Radiography xxx (2018) 1–5

Contents lists available at ScienceDirect

Radiography

journal homepage: www.elsevier.com/locate/radi

Newly qualified radiographers' perceptions of their abnormality detection abilities and the associated training they received at undergraduate level

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ARTICLE INFO

Article history:
Received 25 October 2017
Received in revised form
8 January 2018
Accepted 13 January 2018
Available online xxx

Keywords:
Preliminary clinical evaluation
Abnormality detection
Newly qualified radiographers
Undergraduate training
Clinical practice

ABSTRACT

Introduction: Abnormality detection system use across National Health Service (NHS) hospitals is widespread with radiographer participation considered as fundamental to the role. The "red dot" system is evolving towards the preliminary clinical evaluation (PCE) system. Newly qualified radiographers will be expected to be able to provide accurate descriptive comments. Confidence and training issues may hinder implementation of the PCE system.

Method: An online quantitative survey approach was used. Participants were sought from 24 major trauma centres (MTC) across England. The sample frame was defined as radiographers who had been qualified less than 2 years. Approval to approach was granted by all local Research & Development departments. Cross-tabulation and correlational statistical analyses were undertaken.

Results: Approval to approach radiographers was granted in 17 of the 24 MTCs yielding 85 participants, 63 females and 22 males. The large majority are confident with their red dot skills. Strong correlation exists between university training and PCE confidence. However, almost a third of participants are not confident in describing abnormalities. Thirty percent of participants thought PCE training at university was not suitable, and 55% thought PCE training on placement was not suitable.

Conclusion: While red dot training at university and placement is considered suitable as it positively affects confidence, participants' views on PCE training are more variable. At university PCE training positively influences confidence in describing abnormalities, but commenting training on placement is recognised as an area for improvement. A larger study is suggested to gain further understanding of any issues hindering widespread PCE implementation.

Introduction

Abnormality detection systems in trauma radiography have been established in the National Health Service (NHS) for a number of years[1] and participation in these is now considered a fundamental aspect of the radiographer's role. The evolution of the classic "red dot" system has led to the inception of the preliminary clinical evaluation (PCE) system, which through provision of a comment specifying the abnormality is thought to improve the communication of abnormal findings.[2] Inherent in this, newly qualified radiographers will invariably be expected to participate in an abnormality detection system upon commencing their first post. The idea of radiographers providing a written comment to supplement the abnormality detection system has been encouraged for a number of years,[2] though for this to become established as normal practice a number of issues need to be appreciated.

While the Society and College of Radiographers (SCoR) propose that all trauma radiographs should receive an immediate PCE,[2] acknowledgment must be given to the confidence and education issues[3] that may hinder widespread implementation of this policy, specifically those relative to newly qualified radiographers. It is important to recognise that the self-perceived confidence of a graduate radiographer, or lack thereof, may not necessarily correlate to an individual's actual abnormality detection ability. Recent work has shown that the abilities of graduate radiographers to recognise and describe abnormalities upon commencing their first post can be improved with focused training during the preceptorship period.[4] In view of this, it is not unreasonable to expect undergraduate training to instil the necessary skills and knowledge to

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https://doi.org/10.1016/j.radi.2018.01.004
1078-8174/

allow radiographers to contribute effectively in an abnormality detection system.

The theory and academic training of PCE skills within the university setting is traditionally consolidated by clinical practice-based experiences. All 19 responses from a survey of the 24 Higher Education Institutions (HEIs) that provide radiography education indicated that their curriculum includes image interpretation teaching.[5] However, given that this survey is 6 years older than the current SCoR PCE document,[2] it is likely that HEI curricula will have progressed to coincide with the transition from red dot to commenting to reflect professional body policy. Although, the extent of university education that is dedicated to image interpretation is likely to vary due to variations of course design and content within each HEI. The views of radiology managers suggest that graduates seek career pathways away from general radiography, implying that the educational desires of students are shifting with a need for flexible teaching pathways.[6] Restructuring curricula to reflect this shift may lead to reduced opportunities for image interpretation training at undergraduate level and illustrates the potential of clinical experiences on placement in supplementing theoretical teaching.

Recent research has indicated that only 18.7% (n = 61/325) of NHS hospitals utilise a commenting system to communicate abnormal findings with 57.4% (n = 35) limited to musculoskeletal (MSK) examinations, 18% (n = 11) to MSK and chest examinations, and 21.3% (n = 13) commenting on all radiographic examinations.[7] The wide variations of practice and lack of local guidance regarding implementation are seen as potentially causing confusion and error.[7] This is perhaps the leading factor preventing widespread implementation. The low uptake of a PCE system within students' placement hospitals prevents the opportunity to reinforce these skills in the clinical setting. The combination of training at university and on placement is a key aspect of developing autonomous practitioners, as such a balance should be sought between theoretical input and experiential learning.[8] The purpose of learning is to develop students with the necessary skills and abilities to fulfil the requirements set out by the statutory body.[9] Professional body guidance[10] outlines an educational framework with clear values for developing individuals in a personal and professional manner in order to meet the workforce requirements. Undergraduate programmes do provide image interpretation education and students are assessed in line with the programme requirements. Considering the reduced implementation of PCE systems though, the depth of commenting experience accrued by students on placement may not be satisfactory to support and develop their skills and knowledge to the required levels.

The current suggested level of training and experience required to partake in a PCE system omits newly qualified radiographers from participating. SCoR guidance states that the knowledge, skills and responsibilities associated with participation in a PCE are consistent with Agenda for Change pay band six or equivalent.[2] It could be construed that undergraduate education is not considered to adequately train students for immediate participation in PCE. Strict adherence to this guidance may prove problematic. According to workforce census data gathered by the SCoR[11] pay band six provides on average 27.8 whole time equivalent (WTE) radiographers per department, band seven provides 16.9 WTE radiographers, while band five provides only 13.6 WTE radiographers. However, band 6 radiographers are likely based across other modalities not just general radiography, and band 7 radiographers are reported as only spending 50% of their time undertaking clinical duties,[11] whereas band 5 radiographers will be predominantly based in general radiography. Consequently, large proportions of examinations will be undertaken by band five radiographers and would not receive an immediate comment.

Irrespective of the pay band recommendation, SCoR guidance reiterates that participation in PCE is a core competence for all radiographers.[2] The ability of radiographers to provide descriptive comments of traumatic abnormalities has previously been reported as being better than emergency practitioners,[12] subsequently the inclusion of commenting skill as a core competency may not be of concern. However, the issue of whether undergraduate education provides the requisite level of training for radiographers to be accurate in describing abnormalities is prevalent. The study by Neep et al.[13] reports that radiographers have difficulties in converting their observations into words, with a belief that additional education is required to be able to provide a descriptive comment. A point verified by earlier work which indicated that interpretive accuracy is reduced when tasked with describing traumatic abnormalities.[14] An observer study utilising 18 radiographers has previously indicated that image interpretation ability improves following additional training with increases in sensitivity (+9% to 69%) and specificity (+10% to 83%).[15] Subsequently, support is strong for the notion of additional training being a necessity. A number of studies[13–17] advise further training as the method of providing inexperienced radiographers with the skills and knowledge required to competently participate in abnormality detection systems.

Without assessing if graduates can demonstrate adequate skills, it remains unclear whether the abilities developed within the academic and clinical environments sufficiently support competent contribution in a PCE system. A single HEI interpretive phenomenological analysis of eight graduates' opinions proposed that upon qualifying they were suitably prepared for the clinical environment.[7] Yet a recent longitudinal image interpretation study at one HEI discovered that only 52% of final year students could attain 80% accuracy[18]; which has earlier been suggested as a minimum standard.[19] Another single HEI study concluded that students' abilities to recognise and communicate fracture findings were strong aspects of their development.[20] This supports the view that undergraduate training can sufficiently prepare students for PCE participation. However, it is likely that there will be a variable range of PCE competences amongst new graduates. Consequently, some may be more prepared than others to participate in a PCE system in a confident manner.

This study aimed to specifically assess the confidence of newly qualified radiographers with regards to their ability to recognise (red dot) and describe (PCE) traumatic radiographic abnormalities, as well as how they perceived their undergraduate training in these areas. Exploration of the perceptions of newly qualified radiographers will provide valuable insight into any issues that may prohibit the SCoR's vision becoming a reality.

Method

This single cohort, cross-sectional, online survey-based study was undertaken with participants sought from 24 NHS adult major trauma centres (MTCs) across England. Research Indemnity and Insurance Committee (RIIC) and Ethics committee approval were obtained from the Faculty of Health, Education and Life Sciences (HELS) academic ethics committee at Birmingham City University. NHS approval was obtained using the Integrated Research Application System (IRAS).

The sample frame in this study was defined as being radiographers who had been qualified less than two years. Radiographers were contacted via an invitation email following confirmation of approval to approach by local Research and Development departments and the principal radiographers in the selected MTCs. The invitation included the participant information sheet outlining the scope of the project. All participants provided consent to participate in the study.

Please cite this article in press as: Stevens BJ, White N, Newly qualified radiographers' perceptions of their abnormality detection abilities and the associated training they received at undergraduate level, Radiography (2018), https://doi.org/10.1016/j.radi.2018.01.004