Confidence in Radiology Interpretation of Undergraduates Taught at the University Hospital of North Durham

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Introduction

Radiological interpretation can often be a source of anxiety for medical students but it is a skill that Doctors frequently take for granted. At Newcastle Medical School students are introduced to radiology through case studies in the pre-clinical years of Stage 1 and 2. Stage 3 is the first time when learning outcomes are directed towards radiological interpretation. Stage 4 consolidates this knowledge with Clinical Sciences and Investigative Medicine module and Stage 5 has further outcomes related to radiological interpretation.

The MBBS course at Newcastle is structured so that the pre-clinical years are delivered centrally at Newcastle or the Queen's campus of the University of Durham, Stages 3 and 5 are delivered at one of four base units across the North East and Stage 4 is again taught centrally with much of the year dedicated to Student Selected Components.

The University Hospital of North Durham (UHND) is one of three hospitals in the Wear base unit. The teaching team at UHND are primarily concerned with teaching Stage 3 students and 5 Hospital Based Practice (HBP) students. UHND teaches two HBP groups between January and June each year. As the students in these groups are considered to be at the end of their medical school lives it is these students that this research has focused on. The radiology learning outcomes for final year attachments in medicine and surgery in Hospital Based Practice (HBP) include the interpretation of radiographs demonstrating common fractures of femur, spine and wrist and the interpretation of plain chest and abdominal radiographs demonstrating common problems such as heart failure, pneumothorax, consolidation and bowel obstruction. A programme was devised that addressed these outcomes and divided the interpretation of abdominal plain radiology into gastrointestinal origin and renal tract so that a session was given on the abdominal X ray and the 'KUB' even though essentially they are the same examination.

We wished to evaluate the students views on the radiology teaching received whilst being taught in their final year at UHND.

Methods

At the end of each HBP placement, we surveyed the HBP students asking their opinions via questionnaire. They were asked with regard to the number of radiology teaching sessions they had received and their confidence in interpreting imaging now. There was an opportunity for free text. This was done in hard copy to enable data collection. Results were collated in a database and are presented below. As this was course evaluation no ethical approval was required.

Results

A response rate of 76.4% (39 of the 51) was obtained. 16 (41%) of students felt that they had more than 10 sessions on radiology teaching throughout their five years at medical school, 13 (33.3%) thought they had 7-10 sessions and 10 (25.6%) thought they had 3-6 sessions.

Most students (82%) felt confident in interpreting chest X-rays whilst more than half (56.4%) felt comfortable with abdominal X-rays. This was reflected in the areas people felt weak in as only three (7.7%) students felt weak in interpreting chest X-rays. Eleven students (28.2%) felt weak in interpreting abdominal X-rays but a large proportion (76.9%) felt uncomfortable

with neurological imaging and a significant proportion (43.5%) of students found KUB interpretation difficult.

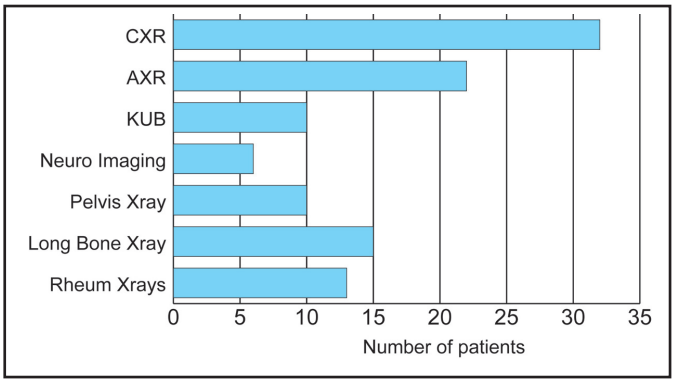

Figure 1. *Number of students confident interpreting images*

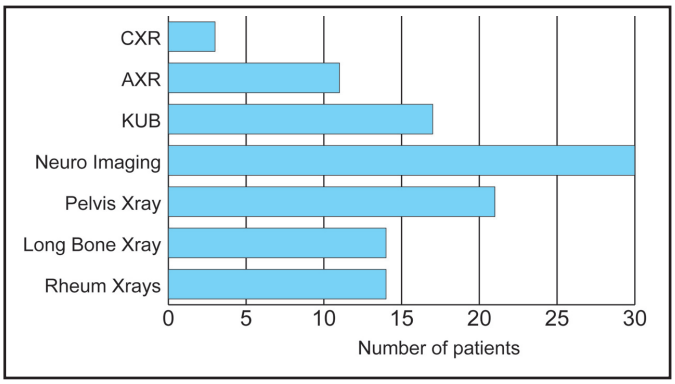

Figure 2. *Number of students uncomfortable interpreting images.*

Thirty one students (79.4%) felt that radiology teaching had been relevant. Twenty seven students (69.2%) felt prepared to enough to use their radiological interpretation skills as a doctor.

In the free text section of the questionnaire the following comments were made:

- 'Need to see more of what is normal.'
- 'Making Xrays relevant to the clinical presentation makes it more interesting. Common Xrays encountered in clinical practice.'
- 'More CT teaching.'
- 'Chest and abdo are done repeatedly while KUB/pelvic and rheumatology are left out. KUB especially.'
- 'Still cannot work out CTs/MRIs.'
- 'I feel more exposure to radiology throughout medical school would be very beneficial.'
- 'The best teaching is relevant and case orientated.'
- 'CXRs are still difficult-I don't think there is any harm in having even more CXR teaching.'
- 'Some of the teaching was not as relevant to F1 roles as it could have been.'

Discussion

It is difficult to comment on the total number of sessions attended by each student as this varies between hospitals and base units, however, if students had undertaken Stage 3 and Stage 5 at UHND they would have had the opportunity to attend 24 teaching sessions on radiology over the course of the five years. This contrasts with two thirds (66.6%) of students who felt that they had received between three and ten sessions on radiology.

The UHND radiology timetable perhaps reflects why students felt most confident in their interpretation of chest X-rays as six of the formal teaching sessions were based around chest X-rays. The majority of learning outcomes are focused on the interpretation of chest X-rays with three out of seven radiological learning outcomes in HBP involving chest X-ray.

A large proportion of students felt weak at interpreting neurological images and this was also commented on twice in the free text section. However, the only learning outcome within the Newcastle medical curriculum based on Neurological Image interpretation is to 'differentiate between ischaemic and haemorrhagic stroke on CT scan'. This perhaps reflects a misconception of what the students will

be expected to do as F1 doctors as radiological diagnosis of stroke is left to more experienced doctors or Radiologists.

30.8% of students did not feel prepared enough to use their radiological interpretation skills as a doctor. It is unclear as to why these students felt unprepared as only two students who said this made comments in the free text.

The free text offers some constructive feedback, particularly the points that highlight the importance of having case orientated teaching.

This evaluative research is limited as it was confined to UHND. Also, Stage 5 students at UHND have undertaken their Stage 3 teaching in a different base unit therefore the research is not strictly evaluative of teaching just delivered at UHND. This project could be made more useful and comprehensive by asking all Stage 5 students to complete the questionnaire.

Conclusion

Staff in teaching roles need to ensure students are aware of relevant learning outcomes and have realistic expectations of what they will be doing as junior doctors. Efforts should be made to deliver teaching in a case-centred manner and ensure students are able to identify the features of common or important abnormalities in radiology.