European Journal of Radiography (2009) 1, 48–51

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journal homepage: http://ees.elsevier.com/ejradi

Documentation of radiographic findings by non-radiologists — An audit

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Received 18 November 2008; accepted 9 January 2009

KEYWORDS
Record keeping;
Plain radiography;
Justification;
Ionising Radiation Regulations

Abstract *Purpose:* To assess whether radiographic findings were documented in the clinical notes by the referring medical team.
Standard: All radiographs should be checked by the referring medical team, and documented in the clinical records.
Sample: All adult inpatients at City Hospital Birmingham, UK.
Design: Prospective spot audit of medical records.
Method: We established which plain radiographs had been performed during that admission using PACS (picture archiving and communication system). This was reconciled against the patients' notes to determine if findings were documented by the referring medical team, and the delay in documenting their findings. A baseline audit was performed in September 2007, and re-audited in August 2008.
Intervention: A letter highlighting the importance of documenting findings was circulated. Stickers were affixed to clinical notes to act as a reminder for the referring medical team.
Results: For the baseline audit we assessed 388 radiographs of 164 adult inpatients. 147 (37.9%) showed no evidence of being checked by the referring medical team. Of the 241 radiographs which were documented, 230 (95.8%) were documented within 2 days of being performed.

For the re-audit in August 2008, we assessed 687 radiographs of 279 adult inpatients. 492 radiographs were documented, of which 467 (94.9%) were reported within 2 days. The absolute reduction in the proportion of undocumented radiographs was 9.6% which represents a 25% improvement ($p < 0.002$).
Conclusion: This audit demonstrates that many inpatient radiographs have no evidence documented in clinical notes of being checked or acted upon by the referring medical teams. Affixing a reminder sticker to medical notes improves reporting rates.

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1756-1175/$36
doi:10.1016/j.ejradi.2009.01.001

Introduction

41.5 million medical and dental x-ray examinations were conducted in the UK in 1997–98, corresponding to 704 examinations per 1000 inhabitants [1]. Diagnostic medical x-rays contribute 0.42 mSv of the UK average annual effective dose of approximately 2.7 mSv [2]. Although the risk of cancer transformation from medical x-rays is small [3] (Fig. 1), it is estimated that 0.6% of all cancers diagnosed in the UK are attributable to medical x-ray exposure, i.e. 700 of the 124,000 new cases of cancer in the UK per annum [4]. This small risk of cancer is offset by the benefits of diagnostic x-rays, and for each examination the principle of justification is applied, i.e. that a proposed examination should be of net benefit to the patient.

Clearly a radiograph will only be of net benefit to the patient if it is examined. Although radiographs may ultimately be reported by a radiologist or reporting radiographer, if they are not examined and acted upon by the medical team who requested the examination, it is unlikely that the radiographs influenced treatment.

The Ionising Radiation (Medical Exposure) Regulations 2000 [IR(ME)R] do not specify who is responsible for clinically evaluating radiographs [5]. The Royal College of Radiologists' acknowledges that while it is the responsibility of the radiologist to issue a timely report, it is the clinician's responsibility to read and act on the report issued [6,7].

The Department of Health's notes on good practice to accompany IR(ME)R state that 'if it is known prior to the exposure… that no clinical evaluation will occur, then the exposure is not justified and should not take place' [8]. A system should be in place to ensure that clinical evaluations do occur.

Diagnostic procedure	Typical effective doses (mSv)	Equivalent period of natural background radiation	Lifetime additional risk of fatal cancer per examination
Limbs and joints (except hip)	< 0.01	< 1.5 days	1 in a few million
Chest (single PA film)	0.02	3 days	1 in a million
Skull	0.07	11 days	1 in 300,000
Cervical spine (neck)	0.08	2 weeks	1 in 200,000
Hip	0.3	7 weeks	1 in 67,000
Thoracic spine	0.7	4 months	1 in 30,000
Pelvis	0.7	4 months	1 in 30,000
Abdomen	0.7	4 months	1 in 30,000
Lumbar spine	1.3	7 months	1 in 15,000

Figure 1 Diagnostic procedures and effective doses.

Poor documentation and record keeping adversely affects patient safety, public safety, continuity of patient care, healthcare economics, and clinical research and outcomes analyses. It also leads to inadequate communication between healthcare providers, which may result in repeat examinations exposing patients to unnecessary radiation, increased costs, and may potentially delay patient care [9].

Therefore the purpose of this audit was to assess whether medical teams who requested radiographic examinations documented their findings in the patients' clinical records.

Setting the standard

The Ionising Radiation (Medical Exposure) Regulations 2000 requires that ''a clinical evaluation of the outcome of each medical exposure should be recorded. This evaluation should detail the resulting diagnostic findings or therapeutic implications'' [10].

The General Medical Council, in its guidance document *Good Medical Practice* [11] requires doctors to ''…keep clear, accurate, legible and contemporaneous patient records which report the relevant clinical findings''.

Medical and dental indemnity organisations also advise doctors to maintain a high standard of record keeping [12] to defend against clinical negligence claims. The implication being that if it isn't documented, it didn't happen.

Given these three sources, we feel that all plain radiographs should have evidence of being examined by the referring medical team documented in patients' medical records.

Method

We conducted a prospective spot audit in September 2007 of all current adult inpatients at City Hospital Birmingham.

For each consecutive patient, we established which plain radiographs had been performed during that admission using the trust radiology PACS (picture archiving and communication system) software e-Film version 2.1.2 (Merge Healthcare 2006, Milwaukee USA). We then reconciled this against the patients' case notes to determine whether any radiographic findings were documented by the referring medical team. We also recorded the delay in documenting these findings. We did not seek to assess the accuracy of the report, merely its presence or absence.

Intervention

Following the first audit a letter was circulated via e-mail highlighting the importance of documenting clinical findings. To accompany this, radiographers affixed a sticker (Fig. 2) to the patients' case notes, as a reminder to the referring medical team that a radiograph had been performed.

Re-audit

We conducted a re-audit in late August 2008 when the new cohort of junior doctors was in post, to compensate for the