



CPD4dentalnurses

YOUR FUTURE IN YOUR HANDS

COSHH in Dentistry: Protecting Staff from Hazardous Substances

Aims: This article aims to discuss the control of hazardous substances at work (COSHH), the responsibilities of the employer and employee which apply to the way you work with these substances, and how the employer must comply with current legislation.

Objectives: On completion of this verifiable CPD article, the participant will be able to demonstrate, through completion of a questionnaire, the ability to:

- Demonstrate knowledge of the Control of Substances Hazardous to Health Regulations 2002 (as amended).
- Identify who COSHH applies to.
- Identify routes of exposure.
- Define a Workplace Exposure Limit (WEL).
- Describe legislation relating to COSHH.
- Outline employers and employees' responsibilities relating to COSHH.
- Explain the purpose of COSHH risk assessment.
- Describe safe storage of hazardous substances.
- Explain employers and employee responsibilities regarding personal protective equipment.
- Describe the risks associated with blood borne viruses in dental practice.

Introduction



The Control of Substances Hazardous to Health Regulations 2002 (COSHH) (as amended) is a United Kingdom Statutory Instrument enforced by the Health and Safety Executive, setting out general duties on employers to protect employees and others from hazardous substances used at work by utilising:

- Risk assessment.
- Control of exposure.
- Health surveillance.

- Incident planning. ¹

Every year, thousands of workers are made ill by exposure to hazardous substances which can cause lung disease (such as asthma), skin disease (such as dermatitis), and cancer. It is the employer's responsibility to control exposure, minimise risk and protect employees' health.²

Many products and substances in the workplace can be harmful and cause ill health, however, if used properly they almost never do. It is the employer's responsibility to look at each substance used in the workplace and complete a risk assessment and staff training, where necessary.

COSHH applies to a wide range of substances and preparations (mixtures of two or more substances) which have the potential to cause harm to health if they are ingested, inhaled, or are absorbed by, or come into contact with, the skin, or other body membranes. Hazardous substances can occur in many forms, including solids, liquids, vapours, gases, and fumes. They may also include simple asphyxiants or biological agents.

Employers should regard a substance as hazardous to health if it is hazardous in the form in which it may occur in the work activity. A substance hazardous to health need not be just a chemical compound, it can also include mixtures of compounds, micro-organisms, blood, or natural materials, such as flour, stone or wood dust.

Common hazardous substances in dentistry include:

- Amalgam and mercury vapour – released during placement, removal, or accidental spillage.
- Dental acrylic monomers – such as methyl methacrylate, which can cause dermatitis and respiratory irritation.
- Disinfectants – including chlorine-releasing agents and aldehyde-based products.
- Etching agents – particularly phosphoric acid, which is corrosive to skin and eyes.
- Glutaraldehyde (where still used) – a potent respiratory sensitiser.
- Nitrous oxide – requiring effective scavenging to prevent chronic exposure.
- Cleaning chemicals – such as detergents, surface cleaners, and instrument decontamination products.

These examples highlight the importance of robust COSHH assessment and control measures within dental practice.

COSHH does not apply to exposure to asbestos, lead or radioactive substances, as these are covered by separate regulations.

[Who/What Does COSHH Apply to?](#)

The general duties of COSHH apply to incidental exposure to, and deliberate work with, biological agents. Employers and employees have a responsibility to follow COSHH regulations.

COSHH does not cover situations where employees catch infections through ordinary social contact, for example respiratory infections transmitted between colleagues. COSHH only applies where the risk of exposure is directly connected with work activities.

Incidental exposure to biological agents can occur when an employee's work activity brings them into contact with material which contains infectious agents, e.g. blood and body fluids. This is particularly relevant in dental practice.

COSHH controls risks arising from work activities to employees and others. It does not regulate clinical risks to patients arising from dental treatment, which are managed under clinical governance and professional standards.

COSHH documentation and training records should be available for inspection by regulators such as the Care Quality Commission and the Health and Safety Executive.

Routes of Exposure

There are four major routes by which chemicals can enter the body:

- **Inhalation (breathing)**
- **Absorption (skin contact)**
- **Ingestion (eating)**
- **Injection**

The most common way workplace chemicals enter the body is by breathing. Other chemicals can be absorbed through the skin into the bloodstream. They can also be accidentally swallowed if hands are contaminated.³



- Health and Safety at Work etc. Act 1974.
- The Management of Health and Safety at Work Regulations 1999.
- The Safety Representatives and Safety Committees Regulations 1977.
- The Health and Safety (Consultation with Employees) Regulations 1996.

The European Commission's Fourth Directive on Indicative Occupational Exposure Limit Values (2017/164/EU) (retained in UK law). (Implemented and now retained in GB law under domestic regulations.)

Employers Responsibilities



An employer's overriding duty and first priority is to consider how to prevent employees being exposed to substances hazardous to health by all routes (regulation 7(1) and 7(2)). The duty to prevent exposure should be achieved by measures other than the use of PPE. Employers can best comply with this requirement by completely eliminating the use or production of substances hazardous to health in the workplace.¹

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This might be achieved by:

- Changing the method of work so that the operation giving rise to the exposure is no longer necessary; or
- Modifying a process to eliminate the production of a hazardous by-product or waste product; or
- Substituting, wherever reasonably practicable, a non-hazardous substance which presents no risk to health where a hazardous substance is used intentionally.¹

In many workplaces, it will not be possible or practicable to eliminate exposure to substances hazardous to health completely. Therefore, where it is necessary to use a hazardous substance, an employer should consider whether it is possible to reduce exposure and risk to the health of employees significantly by using:

- An alternative, less hazardous substance; or
- A different form of the same substance; or
- A different process.¹

Risk Assessments



Employer's duties should include taking the following into consideration:

- Assessment of the risk to health created by work involving any hazardous substance.
- Prevention/control of exposure by carrying out a risk assessment to enable them to make valid decisions about any measures needed to prevent or control the exposure of their employees to any substance hazardous to health.
- The person carrying out any assessments should be adequately trained and competent to do the job.
- Safety data sheets should be available for any substance used which requires a risk assessment in the workplace.¹ When a product is 'dangerous for supply', by law, the supplier must provide you with a safety data sheet. Safety data sheets can be hard to understand, with little information on measures for control. However, to find out about health risks and emergency situations, concentrate on:
 - Sections 2 and 16 of the sheet, which tell you what the dangers are;
 - Sections 4-8, which tell you about emergencies, storage, and handling.

Once employers have carried out the risk assessment, they should implement the steps to:

- Prevent or adequately control exposures.
- Ensure correct procedures are followed.
- Ensure training is provided to all employees.
- Deal with any accidents, incidents, or emergencies.
- Ensure monitoring and surveillance is carried out.¹

In dentistry this may include:

- Dermatitis surveillance.
- Respiratory surveillance (if indicated.)
- Vaccination records (Hep B).
- Monitoring for latex sensitivity.

Employers have a legal requirement to consult employees on any measures they plan to introduce as a result of a risk assessment. This includes employers listening and taking into account any concerns they may have before making any safety decisions.

It is recommended that employers involve employees when undertaking a risk assessment so that their views and practical ideas on controlling risks can be considered.¹

Significant Findings

The significant findings of the risk assessment should represent an effective statement of hazards, risks and actions taken to protect the health of employees and anyone else who may be affected by the work. Employers may use the recorded findings as evidence that:

- They have carried out a suitable and sufficient assessment.
- They have systematically considered all the factors relevant to the work and have put in place measures either to prevent exposure or to achieve and maintain adequate control of exposure.

It is acceptable for employers to make a combined assessment for a number of different low hazardous substances.¹

Reviewing a risk assessment

The assessment should be reviewed if there is evidence that it is no longer valid due to any of the following:

- Monitoring or health surveillance identifies it is no longer valid.
- Reports or complaints from employees.
- Changes to operating circumstances, such as new information on health effects or changes to a substance.¹

Safe Storage and Disposal

The Control of Substances Hazardous to Health Regulations 2002 (COSHH) as amended requires employers to ensure that exposure is prevented or, where this is not reasonably practicable, adequately controlled. This can be achieved by following practical advice and by applying the principles of good practice for the control of exposure to substances hazardous to health, as required by COSHH.

Things to consider are:

- **Access to work area** - Allow access to authorised and appropriately trained people only.
- **Equipment and procedures** - Provide a good standard of general ventilation. This can be natural ventilation from doors, windows etc, or controlled, where air is supplied or removed by a powered fan.
- **Ensure all powered fans** are appropriate for the contaminants being controlled, i.e. suitable for explosive, corrosive and flammable substances.
- **Define a specific area for storage and put-up signs.** - Ensure the area is spacious, tidy, well-lit and ventilated.
- **Provide enough space to easily deal with spills.** - Label all containers, including partly used ones.

- **Floors should be impervious, resistant to liquids and easy to clean.**
- **Keep easily ignitable materials**, such as empty packaging, in a separate storeroom.
- **Ask your chemical supplier for specific advice** on which chemicals to store separately from others.
- **Make suitable arrangements for maintenance**, storage, and replacement of PPE.
- **Clean equipment and the work area daily.** Clean other equipment and the workroom regularly – at least once a week.
- **Deal with spills immediately** - follow safety sheet guidance.
- **Provide appropriate spillage kits** - e.g., mercury spillage kit, body fluids, blood spillage kit.
- **Dispose of empty containers safely**⁴

Training and supervision



- ✓ Provide supervision – ensure that safe work procedures are followed.
- ✓ Tell workers about the hazards associated with their work.
- ✓ Provide workers with training on:
 - Working safely with hazardous substances.
 - When and how to use controls.
 - How to check they are working.
 - And what to do if something goes wrong.
- ✓ Keep training records.
- ✓ Involve managers and supervisors in health and safety training.
- ✓ Oversee handling of leaks and spills, and disposal of any materials.⁴

Personal Protective Equipment (PPE)



Employers should establish procedures to ensure that control measures, including PPE and any other item or facility, are properly used or applied and

are not made less effective by other work practices or by improper use. The procedures should include:

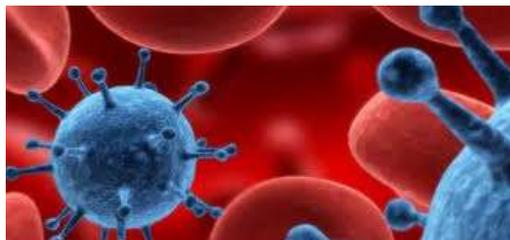
- Visual checks and observations at appropriate intervals.
- Ensuring that where more than one item of PPE is being worn, the different items are compatible.
- Supervising employees to ensure that the defined methods of work are being followed.
- Monitoring systems for the effective use of the PPE¹

Employees' duties for PPE

Employees should use the control measures in the way they are intended to be used and as they have been instructed. In particular, they should:

- Follow the defined methods of work.
- Wear the PPE provided, correctly and in accordance with the manufacturer's instructions.
- Store the PPE, when not in use, in the accommodation provided.
- Remove any PPE which could cause contamination before eating, drinking or smoking.
- Maintain a high standard of personal hygiene and make proper use of the facilities provided for washing, showering or bathing and for eating and drinking.
- Report promptly to the appointed person, e.g., supervisor or safety representative, any defects discovered in any control measure, including defined methods of work, device or facility, or any PPE.¹

Blood Borne Viruses (BBVs)



BBVs are viruses that some people carry in their blood, and which may cause severe disease in certain people and few or no symptoms in others. The virus can spread to another person, whether the carrier of the virus is ill or not.

The main BBVs of concern are:

- ✚ Hepatitis B virus (HBV) and Hepatitis C virus (HCV), both of which cause viral hepatitis, an inflammation of the liver that may result in acute or chronic liver disease.
- ✚ Human immunodeficiency virus (HIV) a virus which causes acquired immune deficiency syndrome (AIDS), a disease affecting the immune system of the body.

These viruses can also be found in body fluids other than blood, for example, semen, vaginal secretions and breast milk. Other body fluids or materials such as urine, faeces, saliva, sputum, sweat, tears and vomit carry a minimal risk of BBV infection, unless they are contaminated with blood. Care should still be taken as the presence of blood is not always obvious.⁷

BBVs in Dental Practice

It is highly unlikely that anyone would become infected through normal social contact, but in the dental practice there is a risk of exposure through direct contact with infected blood, or body fluids i.e., saliva through accidental contamination. This could be as a result of a needle stick injury or sharp instrument injury. Infected blood could also spread through contamination of open wounds, skin abrasions, skin that has been damaged due to eczema or through splashes to the eyes, nose or mouth.

It is the employer's legal responsibility to protect the health of their employees. A safety policy should be in place outlining the risks and the measures needed to control them.

Employers must assess BBV risk and offer appropriate immunisation (e.g. Hepatitis B vaccination) free of charge to employees at risk, maintain health records, and provide training in sharps safety, PPE use, spill management and waste disposal.

RIDDOR - Reporting Incidents

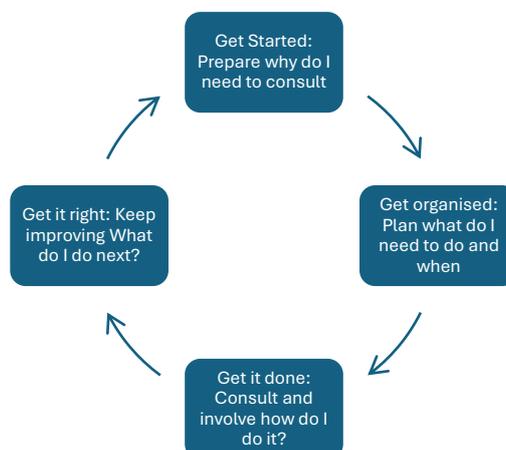
Under RIDDOR 2013, a sharps injury is reportable if:

- The employee is exposed to a biological agent; and
- The exposure is likely to cause severe human infection; and
- The employee is subsequently diagnosed with a reportable disease.⁷

Reportable incidents must be notified to the Health and Safety Executive in accordance with RIDDOR 2013.

Remember

Health and safety should be a two-way process between employers and employees, they should:



- ✓ **Talk** to each other about issues.
- ✓ **Listen** to their concerns and raise your concerns.
- ✓ **Seek** and share views and information.
- ✓ **Discuss** issues in good time.
- ✓ **Consider** what employees say before making decisions.

Conclusion COSHH is central to maintaining a safe dental workplace. Compliance with COSHH and related legislation supports inspection readiness by regulators such as the Health and Safety Executive and demonstrates effective governance within dental practice.

Embedding COSHH into daily practice protects staff, patients, and the business.

COSHH Quick Check for Dental Practices

- ✓ **COSHH folder up to date and accessible to staff.**
- ✓ **Safety Data Sheets (SDS) available for all chemicals in use.**
- ✓ **Mercury and blood/body fluid spill kits accessible.**
- ✓ **Local exhaust ventilation and scavenging systems maintained.**
- ✓ **Sharps safety training documented for all relevant staff.**
- ✓ **Hepatitis B (HBV) vaccination offered and records maintained.**
- ✓ **COSHH assessments reviewed at least annually and after changes.**

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Personal Development Plan and Reflective Learning

This CPD is linked to the following GDC Enhanced CPD Development Outcome:

A. Effective communication with patients, the dental team, and others across dentistry, including when obtaining consent, dealing with complaints, and raising concerns when patients are at risk.

C. Maintenance and development of knowledge and skill within your field of practice.

Reflective learning is now a requirement of the GDC Enhanced Professional Development Scheme. As such, you will now be offered the opportunity to answer some reflective learning questions for the CPD you complete.

Further Reading

COSHH essentials web tool - <http://www.hse.gov.uk/coshh/essentials/>

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 - <http://www.hse.gov.uk/riddor/index.htm>

Hazardous symbols of COSHH - <http://www.hse.gov.uk/chemical-classification/labelling-packaging/hazard-symbols-hazard-pictograms.htm>

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