NEBOSH National Diploma

Unit DN2: Do – controlling workplace health issues

SAMPLE MATERIAL

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- Encouraging workers to develop coping strategies to help manage their condition.
- Using 'advance' statements.
- Ensuring that workers know where to get help and support for their mental ill-health condition outside the workplace.

SPEAKING TO WORKERS AS SOON AS IT IS RECOGNISED THAT THERE MAY BE AN ISSUE

Too often workers are scared to tell their manager about a mental health problem and so problems can spiral. Organisations need to send a clear message to its workers and managers that they will support workers with mental ill-health and not stigmatise the condition. Workers' experience of mental ill-health will be different, so it is important not to generalise or make assumptions on the signs of someone experiencing mental ill-health. However, changes may be observed in behaviours, work output, decision making, appearance etc. When approaching the situation of having a conversation with a worker suspected of experiencing mental ill-health the manager should:

- Choose an appropriate place for the conversation to take place.
- Encourage the worker to talk by asking open non-judgemental questions.
- Avoid making assumptions.
- Listen to the workers response and be prepared to adapt your support to the worker's needs.
- Be honest and clear and address areas of concern such as absence.
- Ensure confidentiality.
- Work with them to develop a personal action plan that identifies triggers that could cause mental ill-health and appropriate responses.

USE ROUTINE MANAGEMENT TOOLS TO IDENTIFY AND TACKLE ISSUES

Organisations can send a clear message to its workers about mental health by treating it with the same level of support that would be adopted for a physical health condition and avoiding discrimination. A clear mental health strategy should be established that highlights important management behaviours for dealing with mental health. Managers need to be approachable and confident when managing mental health in the workforce and must take steps to normalise conversations about mental health and encourage open dialogue. This can be achieved through regular one-to-one meetings that can be scheduled with workers, or more formal appraisal meetings where workers can be asked how they are feeling. Regular meetings that provide a positive open environment for discussion will build trust and rapport and provide opportunities for early discussions on mental health.

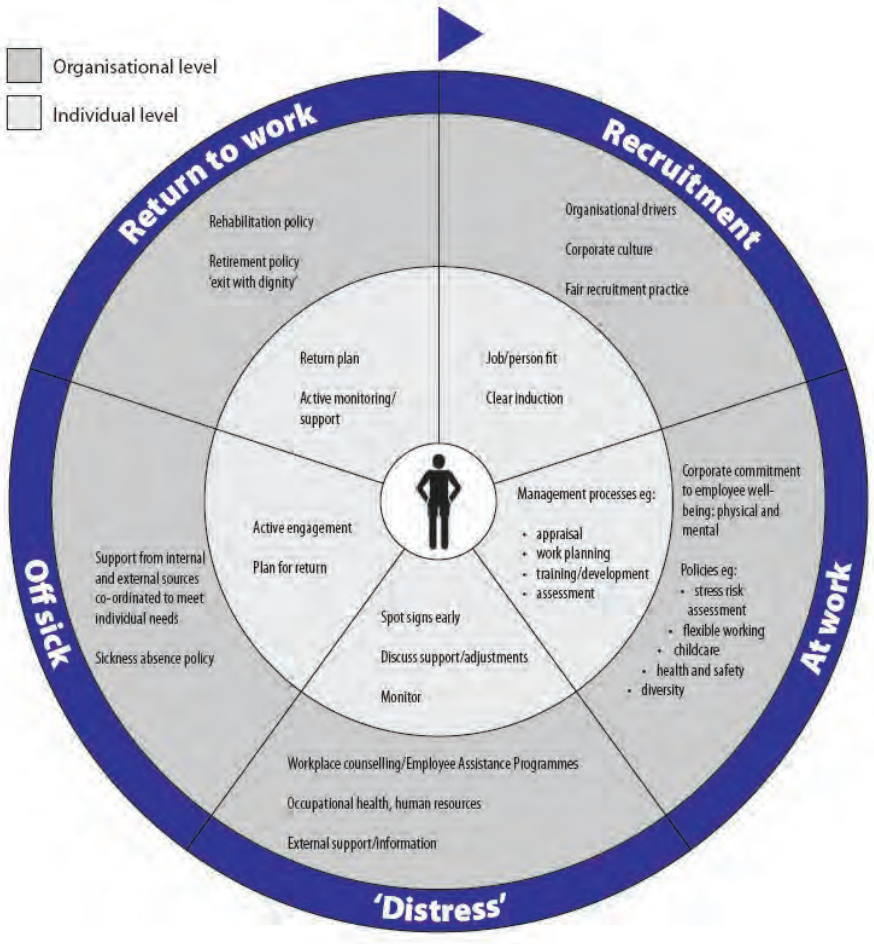

Figure 2-10: A holistic approach to managing an individual with mental ill-health. *Source: HSE/Shift "Line Managers' Resource".*

ROLE OF BIOLOGICAL MONITORING GUIDANCE VALUES

Biological monitoring is used where there is a reasonably well-defined relationship between the results of biological monitoring and the effect of a substance; or where it gives information on accumulated dose and target organ burden, which is related to toxicity. Clear criteria for interpreting the results of biological monitoring are essential to their effective use in exposure assessment. The HSE have established a system of non-statutory biological monitoring guidance values (BMGVs) in EH40 to provide an authoritative guide to the interpretation of biological monitoring results. There is no requirement in the COSHH Regulations for compliance with BMGVs. Biological monitoring guidance values (BMGVs) are set by the HSE where they are likely to be of practical value, suitable monitoring methods exist and there is sufficient data available.

There are two types of biological monitoring guidance values established in EH40:

1) ***Health Guidance Values*** (HGV) is a health-based guidance value that is set at a level at which there is no indication from the available scientific evidence that the substance is likely to be injurious to health. It is set where a clear relationship can be established between biological concentrations and health effects. Values not greatly in excess of HGVs are unlikely to produce serious short or long-term effects on health. However, regularly exceeding HGVs does indicate that control of exposure may not be adequate and employers will need to review control measures and make improvements to reduce exposure.
2) ***Benchmark Guidance Value*** (BGV) is a hygiene-guidance value set at around the 90th percentile of available validated data, provided by a representative cross-sectional study of workplaces with good occupational hygiene practices; it can therefore be achieved by the great majority of industries that employ good workplace practice. If a result is greater than a BGV it does not necessarily mean that ill health will occur, but it does indicate that control of exposure may not be adequate and employers will need to review control measures and make improvements to reduce exposure.

Some examples of BMGVs from EH40 are listed in the following table:

Substance	***Biological monitoring guidance values***			
	Health guidance values	***Sampling time***	***Benchmark guidance values***	***Sampling time***
Carbon monoxide.	30 ppm in end - tidal breath.	Post shift.		
Mercury.	20 µmol/mol creatinine in urine.	Random.		
Glycerol trinitrate (nitro-glycerine).			15 µmol/mol creatinine in urine.	At the end of period of exposure. This may be mid shift or at the end of a shift.
Xylene, o-, m-, p- or mixed isomers.	650 mmol methyl hippuric acid/mol creatinine in urine.	Post shift.		

Figure 3-14: Examples of BMGVs. *Source: HSE, EH40.*

The HSE routinely consider whether it is appropriate to establish a BMGV when chemicals are reviewed for an occupational exposure limit. Where possible, the priority is to set a HGV, however a BGV may be set if there is insufficient data to derive a HGV.

BMGVs and their use in biological monitoring are intended to assist employers to ensure adequate control under COSHH, but are not a replacement for airborne occupational exposure limits and workplace air monitoring. Biological monitoring undertaken in association with a guidance value needs to be conducted on a voluntary basis, with the informed consent of those concerned.

RELATIVE ADVANTAGES AND DISADVANTAGES WHEN COMPARED TO AIRBORNE MONITORING

While airborne monitoring is concerned with how much of a hazardous substance there is in the atmosphere that can be inhaled, biological monitoring finds out if there is the presence of a hazardous substance (or its metabolites) in a worker's body and if it has had an identifiable biological effect.

Advantages

The advantages of biological monitoring compared with airborne monitoring are that it:

- Allows for individual susceptibility. The workplace atmosphere may contain a level below the workplace exposure limit (WEL) for the substance in question, but certain individuals may still show biological effects of absorption into their body.
- Can show damage caused by absorption of a hazardous substance from all routes of entry. The workplace airborne monitoring measurement may be below the WEL, but some substances can go through intact skin.

The classification covers two main headings:

1) Adverse effects on sexual function and fertility - including alterations to the reproductive system, effects on the onset of puberty or the reproductive cycle, sexual behaviour, fertility and pregnancy outcomes.
2) Adverse effects on development of the offspring - including interference with the development of the foetus or child, before or after birth, resulting from exposure of either parent prior to conception or during development of the offspring.

Reproductive toxicity - Annex 1 of GHS				
	Category 1A	Category 1B	Category 2	Additional category on effects on or via lactation
Pictogram				No pictogram
Signal word	Danger	Danger	Warning	No signal word
Hazard statement	May damage fertility or the unborn child	May damage fertility or the unborn child	Suspected of damaging fertility or the unborn child	May cause harm to breast-fed children

The classification principally provides a warning for pregnant women, and men and women of reproductive capacity. Category 1 substances are known, or are presumed, because of related evidence, to be a human reproductive toxicant. Whereas category 2 substances are ones where there is concern that they may be a human reproductive toxicant. If a specific route of exposure is proven to be the only route causing harm, this route must be stated in the hazard statement.

The UN GHS advises that 'for many substances there is no information on their potential to cause adverse effects on the offspring via lactation. However, substances that are absorbed by women and have been shown to interfere with lactation, or which may be present (including metabolites) in breast milk in amounts sufficient to cause concern for the health of a breast-fed child, should be classified to indicate this property hazardous to breast fed babies.'

An example of a substance classified as reproductive toxic is 2-Ethoxyethanol, which has been implicated in impairing fertility. In addition, the effect of lead on the development of the brain of an unborn foetus has been long established.

SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE

This classification is for substances that produce specific, non-lethal, target organ toxicity, arising from a single exposure. The effects may be reversible or non-reversible, immediate or delayed, but are not covered in other classifications. Specific target organ toxicity can occur by any route and, therefore, includes oral, dermal and inhalation routes.

Specific target organ toxicity - single exposure - Annex 1 of GHS				
	Category 1	Category 2	Category 3	Category 3
Pictogram				
Signal word	Danger	Warning	Warning	Warning
Hazard statement	Causes damage to organs	May cause damage to organs	(Respiratory tract irritation) May cause respiratory irritation	(Narcotic effects) May cause drowsiness or dizziness

Category 1 substances are known to have produced significant toxicity in humans. Category 2 substances are presumed, because of related evidence, to produce significant toxicity in humans. Whereas category 3 substances cause transient target organ effects, that affect the respiratory tract or have a narcotic effect. Narcotic effects involve depression of the central nervous system, including drowsiness, loss of reflexes, lack of co-ordination, vertigo and reduced alertness. The symptoms may include severe headache, nausea, dizziness,

Capturing hoods are designed to generate sufficient volume and velocity of airflow around the contaminant source to capture and draw in the contaminant. Whenever possible, they should be positioned in line with normal contaminant travel and close to the contaminant sources as extraction efficiency diminishes in proportion to the distance away from the hood.

Capturing hoods are widely used in the workplace and are probably the most common type. They are available in a wide range of sizes, from small on-tool hoods to ones for large industrial processes. Although they follow the same principle of capturing the contaminant by the use of air, the shape of the hood and style of operation varies greatly. These include rim/lip extraction, downdraught tables and Low Volume High Velocity (LVHV) hoods fitted to tools, adjustable hoods to enable close positioning to contamination sources. The variety is necessary to enable the effective capturing of the contaminant in a way that minimises the likelihood of the contaminant entering the worker's breathing zone.

Wherever possible, flanges should be provided on hoods to eliminate the tendency of drawing air from ineffective zones (behind the hood) where no contaminant exists. Increasing hood effectiveness in this manner will usually result in a 25% reduction in the airflow required to achieve contaminant capture.

As a general rule, the width of the flange around a hood is equal to the hood diameter, or one side, but should not exceed 150mm. Flanges are especially important when enclosure of the process is impracticable, as the airflow pattern in front of the hood must be such that the selected capture velocity is maintained in the zone of contaminant generation, conveying it into the exhaust hood opening.

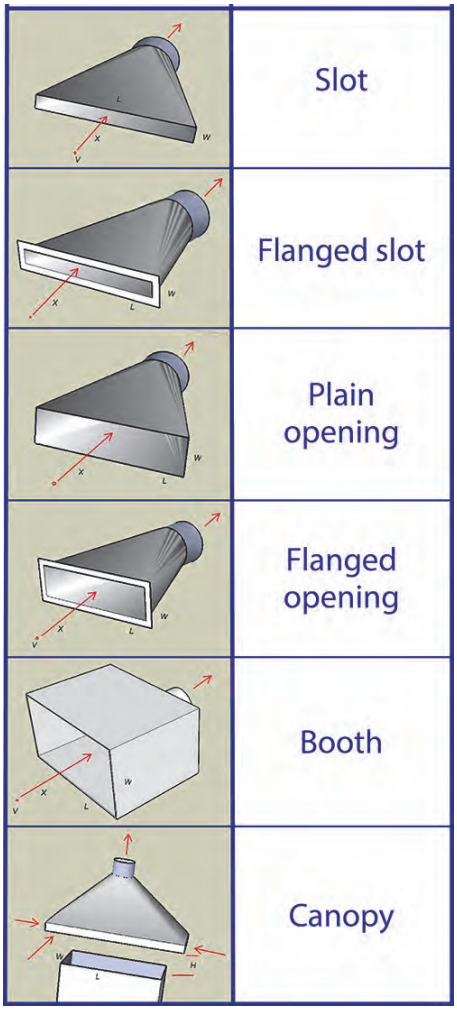

Figure 8-3: Hood designs. *Source: RMS.*

Ducting

Ductwork connects the components of a LEV system and transports the contaminant/air from the hood to the discharge/exhaust point. It includes dampers to adjust, balance or close flow through different branches of the system, access panels for inspection/cleaning and test points. Ducting can be circular or rectangular in cross-section and be rigid or flexible. Circular ducts are generally preferred as they:

- The shape resists pressure differences well.
- Do not have corners - eddy currents that may lead to deposits in corners are avoided.
- Are lighter for the equivalent cross-sectional area.
- Do not have flat panels to act as secondary sources of vibration and, therefore, noise.

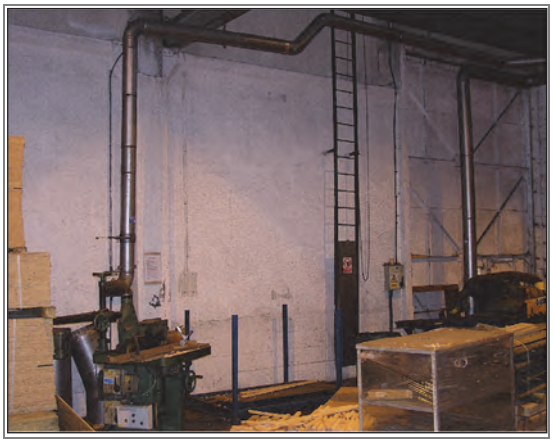

Figure 8-4: Length of ducting with curves. *Source: RMS.*

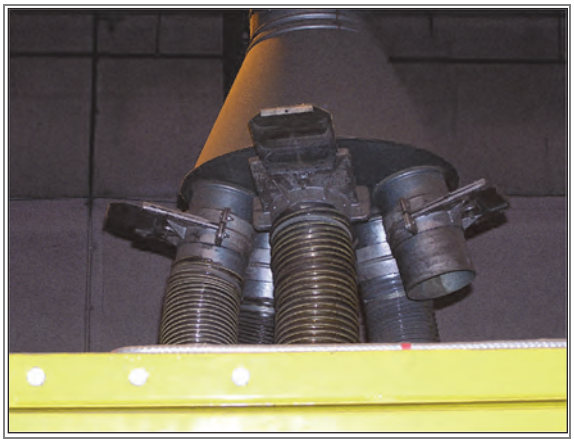

Figure 8-5: Shows a number of ports at the end of one duct - not all ports being used. *Source: RMS.*

Figure ref 8-4 shows the length of ducting with curves, not corners, and ***figure ref 8-9*** shows a self-contained unit which can be moved around the workplace and allows positioning of ducting.