

Proposal for Implementing the Undergraduate Radiology Curriculum within the Spiral Curriculum

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Background

- Whilst radiology education objectives for undergraduate medical students have been outlined (Robinson, 2022), development of teaching content and expected learning progression within the spiral curriculum (Bruner, 1960) is not well defined.
- This lack of clarity leads to inadequate constructive alignment (Kandlbinder, 2014) between radiology curriculum and student learning objectives at different stages of medical course, and consequently to varied levels of radiology education.
- Feedback from radiology teaching at a regional clinical placement showed students' and teachers' discontent with lack of structured teaching and guidance within spiral curriculum on expected learning outcomes for year 4 medical students.

Results

New radiology course developed in collaboration with radiologists:

Session 1: Indications for radiology tests (*safe referrals*)

Session 2: Chest X-Rays (*LRTI, pneumonia, cardiac failure, pneumothorax*)

Session 3: MSK X-Rays (*fractures*)

Session 4: Student-led case discussions

Session 5: CT head (*stroke, haemorrhage*)

Session 6: Abdominal X-Rays (*intestinal obstruction, ileus, constipation, stones*)

Preliminary feedback (sample of 3 students) post implementation of the course:

- Prior radiology educational exposure **varied** between students.
- Received teaching content was found **adequate or challenging** and topics **relevant** for year 4 medical students.
- The course was felt to **complement previous university teaching**.
- Further development of the course with **introduction of pre-reading materials** for each session has been suggested.

Development of additional learning resources

A handout describing and supplementing each session in the radiology course is being developed. Teaching materials are organised to encompass the following aspects:

Assessment guide → Introduction of a normal image → Revision of anatomy → Pathology examples



Methods

Medical students

- Small groups of year 4 students undertook placement at a regional hospital.
- Students attended weekly radiology teaching session and subsequently provided feedback.

Medical Education Team

The available data was collated and analysed, i.e.:

- student feedback
- Royal Society of Radiology undergraduate curriculum
- list of students' clinical learning objectives to achieve during placements in year 4 of medical course.

A new radiology course was developed aligning the above findings.

Radiologists

- Initial weekly teaching content was created by radiology team with no guidance from medical education team.
- Radiology team then participated in the review of the programme, contributed to developing the new lesson plan and created further teaching materials to meet the objectives in the new lesson plan.

Conclusions and Learning Points

- Introduction of a radiology course aligned with student's curriculum leads to better learning experience and greater student satisfaction with the clinical placement.
- Formal lesson plan facilitates delivery of structured radiology teaching and enhances teacher's ability to meet students' expectations.
- The course will continue being piloted, evaluated and refined upon arrival of new cohorts of students on regional placement.
- Future feedback supportive of the course will be presented to Clinical School and form the basis for its wider implementation among other regional centers to standardise student learning experiences.

References

Bruner, J. S. 1960. *The process of education*. Cambridge, MA, Harvard University Press.
 Kandlbinder, P. 2014. Constructive alignment in university teaching. *HERDSA News*, 36, 5-6.
 Robinson, E. 2022. A practical guide to undergraduate radiology education. *Clinical Radiology*, 77, e826-e834.