NVQs for Dental Nurses
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SECOND EDITION

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Introduction to the Second Edition

This textbook has been written for those Dental Nurses studying to qualify as Dental Care Professionals (DCPs) via the National Vocational Qualification (NVQ) route. It is the second edition, and its writing has been prompted by the recent changes to the structure of the Level 3 NVQ qualification in dental nursing, as well as the introduction of compulsory registration of all DCPs with the General Dental Council.

The updated NVQ qualification consists of 11 units, all of which are mandatory, and which have incorporated the changes to dentistry and relevant legislation since the first edition. Nine of them cover the general areas of dental practice in which the majority of dental nurses will work, while the other two units cover the concept of ‘life-long learning’ and basic life support. This book provides the underpinning theoretical knowledge required to study and understand all of the areas of dental nursing covered by the NVQ qualification, while the workplace competencies are achieved at the chairside as witnessed assessments.

In addition, the final chapter introduces information on the new Vocationally Related Qualification (VRQ), which has replaced the Independant Assessment as the written examination of the NVQ qualification. Examples of question styles are included, but not the answers – it is hoped that the readership will enjoy discovering these as they read the textbook and learn the subject of dental nursing!

Carole Hollins
Acknowledgements

Grateful thanks are extended once again to the staff and patients of Kidsgrove dental practice for their eager participation in posing for various photographs – who said attending for dental treatment couldn’t be fun!

I especially wish to thank Tracey Evans for her unstinting help, support and ‘modelling skills’ during the writing and compilation of the book; she is a dental nurse and tutor par excellence, and an inspiration to student dental nurses throughout Stoke-on-Trent.

I also thank the General Dental Council for their very kind permission to reproduce their Standards Guidance document in part, and express huge appreciation again to various other illustrators for their ongoing support.

Finally, to all of the staff at Wiley-Blackwell, a huge ‘thank you’ for their continued and very friendly help and support throughout the writing of this book.
1 The N/SVQ

The concept of qualification by N/SVQ has been developed around the recognition of the competence of candidates to perform a range of tasks to the standards required for their successful employment. For this qualification, the candidates will be dental nurses who are employed by any of the following employers:

- General dental practices, either National Health Service (NHS), private or ‘mixed’
- Community dental clinics
- Dental departments within general hospitals
- Dental teaching hospitals
- Dental corporate bodies
- The armed forces

Formal qualifications are not required by candidates wishing to undertake this N/SVQ in Dental Nursing, but they must be employed in a suitable dental workplace where the necessary opportunities to gain evidence for the completion of the qualification are provided. As the dental workplace can be a hazardous environment for numerous reasons, the qualification is not approved for any candidates under the age of 16 years.

This dental nursing qualification is specifically involved with direct chairside tasks and the support provided to dentists and dental care professionals (DCPs; such as hygienists and therapists) during a range of dental treatments. However, considerable underpinning knowledge of topics such as anatomy, dental instruments and materials, and dental equipment is also required. The theoretical knowledge needed in these areas should be provided by formal classroom teaching.

The decision on whether a candidate is deemed to be ‘competent’ or ‘not yet competent’ in a given task is determined by the assessment of evidence produced by the candidate to show that they can perform each of the tasks covered by the qualification, in a competent manner in the workplace. The assessments are carried out by trained and qualified assessors, and for this qualification an assessor is a dentist, qualified DCPs or another professional who is competent and qualified in certain areas of healthcare, such as a radiographer.

The evidence considered acceptable can be produced either directly or indirectly. Examples of each are given below.
Direct evidence:

- Observation in the workplace by an assessor
- Observation and testimony by a named expert witness (dentist, registered DCP)
- Observation of a simulated task by an assessor (such as basic life support)
- Observation and testimony by a witness (such as a patient)

Indirect evidence:

- Performance reports from a workplace mentor (dentist, senior DCP)
- Professional discussions and questioning by an assessor
- Written assignments, homework, presentations and case studies

The N/SVQ in Dental Nursing qualification consists of 11 mandatory units:

- Unit 1 – Ensure your own actions reduce the risk to health and safety (ENTOA)
- Unit 2 – Reflect on and develop your practice (HSC33)
- Unit 3 – Provide Basic Life Support (CHS36)
- Unit 4 – Prepare and maintain environments, instruments and equipment for clinical dental procedures (OH1)
- Unit 5 – Offer information and support to individuals on the protection of their oral health (OH2)
- Unit 6 – Provide chair side support during the assessment of patients’ oral health (OH3)
- Unit 7 – Contribute to the production of dental radiographs (OH4)
- Unit 8 – Provide chairside support during the prevention and control of periodontal disease and caries, and the restoration of cavities (OH5)
- Unit 9 – Provide chairside support during the provision of fixed and removable appliances (OH6)
- Unit 10 – Provide chair side support during non-surgical endodontic treatment (OH7)
- Unit 11 – Provide chair side support during the extraction of teeth and minor oral surgery (OH8)

The first unit and the last eight form the basis of general dental practice, while the second and third units have been added to cover areas of competence that are necessary in accordance with the National Occupational Standards for dental nursing. Each unit is made up of a number of ‘elements of competence’, which describe all of the tasks that the dental nurse must be able to carry out competently. Every element of all 11 units must be carried out competently to achieve the N/SVQ qualification. In addition, the factual knowledge evidence from various areas of the 11 units is tested in the form of a written Vocationally Related Qualification (VRQ), and this will also have to be successfully completed before the dental nurse can register as a qualified DCP with the General Dental Council.
The four broad sections of the N/SVQ syllabus to be covered by the VRQ are discussed in detail in Chapter 13, and are summarised below:

- Principles of infection control in the dental environment
- Assessment of oral health and treatment planning
- Dental radiography
- Scientific principles in the management of plaque-related diseases

It can be seen then, success in the N/SVQ requires evidence of competency in all of the chairside tasks, as well as proof of knowledge and understanding of the underpinning information required to carry out the tasks to a consistent standard.

To assist the dental nurse in completing the N/SVQ successfully, City & Guilds provide the necessary paperwork for candidates to build a portfolio of performance evidence, which provides a record of their competence in the workplace. To be able to cover the whole range of tasks in which the dental nurse must be assessed, each element of competence is accompanied by the following information:

- **Scope** – suggestions and guidance on possible areas that may be covered in each workforce competence, often linked to key words from the City & Guilds glossary provided at the beginning of each unit
- **Performance criteria** – these provide descriptions of all the specific areas of the overall task that must be addressed, and the standard of performance that is acceptable for each
- **Knowledge specification** – the theoretical information that must be known and understood by the dental nurse, so that they can apply it to their workplace tasks and perform them to a consistently high standard.

This textbook is designed to provide the required theoretical information to cover the knowledge specifications of all 11 units, so that the dental nurse has a thorough understanding of their role in the dental team, and can perform the necessary tasks to an acceptable standard at all times.

**Knowledge specifications**

Each of the 11 units is covered chapter by chapter in the book, and the table of contents lists those areas of the dental nursing syllabus that are discussed in each chapter. Where the same information is required in several units, it is discussed fully in the chapter to which it is initially referred, and then summarised in any relevant later chapters.

Several knowledge specifications of one unit may be repeated in others because they are relevant to both. An example of this occurs in Units 6 and 8, which both refer to the dental nurse requiring ‘a factual knowledge of the primary and secondary dentition and the average dates of eruption’. The knowledge specification
is covered in detail in Unit 6, where it is referred to initially, and is then summarised in Unit 8 where it is referred to again. It is hoped that this will help to minimise the amount of cross-referencing required by the reader.

Each of the knowledge specifications fall into one of the following descriptions, which indicates the depth of understanding that the candidate needs to acquire:

- Factual knowledge
- Working knowledge
- Factual awareness
- Working understanding

These can be interpreted and explained as follows:

**Factual knowledge:**
- Give a description of the subject, based on stated facts
- The stated facts are written and reported elsewhere (such as in other textbooks) and are irrefutable, that is, they are correct and are not able to be disproved
- An example is ‘a factual knowledge of the development of dental plaque and methods for controlling it’ (Unit 5, K2)

**Working knowledge:**
- Show understanding of the subject by being able to explain it in the context of the dental workplace
- This will involve giving details around the subject, and may be based on one’s personal interpretation of the information involved
- There will also be an element of personal experience within the explanation
- An example is ‘a working knowledge of the different types of disclosing agents available’ (Unit 5, K14)
- The extent of the working knowledge shown will be dependent on the range of personal experience of the subject

**Factual awareness:**
- Show knowledge of the subject by identification of the key points
- This indicates the ability to discover the knowledge by observation or by analysis, rather than by personal experience
- This will involve the ability to identify the factual points clearly, to prove the understanding of the subject
- An example is ‘a factual awareness of the priorities in life support’ (Unit 3, K2)

**Working understanding:**
- Show an understanding of the subject by the ability to reason
- This shows the ability to discover and interpret the knowledge by demonstration
– An example is ‘a working understanding of what to do in the event of foreign body obstruction of an individual’s airway’ (Unit 3, K6)

These explanations indicate the depth of understanding that is required by the candidate for each of the knowledge specifications throughout this N/SVQ qualification. A full list of the knowledge specifications covered by each unit is given at the start of each chapter. Chapter 13 is devoted to an explanation of the VRQ, the subjects it covers, and examples of the style of questions that may appear in the written paper. The answers can all be found within the text of the book.

The book also contains numerous diagrams and photographs to help illustrate key points referred to in the text. In addition to the glossary provided by City & Guilds in their portfolio documentation, a ‘Glossary of Terms’ has been included in the end of this book to give descriptive definitions of key words and phrases used within the text and that have specific meaning here.
2 Unit 1: Ensure Your Own Actions
Reduce the Risk to Health and Safety (ENTOA)

Knowledge specifications

K1 – A working knowledge of your legal duties for health and safety in the workplace as required by current Health and Safety legislation
K2 – A working knowledge of your duties for health and safety as defined by any specific legislation covering your job role
K3 – A working knowledge of the hazards that may exist in your workplace
K4 – A working knowledge of the particular health and safety risks which may be present in your own job role and the precautions you must take
K5 – A working knowledge of the importance of remaining alert to the presence of hazards in the whole workplace
K6 – A working knowledge of the importance of dealing with or promptly reporting risks
K7 – A working knowledge of the requirements and guidance on the precautions
K8 – A working knowledge of agreed workplace policies relating to controlling risks to health and safety
K9 – A working knowledge of responsibilities for health and safety in your job description
K10 – A working knowledge of the responsible persons to whom to report health and safety matters
K11 – A working knowledge of the specific workplace policies covering your job role
K12 – A working knowledge of suppliers’ and manufacturers’ instructions for the safe use of equipment, materials and products
K13 – A working knowledge of safe working practices for your own job role
K14 – A working knowledge of the importance of personal presentation in maintaining health and safety in the workplace
K15 – A working knowledge of the importance of personal conduct in maintaining the health and safety of yourself and others
K16 – A working knowledge of your scope and responsibility for rectifying risks
K17 – A working knowledge of workplace procedures for dealing with risks which you are not able to handle yourself
All employers, including dental practitioners, have responsibilities towards their staff and any other persons on their premises in relation to safe working practices and safety at work. These are governed by the Health and Safety at Work Act 1974.

In the dental workplace, ‘any other persons’ include: patients and their escorts, visiting utility workers, such as postal deliverers and meter readers, and visitors such as repair and maintenance personnel.

The aim of the Act with specific reference to the dental workplace is to protect all persons at work, and in particular:

- Provide and maintain safe equipment, appliances and systems of work
- Ensure dangerous or potentially harmful substances are handled and stored safely (see COSHH regulations, later)
- Maintain the place of work (including its entrance and exit) in a safe condition
- Provide a safe working environment for employees, with no risks to health and adequate facilities for their welfare
- Provide necessary teaching, training and supervision to ensure Health and Safety is complied with

All work places must also have a current Health and Safety Law poster on display within the premises, for all staff to see (Figure 2.1).

Figure 2.1 Health and safety poster.
**Employers’ responsibilities**

Under the Act, all employers must ensure, as far as is reasonably practicable, that the health and safety of all persons on the premises is protected – and this must be achieved by carrying out a risk assessment of the workplace activities that occur on the premises. This is a specific requirement under the *Management of Health and Safety at Work Regulations 1999*.

A risk assessment is merely a detailed examination of the normal day-to-day activities that occur in the workplace in an effort to identify those that have the potential to cause harm to anyone on the premises – these are called the hazards. Once the hazards have been identified, a set of precautions can be determined that will prevent or minimise the risk associated with each hazard, thereby ensuring the safety of all those on the premises.

Recording the findings of the risk assessment is considered ‘best practice’, but is a legal requirement for all employers with five or more employees. As any relevant laws and regulations are updated, areas of the risk assessment may need to be reconsidered and updated too.

A typical process of risk assessment in the workplace can be summarised as follows:

- Find the hazards
- Determine who is at risk of harm, and why
- Evaluate the risk of harm, and if additional precautions need to be taken to prevent harm
- Record the findings of the risk assessment
- Review the assessment regularly, and update it as necessary

**Employees’ responsibilities**

All employees are legally required to take reasonable care for their own and others’ health and safety, and to co-operate with their employer to this effect while carrying out their normal workplace activities. Indeed, it is an offence for an employee to intentionally break the workplace rules and policies in relation to health and safety, whether this causes harm to themselves or others, or not.

As the majority of dental nurses training in practices tend to be young persons, the following two sets of regulations are also pertinent to dental practices:

- Health and Safety (Young Persons) Regulations 1997
- Management of Health and Safety at Work Regulations 1992

These regulations stipulate that the risk assessment of the dental workplace carried out must take into account the following points:

- The inexperience and immaturity of young persons
- Their lack of awareness of risks to their health and safety
The fitting and layout of the practice and surgery
The nature, degree and duration of any exposure to biological, chemical or physical agents
The form, range, use and handling of work equipment
The way in which processes and activities are organised
Any health and safety training given, or intended to be given

Compliance with Health and Safety Law in the dental workplace involves all of the following, and all except those relating to ionising radiation will be covered in this Unit.

1. Fire regulations
2. COSHH – Control Of Substances Hazardous to Health
3. RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
4. Safe disposal of hazardous and special waste
5. Manual handling
6. Ionising radiation legislation
7. Maintaining security in the workplace

**Fire regulations**

Fire is a daily hazard that can occur in any workplace environment, but a risk assessment of the dental workplace will identify several specific fire hazards, as follows:

- **Flammable vapours and gases** – emergency oxygen cylinders, cleaning solvents, portable gas canisters
- **Naked flames** – used at the chairside for various dental procedures
- **Pressure vessels** – autoclaves and compressors, both of which can explode
- **Waste storage** – hazardous biological waste stored on the premises, often in the form of paper products and other flammable materials

In addition, all dental equipment is electrically operated and may short circuit, malfunction or spark and cause a fire at any time, especially if not serviced and maintained correctly.

Larger electrical items of dental equipment, such as the dental chair and inspection light, or autoclaves, have to be serviced and maintained by trained personnel on a regular basis. However, smaller portable items such as curing lights can be inspected for electrical safety by a general electrician, in a process known as portable appliance testing (PAT). This should be carried out annually, with each appliance having the plug, fuse size and wiring inspected for wear and tear. If all is well, a sticky label is applied to indicate that the appliance is PAT compliant, and the due date of the next PAT inspection (Figure 2.2).
In general, the commonest causes of fire in the workplace are:

- Faulty electrical supply or equipment
- Faulty heating equipment, or heating equipment used in a dangerous manner (such as heating equipment placed close to combustible materials)
- Flammable vapours and gases

Recent legislation (July 2007) to ban cigarette smoking in enclosed public places and the workplace has reduced the risk of fire from this source considerably.

Fire precautions in the workplace are governed by the Fire Precautions Regulations 1997, and require the employer to assess what fire precautions are needed by carrying out a risk assessment of the premises (as described previously) and by complying with the following.

Emergency routes and exits:

- Must be kept free of obstruction to allow immediate evacuation from the premises (thus, they should not be locked during work time)
- Should lead directly to a place of safety
- Should be clearly indicated by green ‘Fire Exit’ signs and pictogram of running man (Figure 2.3)
Emergency instructions for evacuation of the premises in the event of a fire should be posted in easy to see areas, such as at reception and in waiting rooms (Figure 2.4)

- Emergency lighting should be provided if necessary
- Emergency doors should open in the direction of escape, and must not be electrically operated so that they can open immediately
- No sliding or revolving doors should be used as fire exits

![Fire instructions](image)

**Figure 2.4** Fire instructions.

Fire safety inspectors also advise:

- Fitting smoke detectors and alarms
- Training staff in the use of fire extinguishers and fire blankets
- Having at least two types of extinguisher in the dental workplace

Fire extinguishers vary depending on the type of fire that they are designed to fight; fires are classified as follows:

- **Class A fire** – caused by the ignition of carbon-containing items, such as paper, wood and textiles
- **Class B fire** – caused by flammable liquids, such as oils, solvents and petrol
Chapter 2

- **Class C fire** – caused by flammable gases, such as domestic gas, butane, liquid petroleum gas (LPG)
- **Class D fire** – caused by reactive metals that oxidise in air, such as sodium and magnesium
- **Class E fire** – caused by electrical components and equipment
- **Class F fire** – caused by liquid fats, such as used in kitchens, restaurants

In the dental workplace, the likeliest causes of fire shown above suggest that extinguishers to fight fire classes A, B, C and E should be available. The content of each fire extinguisher varies, depending on its recommended use, and is identifiable by a coloured label on the extinguisher. The extinguishers themselves are now all red in colour so that they can be easily located. (Figure 2.5)

The labels themselves are coded as follows:

- Red (water) extinguisher – for use on all except electrical fires
- Black (carbon dioxide) extinguisher – for use on all fires
- Blue (dry powder) extinguisher – for use on all fires

Fire extinguishers must be inspected yearly and replaced as necessary, and dental practices should have a written fire safety policy with which all staff are familiar, so that a set procedure is known and followed by all.

*Figure 2.5* A fire extinguisher.
(2) COSHH (Control Of Substances Hazardous to Health)

COSHH is a legal requirement for employers, whereby all chemicals and potentially hazardous substances used in the workplace are assessed for risk of injury to staff, so that reports can be written for each and kept updated for quick reference in the case of accident or injury. Problems are only likely to occur if the substances and materials are not handled and used correctly, so it is very important that all members of staff are made aware of the hazards involved, and the correct handling of the substances.

Hazardous substances include any that have been labelled as dangerous by the manufacturer, and these are easily recognised by the use of a universal system of symbols which indicate the specific hazard of the substance. So, they may be classed as ‘toxic’, ‘harmful’, ‘corrosive’ or ‘irritant’ (Figure 2.6).

Know your hazardous chemical products. Below are the four health categories:

**TOXIC**
- can cause damage to health at low levels
  for example, mercury is toxic by inhalation

**HARMFUL**
- can cause damage to health
  for example, some disinfectants /tray adhesives are harmful by inhalation

**CORROSIVE**
- may destroy living tissue on contact
  for example, phosphoric acid (etchant) causes burns in contact with skin

**IRRITANT**
- may cause inflammation to skin and/or eyes, nose and throat
  for example, some disinfectants and x-ray developer can irritate the eyes and skin

**Note:**
For packaged hazardous chemical products, the label (depending on the size) should contain a symbol (as above) and simple information about the hazard and the precautions required. The Safety Data Sheet will provide more detailed information and the supplier is obliged to provide this if the substance is hazardous to health and is used at work.

*Figure 2.6* COSHH hazard signs. Source: *Levison’s Textbook for Dental Nurses*, 10th edn, C. Hollins, 2008, Wiley-Blackwell.
These symbols will appear on the substance packaging, along with information on the actions to take in the event of an accident; all of this information will be included in the COSHH report of each substance.

Other hazardous substances found specifically in the dental workplace are:

- **Ionising radiation** – as it has a maximum exposure limit
- **Micro-organisms** – present on all items and equipment contaminated by the body fluids of patients

The COSHH assessment will follow the stages set out below for each of the substances:

1. **Identify** those substances which are hazardous, by reading the manufacturers’ leaflets, which should accompany the product
2. **Identify** who may be harmed – usually all persons using the substance
3. **Identify** how they may be harmed – breathing in, irritant to eyes or skin, etc.
4. **Evaluate** the risk of the substance
5. **Determine whether** health monitoring **is required** (mercury exposure, for example)
6. **Control the risks**, or reduce them as far as possible
7. **Inform** all staff of the risks (show sheets and sign to say they have read and understood them)
8. **Record** the assessment and review and **update** it regularly

Each substance will have the relevant details entered onto an evaluation sheet, set out in the same way for ease of reference (Figure 2.7). The evaluation sheets for all substances used in the workplace should be kept in several folders throughout the premises, for ease of access by all staff. The evaluation sheets of those substances posing serious harm if misused or involved in spillages should also be kept in an ‘emergency file’, with medical emergency details included.

The COSHH regulations were amended most recently in 2004, to outline the principles of ‘best practice’ that every workplace is expected to adhere to in an effort to control the exposure of staff to substances hazardous to health. Their particular relevance to the dental workplace is as follows:

- Activities must be designed and operated to minimise the emission, release and spread of substances hazardous to health
- All relevant routes of exposure must always be taken into account when developing control measures
- The most effective and reliable method of minimising the escape and spread of any hazardous substance must be adopted by the dental workplace, in line with current legislation
- Suitable personal protective equipment (PPE) must be provided by the employer for use by all those handling hazardous substances, where adequate control of exposure cannot be achieved by other means alone
<table>
<thead>
<tr>
<th><strong>Nature of Substance</strong></th>
<th><strong>Hazardous Ingredients</strong></th>
<th><strong>Used for</strong></th>
<th><strong>By whom</strong></th>
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<td>Waste disposal</td>
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<td>Storage</td>
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<thead>
<tr>
<th><strong>Control Measures</strong></th>
<th><strong>Ventilation</strong></th>
<th><strong>Eye protection</strong></th>
<th><strong>Respiratory protection</strong></th>
<th><strong>Gloves</strong></th>
<th><strong>Health monitoring</strong></th>
<th><strong>Staff training</strong></th>
<th><strong>Other</strong></th>
</tr>
</thead>
</table>

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<tr>
<th><strong>First Aid Measures</strong></th>
<th><strong>Eye contact</strong></th>
<th><strong>Skin contact</strong></th>
<th><strong>Inhalation</strong></th>
<th><strong>Ingestion</strong></th>
<th><strong>Dentists and staff members to sign to confirm these Control Measures are carried out:</strong></th>
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<td>3 .......................................................... 6 .............................. 9 ..........................................................</td>
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</tbody>
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**Figure 2.7** Example of COSHH assessment sheet. Source: *Levison’s Textbook for Dental Nurses*, 10th edn, C. Hollins, 2008, Wiley-Blackwell.
Methods of control must be regularly reviewed, amended and updated as necessary, in line with current legislation.

All staff must be informed and trained in the correct handling and use of all hazardous substances that they are likely to come across while performing their daily duties.

To comply with these principles of ‘best practice’, the dental workplace has to consider the following control measures in an effort to reduce the risks to staff when handling any substances hazardous to health.

- If possible, the hazardous substance must be substituted for one that is considered to be less hazardous.
- If possible, isolation methods should be adopted so that the hazard is controlled.
- Ensure that adequate ventilation is provided in areas where hazardous substances that give off toxic fumes are used.
- Ensure all the necessary PPE is available for all staff.
- Adopt good housekeeping techniques throughout the dental workplace, and ensure all staff abide by them.
- Ensure that all staff are suitably trained in the handling of hazardous substances that they come across in the dental workplace.
- Have the correct procedures in place in the event of an accident involving a hazardous substance, to be followed by all staff.
- Regularly record all reviews of the existing procedures, and update them as necessary in line with current legislation.

Three hazardous substances used in the dental workplace on a daily basis by most staff require special mention in relation to COSHH. These are:

- Mercury
- Acid etchant
- Bleach (and other disinfectants)

**Mercury**

Mercury is a liquid metal that is mixed with various metal powders to form dental amalgam – this is a material used to fill teeth (see Unit 8). It is classed as a hazardous substance because it is toxic, and it can enter the body in the following ways:

- **Inhalation** – toxic vapours are released from uncovered sources at room temperature and above, and are particularly hazardous because they are colourless and odourless and therefore difficult to detect.
- **Absorption** – particles can be absorbed through the skin, nail beds, and the eye membranes, and eventually become lodged in the kidneys.
- **Ingestion** – particles can contaminate foodstuffs and drinks, and be taken into the digestive system and eventually lodge in the kidneys.