and take the longest amount of time. When taking X-rays, radiographers must first instruct and assist the patient to get into the correct position. Once they are in position, the radiographer returns to the X-ray machine control panel behind a clear screen to take the X-ray. Both patients and radiographers are provided with lead aprons as personal protective equipment.

When working, radiographers continually wear a personal dosemeter to monitor their cumulative exposure to ionising radiation. This is pinned to their uniform, usually close to the shoulder area. Every two weeks, the radiographers replace their personal dosemeter, and the used dosemeters are sent to an approved dosimetry service (ADS). The ADS calculates the radiation dose that each radiographer has received in the preceding two-week period. Results are reported both to the individual radiographers and to the X-ray department manager. The dose of ionising radiation the radiographers receive over time accumulates, and this is then compared to the exposure limits set out in law for a calendar year.

Emergency department (ED)

The ED is in an old single-storey building near the entrance to the hospital site. The nature of an ED demands quick, life-and-death decisions that can be emotionally tiring and lead to high levels of stress and exhaustion among staff.

It is lunchtime on the last working day of the week. The ED is already getting busy and the waiting time to be seen by a doctor is three hours. In the ED there is a reception desk just inside the entrance. Three workers are positioned here to register new patients on the hospital's computer system as they arrive. Through a door is the waiting area. Here, some of the seats are damaged and uncomfortable to sit on. Space in this area is limited, which means some patients sit on the floor, or lean against the walls, while waiting to be seen. The paint is peeling off the walls, and there is graffiti scratched into the wall at the back of the waiting area. There is a vending machine that contains bottled drinks, chocolate bars, and other snacks. The whole area is lit by fluorescent lighting that is very bright, and one light is making a buzzing sound. Beyond the waiting area, a door leads through to the treatment area where patients are seen by nurses and doctors, in either small rooms, or cubicles surrounded by curtains.

Worker A has just started their 12-hour shift and is working on the reception desk. As the day goes on the number of people waiting is slowly increasing. Despite workers' best efforts, waiting times continue to increase. Three nurses are absent today due to illness. The hospital administration team are trying to find people to cover the shift, but the hospital is already short of nurses and many regularly work overtime.

It is 20:00 and Worker A is returning to the ED after a very short break. They realise that they have not seen any members of the security team on duty today. They also see that the vending machine is flashing 'error' on the screen. The overall noise level in the area has increased dramatically. A patient and their group of friends are talking very loudly. When Worker A asks them to be quieter, they reply rudely and carry on being noisy.

When back at the reception desk, Worker A sees Patient X stagger into the ED reception and briefly lean against the wall. Patient X is very demanding and disruptive, constantly complaining about how long they have been waiting to see a nurse or doctor. Other patients in the ED comment that Patient X smells strongly of alcohol. During the evening, Patient X keeps returning to speak to the reception desk workers, who are not able to tell them how much longer they will have to wait to be seen by a nurse or doctor. Patient X is becoming more aggressive and suddenly lunges forward and pushes Worker A's computer off the desk. The computer hits the floor with a loud crashing sound and several pieces break off. There is more shouting, before security guards arrive and manage to calm down Patient X.

Managing work-related violence (WRV)

The security guards are fully trained to deal with this kind of incident, having completed a conflict management training course. They are part of the hospital's overall process for managing WRV. The hospital management team have agreed to use the four-stage management process covered in *INDG69 Violence at work: a guide for employers*. The first stage of the process is identifying if there is a problem with WRV. Therefore, the hospital has recently carried out a survey to gather data and opinions on WRV in the hospital.

Surgical ward

Patient Y has just come out of the operating theatre on floor 2 after major surgery, and is recovering from the anaesthetic. Soon, Patient Y will return to the surgical ward on floor 1 to continue their recovery. A nurse and a member of the portering team transfer the patient back to the ward on a trolley.

Patients who have had major surgery will require varying amounts of assistance from nurses as part of their recovery and rehabilitation. Each patient has a manual handling risk assessment as part of their care plan, that considers task, load, environment, and individual factors. In these risk assessments, the load is the patient. The nurses assisting patients to move following their surgery can be at risk of injury.

Infection control

Maintaining high levels of cleanliness in the hospital is essential to achieve good infection control, especially for patients who may have reduced immunity. Controlling the number of micro-organisms that are present on surfaces and equipment is very important. Infection outbreaks must be avoided wherever possible, as these can be detrimental to the health of the patients. In addition, having to close off wards or departments to deal with any infection outbreaks can be costly, and cause delays in treatments. Therefore, using appropriate methods of decontamination, including cleaning and disinfection, are an essential part of infection control. Throughout the hospital a range of detergents and disinfectants are used. These include products containing chlorine and other chemicals, such as hydrogen peroxide.

Regular training and review of infection control arrangements take place throughout the hospital. For example, recently, all clinical workers on the Elderly Care ward have attended a training session on decontamination.

In addition, the hospital's Health and Safety Manager (HSM) has been reviewing hazardous substance risk assessments for the use of cleaning and disinfection products. As part of this review the HSM has been looking at section 11 of the safety data sheet (SDS) for a 70% hydrogen peroxide solution, and has also looked at online information about toxicological testing for hydrogen peroxide.

Supporting Documents

1. Information on work-related violence (WRV)
2. Email from ward manager
3. Toxicological testing information
4. Ionising radiation dosemeter data
5. Specification for patient trolley

Task 1: Management of work-related violence (WRV)

1 (a) The hospital management want to use the numbers and descriptions of violent incidents, as presented in **figure 1** of **supporting document 1**, to help understand WRV across the hospital.

Why might this approach be unsuitable? **(12)**

Note: *Your answer should be based on* ***figure 1*** *of* ***supporting document 1*** *only.*

(b) **Figure 2** of **supporting document 1** shows survey results for workers' opinions on WRV.

(i) Explain why the survey results for **opinion 1** are worrying. **(2)**

Note: *You should support your answer, where applicable, using relevant information from* ***figure 2*** *of* ***supporting document 1****.*

(ii) The hospital management team are concerned about *all* of the opinions expressed by hospital workers, as reported in **figure 2**. They recognise that workers need training and information about WRV.

Suggest what this training and information should include. **(13)**

Note: *You should support your answer, where applicable, using relevant information from the scenario and* ***figure 2*** *of* ***supporting document 1****.*

(c) The scenario describes a typical WRV incident that occurred recently in the Emergency Department (ED).

Other than a patient being under the influence of alcohol, suggest what else could contribute to such incidents in the ED. **(16)**

Note: *You should support your answer, where applicable, using relevant information from the scenario.*

(d) What additional control measures *in the working environment* of the ED could reduce the risk of WRV? **(14)**

Note: *You should support your answer, where applicable, using relevant information from the scenario.*

Task 2: Cleaning up blood spillages

2 (a) **Supporting document 2** includes an email from the ward manager of the Elderly Care ward, which refers to BBV and HBV.

Explain how *HBV* can present a risk to workers in the hospital. **(8)**

(b) The existing procedure for cleaning blood spillages is given in **supporting document 2**.

Suggest what additional information could be added to improve the existing procedure so that the relevant requirements of ILO *Safety in the use of chemicals at work*, section *6.5.2*, are more likely to be met. **(20)**

Note: *You should support your answer, where applicable, using relevant information from* ***supporting document 2****.*

Task 3: Toxicological information

3 The hospital's health and safety manager (HSM) has been reviewing online toxicological information for hydrogen peroxide.

(a) Toxicological data can be generated from a number of different sources.

(i) Outline the type of toxicological test being described in **supporting document 3**. **(3)**

Note: *Your answer should be based on* ***supporting document 3*** *only.*

(ii) Identify **TWO** other possible sources of toxicological data. **(2)**

(b) The study described in **supporting document 3** derives LD_{50} values for 70% hydrogen peroxide.

(i) Outline the meaning of the term *'LD_{50}'*. **(4)**

(ii) Comment on the results shown in Table 1 of **supporting document 3**. **(8)**

Note: *For question (b)(ii), you should support your answer, where applicable, using relevant information from* ***supporting document 3****.*

(c) The hospital's HSM has also been reviewing the safety data sheet (SDS) for hydrogen peroxide. The information in the SDS is as follows

Section 11 – Toxicological information, with reference to Chapter 3 of GHS and EC Regulation 1272/2008

Acute toxicity

Oral	Category 4
Dermal	No data available
Inhalation	Category 4

(i) Explain how studies such as that described in **supporting document 3** can help to determine information provided to users of a hazardous substance. **(5)**

(ii) Explain how the specific information described in **supporting document 3** can determine the toxicological information in the SDS for hydrogen peroxide. **(6)**

Note: *For questions (c)(i) and (c)(ii), you should support your answers, where applicable, using relevant information from* ***supporting document 3****.*

Task 4: Ionising radiation exposure in the X-ray department

4 The X-ray department manager is looking at **supporting document 4** which shows dosemeter data for all radiographers in the X-ray department.

Dosemeter data for radiographers shows high variability in exposures between radiographers and also over time.

Explain possible reasons for this variability. **(17)**

Note: *You should support your answer, where applicable, using relevant information from the scenario and* ***supporting document 4****.*

Task 5: Manual handling

5 Nurses on the surgical ward assist patients to move as part of their recovery and rehabilitation after surgery.

(a) Describe the load-related risk factors, that these *post-surgical patients* could present, that should be considered in a manual handling risk assessment. **(15)**

Note: *You should support your answer, where applicable, using relevant information from the scenario.*

(b) Explain how the features of the patient trolley in **supporting document 5** can help to reduce the manual handling risks to workers who regularly work with these trolleys. **(30)**

Note: *You should support your answer, where applicable, using relevant information from* ***supporting document 5****.*

End of assessment

Now follow the instructions on submitting your answers.