Chest radiograph delays in the acute medical unit

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Aims

This project aimed to establish whether there are significant delays in chest radiographs (CXR) for patients admitted directly to acute medical unit (AMU) compared with those admitted via the emergency department (ED), whether British Thoracic Society (BTS) guidelines are being met, and to initiate changes that will improve service provision and patient safety.

Methods

Clinical data were retrospectively collected from electronic records over seven consecutive days of all patients admitted on the medical take in October 2017. For those patients where a CXR was requested, data were collected on source of admission, reason for request, time from admission to request, and time from request to CXR performed.

Results

There were 286 medical admissions in the period 1–7 October 2017. 195 patients were admitted through ED, and 63 admitted directly to AMU. 72% had a CXR requested on admission. 35% of request details did not meet the Royal College of Radiologists (RCR) guidelines (2007) on appropriate indications for CXR in acute medical settings. Chest radiographs took 362 minutes longer to be performed when requested in AMU compared with those requested in ED (Table 1). Once requested, a CXR in ED will occur within 48 minutes on average, compared with 332 minutes when requested in AMU. Of 38 patients with confirmed pneumonia, CXR took 423 minutes to be performed if requested in AMU, compared with 135 minutes in ED (Table 2). Chest X-rays requested out of hours by AMU took an extra 170 minutes to be performed compared with those requested within normal working hours. In ED the increased delay was only 9 minutes out of hours.

Table 1. A table showing time (in minutes) to request and perform a chest radiograph for both acute medical unit and emergency department

	Time (average) in minutes		
Where requested	**Admission to request**	**Request to performed**	**Admission to performed**
ED	108	48	156
AMU	186	332	518

Table 2. A table showing time (in minutes) to request and perform a chest radiograph for patients with a confirmed pneumonia

	Time (average) in minutes		
Where requested (number of patients)	**Admission to request**	**Request to performed**	**Admission to performed**
ED (29)	76	57	135
AMU (9)	116	307	423

Conclusion

BTS guidelines state that patients with suspected community-acquired pneumonia should have a chest radiograph performed in time for antibiotics to be administered within 4 hours of presentation to hospital.

The results show there is a significant delay in performing a chest radiograph for patients admitted via AMU. The average time to chest radiograph for the cohort of patients with confirmed pneumonia was 6 hours 42 minutes, well beyond BTS guidelines recommendation. This has implications for patient safety: either in delayed treatment with antibiotics; or conversely, inappropriate receipt of broad-spectrum empirical antibiotics; as well as inappropriate specialty triage.

Staff survey and discussion with departments including radiology and portering has identified causes for this delay as:

- the requirement in this hospital for a patient escort out of hours
- prioritisation of ED radiograph requests
- a delay in requesting chest radiographs for AMU patients
- inappropriate X-ray requests leading to overburdening of the radiology department.

A number of changes have been instigated in the AMU in an attempt to improve this significant problem.

- A protocol has been agreed and rolled out to eliminate the requirement for a patient escort out of hours.
- Discussion with radiographers to prioritise admission X-rays.
- A teaching session for junior doctors regarding appropriate radiograph requesting.

This will be re-audited once changes are well-established prior to June. ■

Conflict of interest statement

No conflict of interest.

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