Higher National Unit specification

General information

Unit title: Dental Radiography (SCQF level 7)

Unit code: H9R8 34

Superclass: PF

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Unit purpose

This Unit is designed to develop the learners' knowledge and understanding of the current legislation and guidance relating to the safe use of ionising radiation in the production of radiographic films. Learners will also be introduced to the principles and techniques of handling and processing radiographs correctly and the importance of an effective quality control process.

Outcomes

On successful completion of the Unit the learner will be able to:

1 Identify the regulations and describe hazards associated with ionising radiation.
2 Distinguish between the different radiographic films and describe their uses.
3 Describe the imaging process and identify the different chemicals used in radiography processing.
4 Explain the importance of effective quality control of radiographic films.

Credit points and level

1 Higher National Unit credit at SCQF level 7: (8 SCQF credit points at SCQF level 7)

Recommended entry to the Unit

Entry is at the discretion of the centre. It would be beneficial if learners had previously achieved a science-based subject at SCQF level 4 or above.

Higher National Unit specification: General information (cont)

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Core Skills

Opportunities to develop aspects of Core Skills are highlighted in the Support Notes for this Unit specification.

There is no automatic certification of Core Skills or Core Skill components in this Unit.

Context for delivery

Where this Unit is delivered as part of a Group Award, it is recommended that it should be taught and assessed within the subject area of the Group Award to which it contributes.

This Unit is specifically designed for delivery as part of the PDA in Dental Nursing at SCQF level 7. It may also be delivered as a stand-alone Unit for Continuing Professional Development.

The Assessment Support Pack (ASP) for this Unit provides assessment and marking guidelines that exemplify the national standard for achievement. It is a valid, reliable and practicable assessment. Centres wishing to develop their own assessments should refer to the ASP to ensure a comparable standard. A list of existing ASPs is available to download from SQA's website **(http://www.sqa.org.uk/sqa/46233.2769.html)**.

Equality and inclusion

This Unit specification has been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners should be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence.

Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**.

Higher National Unit specification: Statement of standards

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Acceptable performance in this Unit will be the satisfactory achievement of the standards set out in this part of the Unit specification. All sections of the statement of standards are mandatory and cannot be altered without reference to SQA.

Where evidence for Outcomes is assessed on a sample basis, the whole of the content listed in the Knowledge and/or Skills section must be taught and available for assessment. Learners should not know in advance the items on which they will be assessed and different items should be sampled on each assessment occasion.

Outcome 1

Identify the regulations and describe hazards associated with ionising radiation.

Knowledge and/or Skills

- Current Health and Safety legislation and regulations relevant to the use of ionising radiation
- The safe use of x-ray equipment
- The role of dental personnel when using ionising radiation in the dental environment
- The hazards associated with ionising radiation

Outcome 2

Distinguish between the different radiographic films and describe their uses.

Knowledge and/or Skills

- Different intra oral radiographs and their uses
- Different extra oral radiographs and their uses
- Reasons for using digital radiography

Outcome 3

Describe the imaging process and identify the different chemicals used in radiography processing.

Knowledge and/or Skills

- The manual and automated processing of radiographs
- The faults that may occur during the taking and processing of radiographs
- The chemicals used in radiography processing
- Safe handling, storage and disposal of chemicals used in radiography processing
- The production of radiographs using digital imaging techniques

Higher National Unit specification: Statement of standards (cont)

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Outcome 4

Explain the importance of effective quality control of radiographic films.

Knowledge and/or Skills

- The importance of rotating film stock
- The methods of mounting radiographs correctly
- The storage of radiographs
- Suitable quality control recording systems

Higher National Unit specification: Statement of standards (cont)

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Evidence Requirements for this Unit

Learners will need to provide evidence to demonstrate their Knowledge and/or skills across all Outcomes by showing that they can:

Outcome 1

- Describe key aspects of the ionising radiation regulations 1999.
- Describe key aspects of the ionising radiation (medical exposure) regulations 2000.
- Describe key aspects of the Health and Safety at Work Act relevant to the use of ionising radiation.
- Outline guidance relating to the correct maintenance, safe use and certification of x-ray equipment.
- Explain the reporting mechanism for any safety issues that may arise.
- Outline guidelines for safe use of dental radiography in the dental environment.
- Describe the function and use of a personal dosemeter.
- Define the ALARP (as low as reasonably practicable) concept.
- Describe hazards associated with ionising radiation that can affect general health.

Outcome 2

- Describe reasons for taking dental radiographs.
- Explain the function and purpose of bitewing, periapical and occlusal radiographs.
- Explain the function and purpose of orthopantomographs.
- Describe the reasons for and use of film holders.
- Explain the function of intensifying screens.
- Describe the techniques and equipment used in digital radiography.

Outcome 3

- Describe the processing of exposed radiographic films in either a manual or automatic processing system.
- State the maintenance procedures for developing and fixing solutions.
- Identify reasons for and corrections of film faults.
- Explain the processes for safe handling, storage and disposal of chemicals

Outcome 4

- Describe the importance of an effective quality control system.
- Describe how an effective quality control system is managed and recorded.
- Outline the different methods of mounting and storing radiographs.

Higher National Unit Support Notes

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Unit Support Notes are offered as guidance and are not mandatory.

While the exact time allocated to this Unit is at the discretion of the centre, the notional design length is 40 hours.

Guidance on the content and context for this Unit

The Unit may be undertaken and assessed as a stand-alone Unit to provide knowledge and understanding of the legal requirements and risks associated with ionising radiation and the principles and techniques of handling and processing radiographs.

This Unit has been developed primarily as part of the PDA in Dental Nursing. As part of the PDA Award, it is designed to provide underpinning knowledge for the SVQ in Dental Nursing at level 3 which can be independently assessed and certificated. As such, the PDA and its four component Units are designed to meet in part the requirements for registration with the General Dental Council (GDC) where all four Units are assessed holistically by a single question paper under exam conditions.

Under existing legislation, employers have a duty to provide a safe working environment. They also have a responsibility to ensure the tasks and activities carried out in the workplace are properly risk assessed and action taken to minimise risk to the health and safety of staff and others using the premises. In the dental context, the ultimate legal responsibility will rest with the General Medical or Dental Practitioner. While that legal responsibility cannot be delegated, General Medical and Dental Practitioners should ensure that they have a structure in place which promotes and develops health and safety with staff. That structure should include appropriate audit and monitoring arrangements to make sure that current health and safety practices and procedures are working effectively.

Guidance on approaches to delivery of this Unit

Delivery could include use of recorded material (video or other audio-visual media), use of case studies, the internet for research, exploration of the various legal requirements including reporting procedures.

Classroom discussions surrounding quality assurance processes and procedures implemented in the learners' working environment (where applicable) is beneficial as it allows the learner to make the connection between theory and practice.

It is important to stress with learners the importance of the safe use of equipment in accordance with manufacturers and organisational procedures and to understand the legal requirements. Learners would not be expected to demonstrate a detailed knowledge of the legislation but should have a good understanding of the main features of the relevant legislation and regulations.

Higher National Unit Support Notes (cont)

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For Outcomes 1−4 the following should be covered:

- Dental radiography — exposure and risk prevention
- Exposure to and disposal of chemical waste
- How to select, use and store radiographic films
- The need for effective quality control of radiographic film

In dental radiography, the health and safety of patients and staff is of paramount importance and it is, therefore, essential that learners understand the correct usage of equipment and the potential associated hazards.

Health and Safety at Work Act

Primary care medical and dental practitioners have legal obligations under the Health and Safety at Work Act 1974 (HSWA). They have a duty to protect their employees and others that may be affected by their work activities such as contractors, agency staff, patients and visitors. Under HSWA employers must ensure their employees are appropriately trained and proficient in the procedures necessary for working safely. Employees have duties to comply with systems and procedures put in place by employers to ensure their health, safety and welfare; they also have a duty not to do anything that would put others at risk.

Work with Ionising Radiation: Ionising Radiations Regulations 1999

This can be accessed on the Health and Safety Executive website (www.hse.gov.uk). Tutors could discuss the regulations in the context of dental surgeries/clinics. The Approved Code of Practice and guidance gives detailed advice on the Ionising Radiations Regulations 1999. It provides detailed advice about the scope and duties of the requirements imposed by IRR99. It is aimed at employers with duties under the Regulations but should also be useful to others working in environments where ionising radiation is in use. The Regulations cover: Interpretation and general introduction; General principles and procedures; Arrangements for the management of radiation protection; Designated areas; Classification and monitoring of persons; Arrangements for the control of radioactive substances, articles and equipment; Duties of employees and miscellaneous. It also includes General guidance; the use of personal protective equipment (PPE); dose limitation; dose assessment; dose recording; medical surveillance; radioactive substances; medical exposure; radionuclides

The Ionising Radiation (Medical Exposure) Regulations 2000 and as amended 2011

State that practitioners and operators should have successfully completed training, including theoretical knowledge and practical experience in:

- Radiation production, radiation protection and statutory obligations relating to ionising radiations, as are relevant to their functions as practitioner or operator.
- Diagnostic radiology as relevant to their specific area of practice.

Duties of the Practitioner, Operator and Referrer — Regulation 5

7.1 **Regulation 5** sets out the respective responsibilities of practitioner, operators and referrers and makes clear that where the employer also acts in one or more of these roles concurrently, he is responsible accordingly. Points to note are as follows:

7.2 **Regulation 5(1)**

7.2.1 The practitioner and the operator must comply with the employer's procedures and where these include detailed standard operating procedures, they must be followed explicitly, eg patient identification and checking procedures. All those matters required by the Regulations to be in employers' procedures (Schedule 1) are binding.

7.3 **Regulation 5(3)**

7.3.1 This regulation deals with the allocation of responsibility for practical aspects of a medical exposure to specific individuals. The employer must set out in his procedures who will be entitled to act in this capacity. In doing so he should have due regard to professional roles and appropriate training. The person to whom a practical aspect has been allocated is responsible for that aspect (regulation 5(4)).

7.4 **Regulation 5(4)**

7.4.1 Those persons undertaking practical aspects (operators) are responsible under the Regulations for their functions. No overarching responsibility is held by another person.

Management of Health and Safety at Work Regulations

Under the Management of Health and Safety at Work Regulations 1999, employers must carry out a risk assessment and must have arrangements for the effective planning, organisation, control, monitoring and review of the preventive and protective measures. They must also provide their employees with adequate health and safety training. The Medical Devices Agency have recently published a helpful booklet on risk assessment related to devices for GPs and Dentists entitled *Devices in Practice: A Guide for Health and Social Care Professionals*.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/403401/Devices_in_practice.pdf

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995

RIDDOR requires the reporting of work-related accidents, diseases and dangerous occurrences. It applies to all work activities, but not to all incidents. The information collected enables the enforcing authorities to identify where and how risks arise and investigate serious accidents. The enforcing authorities can then help and advise on prevention action to reduce injury, ill health and accidental loss. Accidents (including physical violence) connected with work and which result in an over three day injury to an employee or self–employed person must be reported to the enforcing authority. Reportable work-related diseases must be reported to the enforcing authority under RIDDOR as should incidents or accidents which do not result in a reportable injury, but which clearly could have done.

Higher National Unit specification: support notes (cont)

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Further information and references which may be helpful to delivery are listed below.

There are a number of statutory and regulatory bodies which monitor aspects of NHS and/or private dentistry in Scotland. This includes monitoring quality of dental treatment, educational provision for newly-qualified dentists and quality of dental practices. Key regulatory bodies are listed below.

The General Dental Council (GDC) — regulates all dental care professionals (DCPs).
General Dental Council — www.gdc-uk.org

The Scottish Government — NHS practice inspections, compulsory audit. Guidance issued by the Scottish Government at http://www.gov.scot/Topics/Health
and the Scottish Dental Clinical Effectiveness Programme **www.sdcep.org.uk**

NHS Education for Scotland: develops and delivers education and training for those who work in NHS Scotland **www.nes.scot.nhs.uk**

Health and Safety Executive — the HSE's key role is to prevent death, injury and ill health in Great Britain's workplaces through research, information and advice, promoting training, new or revised regulations and codes of practice, inspection, investigation and enforcement **www.hse.org.uk**

It should be noted that the references given above are correct at the time of publication; however centres should ensure that learners have access to the most current and up to date publications and web sites.

Guidance on approaches to assessment of this Unit

Evidence can be generated using different types of assessment. The following are suggestions only. There may be other methods that would be more suitable to learners.

It is recommended that the Outcomes for this Unit be assessed holistically by way of an assessment paper (approx. 30 minutes) containing multiple choice, short answer and scenario based questions to cover all Outcomes.

Centres are reminded that prior verification of centre-devised assessments would help to ensure that the national standard is being met. Where learners experience a range of assessment methods, this helps them to develop different skills that should be transferable to work or further and higher education.

Opportunities for e-assessment

E-assessment may be appropriate for some assessments in this Unit. By e-assessment we mean assessment which is supported by Information and Communication Technology (ICT), such as e-testing or the use of e-portfolios or social software. Centres which wish to use e-assessment must ensure that the national standard is applied to all learner evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. The most up-to-date guidance on the use of e-assessment to support SQA's qualifications is available at **www.sqa.org.uk/e-assessment**.

Higher National Unit specification: support notes (cont)

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Opportunities for developing Core and other essential skills

There is no automatic certification of Core Skills or Core Skill components in this Unit. However, there are opportunities to develop aspects of *Communication, Numeracy, Information and Communication Technology (ICT)* and *Problem Solving.*

History of changes to Unit

Version	Description of change	Date

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General information for learners

Unit title: Dental Radiography (SCQF level 7)

This section will help you decide if this is the Unit for you by explaining what the Unit is about, what you should know or be able to do before you start, what you will need to do during the Unit and, where applicable, opportunities for further learning and employment.

This Unit has been designed to develop your knowledge and understanding of the current legislation and regulation relating to the safe use of ionising radiation in the production of radiographic films. You will also be introduced to the principles and techniques of handling and processing radiographs correctly.

Entry to this Unit is at the discretion of the centre, but it would be beneficial if you had previously achieved a science based Unit at SCQF level 4 or above.

There are four Outcomes to complete in this Unit, upon completion you should be able to:

1 Identify the regulations and describe hazards associated with ionising radiation.
2 Distinguish between the different radiographic films and describe their uses.
3 Describe the imaging process and identify the different chemicals used in radiography processing.
4 Explain the importance of effective quality control of radiographic films.

Assessment of this Unit may take the form of a short question paper containing multiple-choice, short answer, and scenario based questions to cover all Outcomes.

You will have the opportunity to develop your Core Skills in *Communication, Problem Solving, Information and Communication Technology (ICT) and Numeracy*.

This Unit is mandatory in the PDA in Dental Nursing at SCQF level 7. Completion of the PDA and the SVQ in Dental Nursing at level 3 may allow you to apply for registration as a Dental Care Professional with the General Dental Council.

Post registration qualifications are available for progression. These qualifications have been produced to reflect the General Dental Council's Scope of Practice for Dental Nurses.

Professional Development Awards in:

- Dental Nursing: Delivering Oral Health Interventions at SCQF level 8
- Dental Nursing: Supporting Special Care Provision at SCQF level 8
- Intravenous Sedation for Dental Care Professionals at SCQF level 8
- Orthodontic Dental Nursing at SCQF level 8
- Dental Care Professionals: Dental Laboratory Skills at SCQF level 8
- Recording Patient Assessment for Dental Care Professionals at SCQF level 8
- Oral Health Care: Dental Managers at SCQF level 8
- Dental Radiography (Operator) for Dental Care Professionals at SCQF level 9

Higher National Certificate (HNC) in:

- Oral Health Care at SCQF level 7

Higher National Diploma (HND) in

- Dental Nursing at SCQF level 8