The Integrated Radiology Workshop and Simulation Exercise "IRWSE": incorporating the RCR UK Undergraduate Curriculum into Student Teaching

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INTRODUCTION

• The medical students’ experience in radiology typically occurs around bedside teaching, didactic lectures or with electronic learning resources – there is great variation.
• Simulation based techniques to teach radiology are also varied: these include dynamic, interactive work stations to the use of simulation computer based trainers.
• It is difficult to objectively measure the effectiveness of clinical simulation - this is recognised by the Royal College of Radiology in November 2010. Despite this difficulty, simulation has a proven track record in non-clinical settings such as the aviation industry.
• The nature of training and work patterns in radiology can ensure a seamless integration of simulation teaching into undergraduate radiology curricula.

Learning opportunities in this workshop include:
1. A once per week, eight week teaching schedule.
2. Integrating theoretical knowledge into practice using a simulation based exercise.
3. Exercising the use of various communication modalities used in radiology for example verbal and written requests, analysis of written reports and PACS.
4. A dynamic exposure to radiology as a specialty.

OBJECTIVES

Primary
1. To describe our experience at integrating the 2nd edition of the Royal College of Radiologists (RCR) United Kingdom undergraduate curriculum (Jan 2017) into final year medical student teaching.
2. Teaching involved integration of a structured radiology workshop and simulation exercise.

Secondary
1. Could attendance at this teaching enhance communication skills?
2. Could this teaching enhance the recognition and management of radiographic emergencies?
3. Could this workshop provide insight into a potential future career as a radiologist?

CONCLUSION

1. A structured and curriculum focused teaching, coupled with simulation based activities sets a basis for positive learning experiences in medical students.
2. Structured teaching coupled with low fidelity simulation activities enhances confidence in final year medical students when interpreting basic imaging.
3. In addition, these learning experiences may enhance foundation doctor oral/written communication skills when questioning or reviewing imaging.
4. The exposure to radiologists in this workshop is likely to inspire a future career in radiology.

Part 1 - RADIOLOGY WORKSHOP

The workshop comprised weekly, interactive visual lecture series spanning eight weeks.

Standardised lesson plans, teaching techniques and feedback methods were used. The RCR UK curriculum (Jan 2017) was consulted extensively to determine learning objectives for topics.

Subject topics included: thorax, gastrointestinal, breast, musculoskeletal, genitourinary, gynaecology, neurology, polytrauma and radiation protection.

Five to twenty students attended per teaching session between Sept – Nov 2017 & Feb – Apr 2018 (All responses for every feedback question per session were collated and analysed, n=320 responses)

Part 2 - SIMULATION EXERCISE AND DEBRIEFING: METHOD & RESULTS

The simulation exercise (n=30 students) ran alongside the following themes

- HOW DID IT GO
- TECHNOLOGY
- ASSESSMENT
- RISKS
- CASES
- DEBRIEFING

Adapted “SHARP MODEL” of DEBRIEFING

- "HOW DID IT GO" – ADDRESS CONCERNS - REVIEW LEARNING PLANS - POINT AHEAD – ESTABLISHED LEARNING ENVIRONMENT
- "TECHNOLOGY" – ENGAGED LEARNERS
- "ASSESSMENT" – ESTABLISHED LEARNING ENVIRONMENT
- "RISKS" – ENGAGED LEARNERS
- "CASES" – ENGAGED LEARNERS
- "DEBRIEFING" – ENGAGED LEARNERS

OVER 95% OF STUDENTS AGREED THAT SESSIONS INCREASED THEIR SELF CONFIDENCE IN RELEVANT IMAGING DURING TRAINING

OVER 95% OF STUDENTS AGREED THAT TEACHING SESSIONS ENCOURAGED AND PROMOTED A FURTHER REVOLUTION OF RADIOLOGY

OVER 95% OF STUDENTS AGREED THAT TEACHING WAS RELATIVE TO THEIR TRAINING, WAS OF A HIGH QUALITY AND SHOULD BE USED IN FUTURE WORKSHOPS

Fig 1 & 2: Medical student feedback following completion of Simulation Exercise (Sept - Nov 2017 and Feb - Apr 2018): n=30 students

POSITIVE TERMS ON COMPLETION OF SIMULATION:
- "HAPPY", "RELIEVED", "SUCCESSFUL", "EXCITED", "ENJOYABLE EXPERIENCE"

Fig 2

CONSULT RCR UK UNDERGRADUATE CURRICULUM: LEARNING OBJECTIVES/LESSON PLAN FORMULATED

PART 1: RUN ONCE WEEKLY TEACHING SESSION/ RADIOLOGY WORKSHOPS (4 x 2 hours)

PART 2: RUN A 1/2 DAY SIMULATION EXERCISE AFTER COMPLETING RADIOLOGY WORKSHOP (OSCE STYLE)

1. PREPARE “SHARP 5 STEP FEEDBACK TOOL”
2. REVIEW QUALITY OF DEBRIEFING PROVIDED (OSAD tool)

Q2: Did your self-confidence increase after the workshop?
- Yes 24%
- No 76%

Q3: Did the exercises help you to learn from your mistakes?
- Yes 28%
- No 72%

Q4: Did the radiology teaching sessions provide an appropriate learning environment?
- Yes 92%
- No 8%