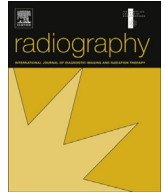




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Radiographer reporting in the UK: A longitudinal analysis

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ABSTRACT

Introduction: Radiographer reporting of plain film radiographs is an established role in the UK. Despite this previous research has demonstrated widespread inconsistencies in implementation, scope and utilisation.

Method: A cross-sectional postal survey was undertaken to provide a longitudinal insight into changes in radiographer reporting practice. The sample comprised all individual hospital sites in the UK, Channel Islands and Isle of Man with both a radiology and trauma service

Results: A response rate of 63.7% ($n = 325/510$) was achieved. Reporting radiographers were in place at 179 sites (55.1%) but less likely to be employed at sites with a minor injury unit rather than a full emergency department ($\chi^2 = 71.983$; $p < 0.001$; d.f. = 1). Radiographer utilisation has increased since 2007, although local barriers to implementation and activity were identified. Geographical variation was evident in relation to reporter employment and anatomical scope. A significant association was noted between broader anatomical scope and a wider range of referral sources ($\chi^2 = 34.441$; $p < 0.001$; d.f. = 1). Delayed reporting of radiographs remains the standard service delivery model across the UK.

Conclusion: This study confirms the significant contribution that radiographers are making to reporting capacity in the UK, although there continue to be geographical variations, particularly around anatomical scope and referral groups.

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Background

The definitive radiology report is the final stage in the diagnostic imaging process. Over the last 3 decades in the UK, and more recently internationally, the task of producing a report has increasingly been shared between radiographers and radiologists across the whole range of imaging modalities. While some inter-professional dissatisfaction may persist regarding sharing of the reporting workload, radiographer reporting quality is considered equivalent to a consultant radiologist regardless of clinical area or scope of practice.¹ As a result, the continued development and expansion of reporting radiographer roles is advocated by professional bodies^{1,2} and policy makers^{3–5} alike as a sustainable approach to meeting workload and service delivery challenges.

While the reporting of plain film radiographs by radiographers is an established and long standing role extension activity in the UK, studies have demonstrated variation in its implementation.^{6–9}

The scope of practice of radiographer reporting roles has not been consistently defined across organisations but has instead evolved to meet local aspirations and service needs,² supported by formal education programmes.¹⁰ A decade ago government strategies aimed at increasing imaging capacity and reducing waiting times placed the impetus on role redesign. The Radiography Skills Mix project,³ which formalised the 4-tier career progression structure, and NHS modernisation initiative⁴ provided opportunity to address practice inconsistencies. Imaging departments were expected to review their workforce in terms of skill mix, develop new roles, and delegate appropriate tasks. However, service adaptation and adoption of new ways of working has been inconsistent and while access and time to imaging examinations has improved over this period, primarily due to advances in technology and extension of core working hours, image report turnaround times have remained a challenge. Ten years on and with continuing increased activity and pressure to constrain and reduce costs radiographer reporting has once again been identified as a specific intervention in UK and Scottish government reviews.^{5,11} However, little is known of the current contribution to reporting capacity of radiographers across the UK, or the future potential for this group to impact on reducing report turnaround times, and therefore accurately predict

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the impact of Government directives in the short and medium term. Without such knowledge, measures of the success of intervention are impossible.

This study reports the findings of a cross-sectional survey which aimed to identify the contribution of radiographers to reporting capacity across the UK at the individual hospital level. Using data from an earlier similar survey (2007),⁶ it provides a longitudinal overview of developments in radiographer reporting practice.

Method

A cross-sectional postal survey design, similar to a study conducted by the authors in 2007,⁶ was adopted to provide a longitudinal insight into changes in radiographer reporting implementation and practice. Although the initial survey focussed on the reporting of trauma images, the questions were updated to reflect the broader nature of current radiographer reporting practice and included both open and closed questions. The updated questionnaire was piloted using 4 reporting radiographers to determine ease of completion and legibility. Minor changes to layout and signposting within the questionnaire were made as a result of pilot feedback. Surveys were coded to allow for mapping of activity by geographic region.

To identify variation in practice, the sample comprised all individual hospital sites in the UK, Channel Islands and Isle of Man that had both a radiology and trauma service (defined as either a Minor Injury Unit (MIU) or Emergency Department (ED)). The sampling frame was developed using information from the UK Government ED Statistics and National Hospital databases (Health and Social Care in Northern Ireland 2011; Health in Wales 2011; Hospital Episode Statistics 2011; The Scottish Government, 2011) and facilities were confirmed through either hospital website or telephone enquiry. The eligible sample size of 510 hospitals differed slightly from the 2007 survey, most likely as a result of service and organisational restructuring.

The questionnaire was distributed in July 2011 with a response timeframe of 4 weeks. A stamped addressed return envelope was provided to encourage prompt return. Response data was numerically coded and collated using Excel (Microsoft Corporation, Redmond, USA) and the final database was checked for errors/inconsistencies by re-entering the data from 30 questionnaires and comparing these with the original database entries. An error/inconsistency rate of less than 2% was considered acceptable for assuring database accuracy.¹² Summary descriptive statistics were generated using Excel and further statistical analysis was undertaken using STATA SE 9.8 (Statacorp, Texas, USA) and GraphPad (GraphPad Software Inc., San Diego, USA). Statistical tests used

included chi-square, Pearson's correlation, and Mann–Whitney *U* where appropriate.

This survey of current practice was considered to represent service evaluation and therefore no ethical approval was required.

Results

A response rate of 63.7% ($n = 325/510$) was achieved. No evidence of responder bias was identified and the results of non-response bias analysis have been published elsewhere.¹³ Analysis of database entries indicated inconsistencies/errors in less than 1% of entries and the database was accepted as an accurate transcription of responses.

Completed questionnaires were returned from 191 sites operating an ED service ($n = 191/325$; 58.8%) and 130 with a MIU ($n = 130/325$; 40%). Trauma service provision was not stated by 4 respondents. A small majority of responses ($n = 179/325$; 55.1%) identified that reporting radiographers were employed to provide definitive reporting of trauma radiographs at their site. However, hospitals with an MIU were significantly less likely to employ reporting radiographers than those with an ED ($\chi^2 = 71.983$; $p < 0.001$; d.f. = 1). Free text comments suggested that these differences may reflect local service design rather than a lack of engagement with radiographer skills mix initiatives.

“The main site employs reporting radiographers who report images from all the satellite sites.”

Respondent 31

Geographical variation was evident in the adoption of radiographer reporting and the anatomical scope of practice (Table 1). These variations were evident both at the national level and within England at a regional level. Importantly, although the proportion of Scottish sites employing reporting radiographers is lower than any other UK country, this number has doubled since 2007. In contrast, the number of sites employing reporting radiographers across the rest of the UK has remained relatively static.

Where reporting radiographers were employed they reported musculoskeletal (MSK) trauma examinations at all sites, although almost one quarter limited this to examinations of the appendicular skeleton ($n = 43/179$; 24.0%). Interestingly, a significantly larger proportion of sites operating a MIU restricted radiographer reporting to appendicular skeletal examinations ($\chi^2 = 13.798$; $p < 0.001$; d.f. = 1). Radiographers reported visceral (chest and abdomen) examinations at only 27 sites ($n = 27/179$; 15.1%) and all of these were within England.

Table 1
Geographic distribution of reporting radiographers and anatomical scope of practice.

Region	Scope of reporting practice			Total responses	
	Appendicular skeleton only (%)	Appendicular and axial skeleton only (%)	Visceral and skeletal (%)	Total 2011 (%) ^a	Total 2007 ^b (%)
England	34 (22.7)	89 (59.3)	27 (18.0)	150 (61.2)	149 (63.1)
North of England	7 (13.5)	30 (57.7)	15 (28.8)	52 (66.7)	51 (71.8)
Midlands and East	15 (35.7)	22 (52.4)	5 (11.9)	42 (63.6)	42 (64.6)
London	2 (13.3)	7 (46.7)	6 (40.0)	15 (75.0)	16 (69.6)
South of England	10 (24.4)	30 (73.2)	1 (2.4)	41 (50.6)	40 (51.3)
Scotland	2 (18.2)	9 (81.8)	0	11 (23.4)	5 (16.7)
Wales	5 (45.5)	6 (54.5)	0	11 (57.9)	13 (52.0)
Northern Ireland	2 (40.0)	3 (60.0)	0	5 (50.0)	5 (50.0)
Channel Islands and Isle of Man	0	2 (100.0)	0	2 (50.0)	1 (25.0)
Total	43 (24.0)	109 (60.9)	27 (15.1)	179 (55.1)	174 (56.9)

^a % of potential respondents.

^b Geographic location of 1 respondent unknown.

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