

Justification, Optimisation and Interpretation in Medical Imaging

Module Code:	RAD6001-C
Academic Year:	2018-19
Credit Rating:	30
School:	School of Allied Health Professions and Midwifery
Subject Area:	Radiography
FHEQ Level:	FHEQ Level 6
Module Leader:	Mr Stephen Boynes

Additional Tutors:

Mr Andrew Scally, Mrs Gillian Clough, Kayleigh Hackett, Mr Terry Lodge

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Lectures	45
Tutorials	30
Laboratory	1
Directed Study	87
Other (DO NOT USE)	135
Examinations DO NOT USE	2

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Academic Year (Sept - May)

Module Aims

To further develop the students' understanding of the biological and health effects of ionising radiation and the principles and practice of radiation protection and apply this to

referral, justification and optimisation in medical imaging. To enable the student to provide a clinical evaluation of medical images in line with current ionising radiation regulations.

Outline Syllabus

Molecular and cell biology; radiobiology: effects of ionising radiation on molecules, the cell, individuals and populations.

Radiation dose quantities and their uses, evaluating and making sense of radiation dose in society, diagnostic imaging, and other areas of medicine. The concepts of detriment and risk, radiation protection philosophy, directives and legislation as they apply to clinical practice, influence of radiation protection legislation on radiographic practice. Respect for the human rights of future generations by the safe use of radiation.

Terminology to describe and explain normal and abnormal medical imaging appearances; communication of clinically relevant diagnostic image information in written comments; trauma mechanisms and pathologic processes and their effects as demonstrated on medical images.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1
 - 1.1 With respect to appearances seen on a standard medical imaging study, demonstrate ability to correlate anatomical changes with mechanisms of injury and disease processes.
 - 1.2 With respect to appearances seen on a standard medical imaging study critically evaluate the requirements of existing legislation and apply principles to the protection of all categories of person from the hazardous effects of ionising radiation.
 - 1.3 With respect to appearances seen on a standard medical imaging study critically evaluate the sources of uncertainty in scientific research on human populations and future generations, with specific reference to the estimation of radiation dose, risk and detriment.
- 2
 - 2.1 Critically evaluate diagnostic images and differentiate normal and abnormal appearances
 - 2.2 Interpret medical imaging appearances and formulate a comment using appropriate terminology
 - 2.3 Apply radiological protection and dosimetry principles to radiographic practice and critically appraise working practices
 - 2.4 Apply the general requirements of health & safety legislation.
- 3
 - 3.1 Communicate complex information accurately and effectively
 - 3.2 Solve problems through the application of knowledge and skills

Learning, Teaching and Assessment Strategy

Lectures: will focus on the key theoretical knowledge of biological and health effects of ionising radiation and the principles and practice of radiation protection.

Tutorials will be undertaken using the PACS facility. Students will be guided by their tutor through the medical image library and facilitated to develop the skills required for image interpretation; they will be prepared for the OSCE. Students will study, in depth, issues around radiation dose, risk and detriment and evaluate legislation and the application of

principles of radiation protection in practice. Achievement of learning outcomes LO 1.2, 1.3.

will be assessed in a one hour computer delivered MCQ. Directed study and undertake clinical learning objectives both of which will support their learning and assess achievement of learning outcomes LO2.3, 3.1, 3.2, 2.4.

Students undertake simulated clinical evaluations (learning outcomes LO1.1, 2.1, 2.2).

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Computerised examination	Electronic MCQ	1 hour	50%	No
Summative	Computer-based assessment	OSCE interpretation of medical images and comment	2 hours	50%	No
Summative	Clinical Assessment	Sem 1. Professional Development Portfolio Pass/Fail all elements	0 hours	%	No
Summative	Clinical Assessment	Sem 2. Professional Development Portfolio Pass/Fail all elements	0 hours	%	Yes

Legacy Code (if applicable)

HR-6000U

Reading List

To view Reading List, please go to [rebus:list](#).