



Higher National Unit specification: general information

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

Unit code: FN6G 35

Superclass: PF

Publication date: July 2011

Source: Scottish Qualifications Authority

Version: 01

Unit purpose

The Unit develops the knowledge and skills required to undertake dental examinations dependant on the individual pre requisite of each department. The Assistant Practitioner will study basic dental anatomy, basic dental pathology and two dental techniques specific to departmental requirements. It is aimed at those currently working under the supervision of a radiographer (registered with the Health Professions Council, HPC) as an Assistant Practitioner within a diagnostic service. An example would be clinical departments providing a dental imaging service.

On completion of this Unit candidates will be able to:

- 1 Describe basic dental anatomy and basic dental pathology.
- 2 Demonstrate a knowledge and understanding of dental equipment.
- 3 Demonstrate the ability to perform to diagnostic standards Dental Panoramic Tomographic (DPT) and Occlusal Radiographic examinations.
- 4 Apply the principles of infection control to dental radiographic examinations.

Recommended prior knowledge and skills

It is recommended that candidates should hold an HNC (SCQF level 7) or equivalent in Diagnostic Imaging and be able to demonstrate a minimum of one year post qualification as an Assistant Practitioner in Diagnostic Radiography.

General information (cont)

Credit points and level

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

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates*

Core Skills

Opportunities for the development of Core Skills will be identified during the course of the Unit, as will opportunities for generating evidence for Core Skills certification. There is no automatic certification of Core Skills in this Unit.

Context for delivery

The Unit will be delivered as a stand-alone Unit or as part of a Group Award — Professional Development Award (PDA) in Radiographic Imaging — and will be delivered by a clinical diagnostic radiographer currently registered with the Health Professions Council and practicing in the appropriate clinical area with recent experience of clinical assessment.

Assessment

It is recommended that the Outcomes within this Unit are assessed holistically through formative and summative Clinical Assessment. Candidates should be asked to assess patients' physical abilities with regards to positioning for dental radiography. They should be able to describe basic dental anatomy; basic dental pathology and dental film/image faults.

Candidates should be asked to demonstrate knowledge and understanding on appropriate clinical referral for dental examinations which have to be vetted by a Supervising Radiographer. They should be able to explain the use of the differing dental equipment and preparation prior to the examination and that they have the knowledge and skills to undertake both DPT and Occlusal radiographs and perform all post processing procedures requirements.

The evidence from these clinical assessments should demonstrate that all Evidence Requirements for each learning Outcome have been met.

Higher National Unit specification: statement of standards

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

Unit code: FN6G 35

Outcome 1

Describe basic dental anatomy and basic dental pathology.

Knowledge and/or Skills

- ◆ Basic dental anatomy of the mandible, maxilla, teeth and surrounding soft tissues
- ◆ World Dental Federation numbering system for tooth identification
- ◆ Common pathologies diagnosed in dental radiography
- ◆ Radiographic dental anatomy and dental pathology
- ◆ Referral process for DPT and occlusal radiography

Outcome 2

Demonstrate a knowledge and understanding of dental equipment.

Knowledge and/or Skills

- ◆ Components of DPT and intraoral X-ray equipment
- ◆ Principles of operation of the DPT Unit
- ◆ Principles of intraoral radiographic equipment
- ◆ Exposure factors and Diagnostic Reference Levels (DRLs)
- ◆ Quality Assurance (QA)
- ◆ Health and Safety

Outcome 3

Demonstrate the ability to perform to diagnostic standards dental panoramic tomography (DPT) and occlusal radiographic examinations

Knowledge and/or Skills

- ◆ Relative patient positioning of the patient cassette/detector/intra-oral film/intra oral detector
- ◆ Angle of X-ray beam for occlusal radiography
- ◆ Patient immobilisation
- ◆ Moving Handling
- ◆ Radiation protection
- ◆ Exposures

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

Outcome 4

Apply the principles of infection control to dental radiographic examinations.

Knowledge and/or Skills

- ◆ Infection control — patient contact
- ◆ Infection control — ancillary equipment
- ◆ Infection control — environment

Evidence Requirements for the Unit

The assessment of this Unit is holistic. Candidates will need to provide evidence to demonstrate their Knowledge and/or Skills across all Outcomes by showing that they can.

- ◆ describe the basic anatomy of the mandible, maxilla, teeth and surrounding soft tissues
- ◆ identify teeth using World Dental Federation numbering system
- ◆ discuss common pathologies diagnosed in dental radiography
- ◆ identify the anatomy of the mandible, maxilla, teeth and surrounding soft tissues and common pathologies on radiographic images
- ◆ discuss and critically evaluate clinical indications and patient history which would justify a referral for DPT and occlusal radiographs
- ◆ describe the main components of DPT and intraoral radiographic equipment
- ◆ demonstrate the safe use of DPT and intraoral radiographic Units
- ◆ discuss and demonstrate an understanding of the exposure factors used in DPT and intraoral radiographic Units
- ◆ discuss the use of different X-ray beam angles for all occlusal examinations
- ◆ detail the dangers of ionising radiation and the need to comply with legislation
- ◆ evaluate QA procedures and necessary actions if results unexpected
- ◆ describe and apply principles of ionising radiation protection including the use of personal protective equipment (PPE)
- ◆ detail the dangers of ionising radiation and the need to comply with legislation
- ◆ discuss any pertinent moving and handling issues which may be encountered when working with dental patients
- ◆ discuss difficulties with paediatric and edentulous patient.

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

For Dental Panoramic Tomography

- ◆ Describe patient positioning and production and quality of dental radiographic techniques
- ◆ Describe how a DPT image is produced
- ◆ Discuss exposure factors for DPT
- ◆ Image processing for DPT (digital and film, if applicable)
- ◆ Discuss importance of tongue position in DPT
- ◆ Describe planes of positioning and patient centering
- ◆ Describe and discuss use of any ancilliary equipment

For Occlusal Radiography

- ◆ Describe how the maxillary and mandibular occlusal image is produced
- ◆ Describe the different maxillary occlusal projections
- ◆ Describe different mandibular occlusal projections
- ◆ Exposure factors for each occlusal projection
- ◆ Describe patient head, occlusal plane position and X-ray tube angle for each projection
- ◆ Image processing — Digital and non digital — whichever is applicable to site
- ◆ Explain film/detector positioning in patient's mouth
- ◆ Discuss infection control processes necessary for each patient contact
- ◆ Evaluate all pertinent Health Environment issues which need to be addressed
- ◆ Describe general infection control measures specifically regarding X-ray equipment, plates/detectors and body fluids

The candidate must complete a minimum of **five** marked assessments of DPT examinations and **five** marked assessments of occlusal examinations.

Ten marked assessments must be completed successfully and the candidate must demonstrate that they can work unassisted through a range of increasingly complex examinations. Additionally, the candidate, themselves, must indicate that they feel confident in performing these examinations: if they require further summative Clinical Assessments, these will be continued until such time as the Candidate is satisfied with their own performance.

Higher National Unit specification: statement of standards (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

Assessment Guidelines

Holistic Unit Assessment for the Unit

All **four** Outcomes of this Unit can be assessed through clinical practice with appropriate questions used by the Assessing Radiographer and recorded in the log book. It is expected that various degrees of clinical complexity will be documented within the log book to demonstrate a diverse learning experience. The log book will also include reflection on practice by the student and feedback from the assessor; additionally, the candidate, themselves, must indicate that they feel confident in performing these examinations: if they require further summative Clinical Assessments, these will be continued until such time as the Candidate is satisfied with their own performance.

While practical training is essential, simulation and role play can be used to widen the practical experience in a safe and stress free environment. Additionally, knowledge can be enhanced through tutorials, discussions, guided reading and reflective practice.

Higher National Unit specification: support notes

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

This part of the Unit specification is offered as guidance. The support notes 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 is designed to prepare and support candidates for the type of role they may adopt or progress to by giving them the essential underpinning knowledge and skills. It is expected that candidates for this Unit will be currently working in a diagnostic imaging service as Assistant Practitioners

Whilst practical clinical training is essential simulation and role play can be used to widen the practical experience in a safe and stress free environment. Additionally, knowledge can be enhanced through tutorials, discussions, guided reading and reflective practice.

The candidates will be trained under supervision of a Health Professions Council registered radiographers and will be expected to gain competencies in undertaking DPT and Occlusal examinations on a range of patients with varying degrees of mobility and complexity. As a result, candidates are likely to be trained and assessed predominately with live case studies

Candidates will be aware of additional annotation to their membership of the Society and College of Radiographers (SCoR) with clear information of the extension of their skill level.

Useful information to help with this Unit can be found in:

www.sor.org (Society and College of Radiographers)

www.BIR.ac.uk (British Institute of Radiology)

www.RCR.ac.uk (Royal College of Radiologists)

www.hpa.org (Health Protection Agency)

www.gdc.ac.uk (General Dental Council)

www.healthcare-assistants.co.uk

Higher National Unit specification: support notes (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

Publications

Essentials of Dental Radiography and Radiology. Eric Whaites, Churchill Livingstone (fourth edition)

Professional Journals

*Synergy: Imaging and Therapy Practice
Radiography
Clinical Oncology
British Dental Association Journal*

Guidance on the delivery and assessment of this Unit

This Unit is aimed at those currently working under the supervision of Health Professions Council registered Radiographers as Assistant Practitioners within a diagnostic service.

Initially, previous knowledge will need to be refreshed, particularly in the following areas:

- ◆ Ionising Radiation (Medical Exposure) Regulations (IR(ME)R)
- ◆ control of infection
- ◆ communication skills — verbal, non verbal and written
- ◆ Departmental Radiology Information System
- ◆ Departmental Standard Operating Protocols
- ◆ policies on confidentiality

The delivery of this Unit will be undertaken in the clinical setting by HPC registered radiographers, who are currently practicing in Dental Radiography and have experience of undertaking clinical assessments, and will encompass practical in-house training, formative and summative clinical assessment. All four Outcomes of this Unit will be assessed through clinical practice with appropriate questions used by the Assessing Radiographer and recorded in the log book. It is expected that various degrees of clinical complexity will be documented within the log book to demonstrate a diverse learning experience. The log book will also include reflection on practice by the student and feedback from the assessor; this will culminate in a detailed pathway to the competence of the student.

While practical training is essential, simulation and role play can be used to widen the practical experience in a safe and stress free environment. Additionally, knowledge can be enhanced through tutorials, discussions, guided reading and reflective practice.

Candidates are expected to undertake self directed learning and are recommended to use the websites and journals listed above, as the text book mentioned under publications will be the best source of information for the candidates.

Higher National Unit specification: support notes (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

Outcome 1

Describe basic dental anatomy and basic dental pathology.

The candidate should be able to describe basic anatomy of the mandible, maxilla, teeth and surrounding soft tissues. They should also be able to identify the teeth using the World Dental Federation numbering system. The candidate should be able to indicate the anatomical structures of the mandible, maxilla, teeth and surrounding soft tissues on the radiographic images, Dental Panoramic Tomography (DPT) and Occlusal radiographs.

They should be able to discuss, describe and highlight common basic dental anatomy and basic dental pathology on radiographic images Dental Panoramic Tomography (DPT) and occlusal radiographs.

Outcome 2

Demonstrate a knowledge and understanding of dental equipment.

The candidate should be able to identify and detail the main components of DPT and intraoral Units including positioning devices, ancillary equipment and control panels, also identify when and why the different Units would be utilised. They should also be able to demonstrate the safe use of the DPT and intraoral Units, taking into consideration the range of movement and possible collision damage. The candidate should be able to demonstrate the ability to change and an understanding of the exposure factors used, including the difference between exposure selections for paediatric, adult and edentulous patients.

Outcome 3

Demonstrate the ability to perform to diagnostic standards Dental Panoramic Tomography and Occlusal Radiography.

The candidate should be able to demonstrate practical knowledge and skills to achieve a diagnostic image and be able to discuss with the radiographer mentor the resultant image and complete assessments with reflective practice to validate this.

For Dental Panoramic Tomography, the candidate should demonstrate the ability to produce DPT images of diagnostic quality. They should be able to describe how a DPT image is produced, including accurate patient positioning, the importance of the tongue position and the selection of the correct exposure factors. The candidate should be able to demonstrate image acquisition for digital images and processing for non-digital (film).

For Occlusal Radiography, the candidate should demonstrate the ability to produce occlusal images of diagnostic quality. They should be able to describe how an occlusal image is produced, including accurate patient positioning for mandibular and maxillary projections, the challenges in dealing with paediatric and edentulous patients and the selection of the correct X-ray tube angle and exposure factors pertinent to area of examination. The candidate should be able to demonstrate image acquisition for digital images and processing for non-digital (film).

Higher National Unit specification: support notes (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

Outcome 4

Demonstrate the application of the principles of infection control to Dental Radiography.

The candidate should be able to demonstrate the ability to deal with the specific infection control issues relating to Dental Radiography including cleaning of the Units, protection of the bite blocks, sensors/films etc, the disposal of single use devices and the process for sending multiple use devices for sterilisation.

It is recommended that candidates should be able to discuss all necessary infection control issues with specific reference to body fluids and safe disposal of clinical waste; prepare the patient to undergo DPT and Occlusal radiography and carry out the examinations, unaided by the supervising radiographer. Candidates should be able to discuss patient positioning for both DPT and Occlusal examinations, X-ray tube angles, centering points and exposure factors for a range of patient ages.

Candidates may be asked to discuss and identify the technical aspects of the examination and carry out a reflective analysis of their own performance.

Assessment

The practical element of the Unit should commence with the candidate observing the Radiographers undertaking Dental Panoramic Tomography and Occlusal Radiography, with post-examination discussion including evaluation of the image. This could be followed by some examination simulation so that the candidate has time to analyse and reflect on the experience and discuss with the Radiographer.

Formatively, this could then be applied practically, through Clinical Assessment, with cases selected by the Supervising Radiographer commencing with fairly simple complexity and progressing through varying levels of complexity with regard to patient positioning. The Clinical Assessment should include clear discussion on the technical aspects of patient positioning, equipment positioning and centring points. The Assessor should also evaluate the effectiveness of communication throughout the examination. The Clinical Assessments should be used to allow the candidate to reflect on their performance during an examination and can be used to direct the candidate towards a level of confidence for initiating the summative clinical assessments. This must be agreed by both the candidate and the Supervising Radiographer.

Although the Supervising Radiographer will check the final images, the Assistant Practitioner must be able to recognise good and substandard techniques in a comprehensive way and also assess the Outcome.

Higher National Unit specification: support notes (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

The number of Clinical Assessments completed is not critical but, following formative assessment, a minimum of five marked assessments of DPT examinations and 5 marked assessments of occlusal radiographs must be completed successfully and the candidate must demonstrate that they can work unassisted through a range of increasingly complex examinations. Additionally, the candidate, themselves, must indicate that they feel confident in performing these examinations: if they require further summative Clinical Assessments, these will be continued until such time as the Candidate is satisfied with their own performance.

Open learning

Not applicable.

Opportunities for the use of 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 e-checklists. Centres which wish to use e-assessment must ensure that the national standard is applied to all candidate evidence and that conditions of assessment as specified in the Evidence Requirements are met, regardless of the mode of gathering evidence. Further advice is available in *SQA Guidelines on Online Assessment for Further Education (AA1641, March 2003)*, *SQA Guidelines on e-assessment for Schools (BD2625, June 2005)*.

Opportunities for developing Core Skills

There are no opportunities to develop Core Skills in this Unit.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website www.sqa.org.uk/assessmentarrangements.

History of changes to Unit

Version	Description of change	Date

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General information for candidates

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

This Unit is designed to train and support Assistant Practitioners, working clinically in a diagnostic service, to perform Dental Radiography.

Dental Panoramic Tomography and Intraoral Units use ionising radiation to produce the image, therefore, an understanding of the responsibilities of using ionising radiation is important to protect you, your patients and colleagues. This Unit will study how to use ionising radiation safely by applying the local rules, protocols and ionising radiation regulations.

The candidate is required to gain competencies in undertaking Dental Radiography on a range of patients with various clinical conditions.

Dental Panoramic Tomography and Intraoral Units, accessories and computing software, will be covered to ensure the candidate has a thorough knowledge and understanding of the equipment they may be expected to utilise in clinical practice.

Initially, previous knowledge will need to be refreshed, particularly in the following areas:

- ◆ Ionising Radiation (Medical Exposure) Regulations (IR(ME)R)
- ◆ control of infection
- ◆ communication skills — verbal, non verbal and written
- ◆ Departmental Radiology Information System
- ◆ Departmental Standard Operating Protocols
- ◆ policies on confidentiality

The Outcomes within this Unit will be assessed holistically through formative and summative Clinical Assessment.

The candidate should be able to describe the basic anatomy of the mandible, maxilla, teeth and surrounding soft tissues. They should also be able to identify the teeth using the World Dental Federation numbering system. The candidate should be able to indicate the anatomical structures of the mandible, maxilla, teeth and surrounding soft tissues on the radiographic images, Dental Panoramic Tomography (DPT) and Occlusal radiographs.

They should be able to discuss and describe basic radiographic dental anatomy and basic dental pathology and highlight these on the Dental Panoramic Tomography (DPT) and occlusal radiographic images.

The candidate should be able to identify and detail the main components of DPT and intraoral Units including positioning devices, X-ray tube, ancillary equipment and control panels, also identify when and why the different Units would be utilised. They should also be able to demonstrate the safe use of the DPT and intraoral Units, taking into consideration the range of movement and possible collision damage. The candidate should be able to demonstrate the ability to change and have an understanding of the exposure factors used, including the difference between exposure selections for paediatric, adult and edentulous patients.

General information for candidates (cont)

Unit title: Dental Radiography for the Assistant Practitioner: Dental Panoramic Tomography (DPT) and Dental Occlusal Radiography

The candidate should be able to demonstrate practical knowledge and skills to achieve a diagnostic image and be able to discuss with the radiographer mentor the resultant image and complete assessments with reflective practice to validate this.

For Dental Panoramic Tomography, the candidate should demonstrate the ability to produce DPT images of diagnostic quality. They should be able to describe how a DPT image is produced, including accurate patient positioning, the importance of the tongue position the selection of the correct exposure factors. The candidate should be able to demonstrate image acquisition for digital images and processing for non-digital (film).

For Occlusal Radiography, the candidate should demonstrate the ability to produce occlusal images of diagnostic quality. They should be able to describe how an occlusal image is produced, including accurate patient positioning for mandibular and maxillary projections, the difference in the position and angle of X-ray tube and importance of the correct selection of X-ray exposures for mandibular and maxillary projections explaining the challenges in dealing with paediatric and edentulous. The candidate should be able to demonstrate image acquisition for digital images and processing for non-digital (film).

The candidate should be able to demonstrate the ability to deal with the specific infection control issues relating to Dental Radiography including cleaning of the Units, protection of the bite blocks, sensors/films etc, the disposal of single use devices and the process for sending multiple use devices for sterilisation.

The candidate will be assessed through a series of clinical assessments. The number of Clinical Assessments completed is not critical but, following formative assessment, a minimum of five marked assessments of DPT examinations and five marked assessments of occlusal examinations.

Ten marked assessments must be completed successfully and the candidate must demonstrate that they can work unassisted through a range of increasingly complex examinations. Additionally, the candidate, themselves, must indicate that they feel confident in performing these examinations: if they require further summative Clinical Assessments, these will be continued until such time as the Candidate is satisfied with their own performance.