

Triage nurse requested *x* rays—the results of a national survey

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Abstract

Objective—To ascertain the prevalence and experiences of triage nurse requested *x* ray systems among accident and emergency (A&E) departments in the UK.

Method—A descriptive study of a postal survey of 225 major A&E departments listed in the British Association for Accident and Emergency Medicine directory. **Results**—Altogether 165 (73%) questionnaires were returned. Fifty nine (35%) departments indicated that they currently had a triage nurse requested radiology system. Of those departments that did not have such a system, the main reasons were that it was not necessary, radiologists or A&E consultants were opposed to the idea, that nurses were not capable/did not want the system, or that it would delay triage.

Of those departments that do operate a nurse requesting system, most have started doing so in the last three years, and allow nurses of E grade and above who have completed an in house training course and radiation protection certificate to request *x* rays. Protocols vary, but usually allow requests for limb radiology in patients over 5 years old.

Many departments have audited their system, with positive results. In all departments that currently operate the system, staff and patients felt that the system was either good or excellent.

One department abandoned the system, after a trial, because they felt that *x* ray requesting was not a nursing role.

Conclusion—The system of triage nurse requested *x* rays is generally well received and departments considering adopting this system can be reassured. Pitfalls and possible protocols for A&E departments intending to start triage nurse requested *x* rays are suggested.

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A nurse requested *x* ray system has been in place at the Norfolk and Norwich Hospital since 1992. The system was set up in an attempt to reduce waiting times in the department, to increase patient satisfaction, and to foster the spirit of team working within the department.

The system has achieved all of these aims.¹ We were interested to study similar systems in other departments in the UK, to assess the prevalence of such systems, to discover potential problems, and to learn from others.

Method

A postal survey was performed in July 1998. A questionnaire (table 1) was sent to 225 accident and emergency (A&E) departments in the UK, identified from the British Association for Accident and Emergency Medicine directory. The questionnaires were addressed to the lead nurse in each department. We were pleased with the 73.3% return rate (165/225). Of these two were excluded, one because the unit was an ophthalmic emergency department, and the other because it was a minor injuries unit. The total number of questionnaires analysed was thus 163.

This paper is essentially a narrative of results received. No attempt has been made to statistically analyse the results.

Results

*Question 1: Does your department have triage nurses requesting *x* rays?*

The response was 59 “yes” (35.1%) and 109 “no”. This survey was designed to focus on triage nurse *x* ray requesting. In most departments with emergency nurse practitioners (ENPs), these individuals request radiography (although in three departments they were not permitted to do so). We counted those departments with “ENP only” requesting as “no” responses.

Question 2: If not, why not?

Of the “no” responders, there were 97 reasons specified, some gave more than one (see table 2 for responses).

*Question 3a: If your department does have triage nurse requested *x* rays, when did you start?*

Fifty four positive responders specified a period (table 3).

*Question 3b: Which nurses are eligible to order *x* rays?*

Forty seven positive responders specified grades (table 4). Sixteen further defined the qualifying experience in their protocols; three

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Table 1 Questionnaire

Survey of triage nurse requested <i>x</i> rays	
1.	Does your department have triage nurses requesting <i>x</i> rays?
2.	If not, have you considered having triage nurse requested <i>x</i> rays? Why did you decide not to have a nurse requested <i>x</i> ray system.
3.	If your department does have triage nurse requested <i>x</i> rays:
(a)	When did you start?
(b)	Which nurses were eligible to order <i>x</i> rays? (for example, seniority, experience, etc)
(c)	Do nurses requesting <i>x</i> rays receive any training? If so what?
(d)	Which age groups of patients are nurses allowed to <i>x</i> ray?
(e)	What conditions are nurses allowed to <i>x</i> ray? Is this regulated by protocols?
(f)	Have you audited the nurse requested <i>x</i> ray system? If so with what result?
(g)	How well do you feel having nurse requested <i>x</i> rays is received by patients? and staff?
Thank you for your help	

Table 2 Reasons for not running a triage nurse x ray requesting system

Comment	No (%) of responses (n=97)
Not considered or needed	21 (21.6)
In the process of starting	21 (21.6)
Radiology/radiography antagonistic	13 (13.4)
A&E consultants antagonistic	12 (12.4)
Not a nursing role	9 (9.3)
Delays triage	7 (7.2)
Encourages bad practice	4 (4.1)
No triage in operation	2 (2.1)
Ankles only (Ottawa rules)	1 (1.0)
Doctors sign cards for nurses	1 (1.0)

specified at least one year of A&E practice, two specified greater than two years, and seven expected at least three years' experience. The remaining four departments merely stated "experienced".

Question 3c: Do nurses requesting x rays receive any training? If so what?

All 59 positive responders confirmed that training was provided. There were 29 responses worthy of particular note.

One department provided POPUMET (protection of persons undergoing medical examination and treatment 1988) and radiation protection training alone. Two provided informal training, 19 specified POPUMET as their standard of radiation training, and seven departments specified that a form of formal assessment took place.

The length of training (where specified) varied between half day (two departments), one day (12), and two days (one department).

Question 3d: Which age groups of patients are nurses allowed to x ray? (table 5)

Fifty positive responders specified firm age limits or ranges. Of those that did not, responses were either "depends on status", whether the nurses were adult or paediatric trained or, in one case, "upper limb only in patients under 12 years".

Question 3e: What conditions are nurses allowed to x ray? Is this regulated by protocols?

There was a wide range of practice. Sixteen departments stated "limbs" only; 20 permitted imaging below the elbow and knee only, a further seven extended this to include the whole upper limb, including the clavicle. Two departments restricted radiography to ankles only, while 16 permitted radiography for patients with suspected fracture of the femoral neck (in five, requests of chest x rays were also permitted). In 14 departments radiography for foreign bodies were permitted (including

ingested foreign bodies in one department). Two protocols included skull x rays, one facial x rays, and five applied time limits of between one and 28 days.

Question 3f: Have you audited the nurse requested x ray system? If so, with what result?

Forty five positive responders replied. Thirty one had performed audit of their system, 10 had not, and in four departments an audit was in progress. Details of audit methods or criteria were not returned.

The results were quoted as "good" or "excellent" by 18. Eight commented that the nurses requested fewer images or had a higher positive "hit" rate, and three commented that there was no "over x raying" by nurses. Seven stated that their system saved patients' time (between 20 and 39 minutes), in one department nurses only requested x rays if there was a long waiting time (approximately 10 requests per month). One department quoted a "mixed result" but did not specify further.

Question 3g: How well do you feel having nurse requested x rays is received by patients and staff?

All 59 positive responders expressed enthusiasm with their system, most expressed staff and patient satisfaction alike; of these, three replies indicated that the system was unpopular among radiologists or radiographers.

One department (negative responder) was extremely negative—they had instituted a system and abandoned it because the nurses felt that requesting radiography was futile if they were not permitted to interpret the images and act on them.

Specific positive comments included a sense of empowerment, an increase in job satisfaction, and an increase in motivation in addition to comments that the system was generally well received by staff and/or patients alike. Apart from the single department that had abandoned their system, there were no negative comments from departments engaged in triage nurse x ray requesting.

Negative remarks from the 109 departments that did not have a system were mostly on the theme that either x ray requesting was not a nursing role (9.3%) or that it would interfere with the triage process (7.2%); 4.1% felt that it would encourage bad practice. The other chief objection was that a decision to x ray was part of the holistic assessment of a patient and should only be made by the clinician (medical or ENP) responsible for the ultimate treatment decision. In other words, prearranged radiography might lead to a reduction in quality standards.

Discussion

Just over one third of the responders indicated that they had a nurse x ray requesting system in place. A further 9% indicated that a system was imminent or in the process of negotiation. Only one department had abandoned a working system. Those that had a working system were pleased with it and had no stated plans to cease.

Table 3 Number of years triage nurse requested x ray system in operation

No of years in operation	No (%) of responses (n=54)
≤1	12 (22.2)
≤2	16 (29.6)
≤3	10 (18.5)
≤4	7 (13.0)
≤5	3 (5.6)
≤6	1 (1.9)
≥9	5 (9.3)

Table 4 Grades of staff permitted to request x rays

Grade	No of responses
All	4
D and over	5
E and over	29
F and over	9

Table 5 Permitted age groups for triage nurse requested x rays

Age group (years)	No (%) of responses (n=50)
All ages	9 (18)
≥1	1 (2)
≥2	6 (12)
≥3	1 (2)
≥5	17 (34)
≥6	1 (2)
≥10	2 (4)
≥12	2 (4)
≥16	11 (22)

Table 6 Summary of Norfolk and Norwich Hospital triage nurse requesting protocol

- Triage nurses with minimum three years A&E experience (any grade)
- One day training, including radiation protection
- Any limb injury except elbows, knees, or femurs
- No foreign bodies
- No open or neurovascular injuries
- No children under 5 or pregnant women
- Pelvis, hip, and chest x rays may be requested as part of the # NOF fast track protocol
- Patient and radiographer have right of refusal
- Patients must be reviewed after x rays by a doctor or ENP

ENP = emergency nurse practitioner; NOF = neck of femur.

Of the 106 negative responders, 21.6% indicated that there were no plans for instituting a nurse requested *x* ray system. In 13.4% and 12.4% of these, there was opposition from radiology or A&E consultants respectively.

The protocols adopted by departments vary considerably, and are probably a reflection of local practice and negotiation. There is no consistency between systems in term of nursing experience required, training given to nurses, or anatomical sites that are *x* rayed.

Over half (51.9%) permitted radiography requests in children of 2 years or less, while 89% allowed imaging in children of 5 or older.

Most protocols included upper and lower limb imaging and some included radiographs of the pelvis and hips in patients with a suspected fracture of the femoral neck, presumably as part of a “fast track” system.

The majority of departments restricted *x* ray requests to nurses of E grade or above, but few expressed a necessary level of experience. Of some concern was the finding that although all departments offered some form of training, in one instance this consisted of radiation protection training alone.

Our system works well,¹ definitely leads to a reduction in the time a patient spends in the department, and is well accepted by patients and staff. It has led to an improvement in the team spirit in the department. There is no over-requesting—indeed the nurses request fewer images than the doctors. The system has been audited for appropriateness, accuracy, and adherence to protocol. We maintain this quality by consultant and nurse enthusiasm, consultation, and regular updates in training. The system has the support of radiology and radiography colleagues. A brief outline of the protocol can be seen in table 6.

From this survey and our own experience, there are several common matters of importance. Based on these and our own experience, our recommendations are as follows:

- Agreement between A&E senior medical staff and nurses and the radiology department is the most important first stage in setting up a system.
- Radiography requests should only be made in patients of 5 years of age and above.
- Only D grade nurses and above should make requests.
- There should be a one day training programme, consisting of POPUMET, anatomy, limb examination, and the process of *x* ray requesting from A&E senior staff, radiologists, and radiographers.
- We would further recommend that all systems should be audited regularly.

There is a wide variation between protocols with respect to permitted anatomical sites. We suggest that protocols should include upper limbs and lower limbs below the knee.

Conclusion

We seek to reassure those departments that are planning to adopt or who are antagonistic to triage nurse requested *x* rays. Those departments that operate systems find that they work and contribute in a positive way to the quality of service and to staff morale. Those departments that have audited their systems have found them to be successful, with high rates of appropriateness; however, such statements may only be taken at face value as audit criteria were not described.

We would like to thank all those who took time to complete our questionnaire.

Contributors

Mike Lindley-Jones designed the questionnaire, analysed the data, and wrote the abstract. Bruce Finlayson initiated the study and wrote the first draft of the paper. Both contributed equally towards subsequent editing of the paper, including revision in the light of the referees' comments. Both stand as guarantors for the paper.

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