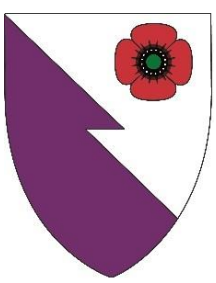
The Royal College of Emergency Medicine

Best Practice Guideline

Management of Radiology Results in the Emergency Department



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Summary of recommendations

1. **All results of radiological investigations performed in the Emergency Department must be reviewed by a clinician, taking clinical scenario into account, and necessary actions taken.**

2. **The process of review, and the actions taken as a result of the review must be recorded. The record should be available to all members of the clinical team to avoid duplication of activity.**

3. **Regarding those patients discharged home by the emergency department team, or under the care of the ED team:**
    a. **The process of review and action taken should be identifiable and traceable, and completed in a timely fashion. This should be 'real-time' for time critical investigation results, and within 48 hours for non-urgent results.**
    b. **There should be a clear 'Standard Operating Procedure' for the handling of radiological investigation results, to ensure consistency.**
    c. **Responsibility for review and actions resulting from results review should be clearly defined, as should the processes for deferral and handover of this responsibility (preferably within the SOP).**
    d. **The systems for referral, follow up and further action required following radiological investigation results should be arranged and agreed with the various clinical teams responsible for the patient.**

4. **There should be systems of ensuring patients are kept informed in a sensitive and appropriate manner of the findings of investigation results.**

5. **Patients in whom the investigation was requested whilst in the emergency department but in the care of a specialty team then follow-up of any abnormal result rests with that specialty team.**

6. **For patients who are admitted under a non-ED team, then the responsibility for reviewing and subsequent actions arising from radiology reports should be clearly handed over to the team caring for that patient.**

7. **There must be programmed activity (as Direct Clinical Care) available with in Consultant job plans.**

8. **The Emergency Department and the Radiology Departments are encouraged to hold regular meetings to review requesting protocols, timeliness of reporting and volumes and trends of requests particularly with regard to non-plain film X-rays.**

Scope

This guideline will cover the responsibilities of Emergency Department clinicians for the review and actions resulting from radiological investigations performed under the auspices of the Emergency Department.

Reason for development

A large number of radiological investigations are requested and performed within the Emergency Department (ED), and additionally investigations may be ordered under the auspices of the ED. There are GMC guidelines on responsibilities on ordering clinicians; however pragmatic issues exist with reviewing and actions resulting from investigations.

Introduction

For clinical governance reasons, all radiological imaging performed in the ED have a formal report by a radiologist, and there are Royal College of Radiology and National Imaging Board defined standards regarding the content and timeliness of this report [1,2].

Many hospitals will have systems where the result is returned to the requester and/or the responsible clinician for review and checking. With the advent of protocoled care, some investigations are requested by non-medical staff that may not have clinical responsibility for the further management of the patient.

The General Medical Council in its guidance states in explanatory guidelines that when working in multidisciplinary teams organisations should ensure clarity over roles and accountability [3] ensuring that patient safety is paramount, and complying with the 'Duties of a doctor' [4]. Similarly, the processes of delegating assessment of a patient, or referring a patient, also have specific guidance [5].

Management of results from non-indicated or redundant investigations (and reducing these) are discussed in a separate RCEM guideline.

Clinical vignettes and dilemmas

Vignette 1: A patient attends the ED with chest pain, and among the investigations performed is an X-ray (XR) of their chest. The patient is diagnosed with a chest infection and discharged on antibiotics. The formal radiology report states '…the appearances are consistent with infection; a repeat XR in 6 weeks after a course of treatment is advised to ensure resolution.'

Vignette 2: Following an attendance or a multiply-injured patient, a radiology report is received by the ordering clinician with an addendum. The patient has been admitted under the trauma services, but the trauma 'pan-scan' report addendum states '…a moderately enlarged sub-pleural lymph node is noted. In a low risk patient a follow up scan in 1 year is indicated.'

Vignette 3: A 'routine' chest XR is performed on a patient who has presented to the ED. The formal report states '…there is a suspicious nodule identified. Further investigation is warranted, with possible referral to a chest physician.' The ED team inform the patient, arrange further imaging with a CT scan, and refer the patient to the Multidisciplinary team (MDT) under the 'two week wait'. The MDT then request the ED team request further imaging prior to attending the out-patient clinic.

Vignette 4: A patient attends the emergency department following a football injury, and is diagnosed with a knee sprain. The report states'…no bony injury is seen. A small effusion is present, and a MRI maybe indicated to establish any internal derangement.'

These cases illustrate common quandaries faced by ED clinicians.

Firstly, patient may require clinical assessment to judge whether the further investigation is required (as in the case of the MRI knee), or the timing of this investigation (as with the risk assessment in the trauma patient); however this is after the patient has been discharged by the ED clinical team, and is no longer under the care of that team. Whilst this may be relatively simple to manage if the patient is still an inpatient; however for investigations planned for a significant period of time after discharge the responsibility for reviewing patients and then ordering and reviewing tests can be less simple.

Secondly, when further investigation is clearly required the responsibility for ensuring that the most appropriate investigation is arranged and appropriate follow-up of the patient may cause logistical issues.

Investigations are of no use if the results are not appropriately considered, and if needed acting upon. While in many instances it is clear the responsibility lies with the requesting ED clinical team (for example, 'missed fractures'), as with some of the examples above it is sometimes less clear. This is especially true in cases of 'incidentalomas'; incidental findings of unclear significance. With increasing utilisation of investigations, this is an increasing issue.

Lastly, while positive test results are usually more concerning than negative ones, it is important to recognise that the automatic 'endorsement' of negative tests can lead to a lost opportunity to reduce 'over investigation'.

These examples do not include the common situation where tests are ordered on patients within (or shortly after) the ED setting, and the IT systems may reveal these as having been requested under the ED team erroneously. It is important to ensure that IT systems can manage requesting accurately.

The recommendations

It is important that patients receive the investigations that are required, that these are reviewed, and that any resultant action is completed and the result (and the import of the results) is communicated to the patient. For most radiological investigations, this will be done in real time by ED doctors providing an initial interpretation of the radiological investigation.

Emergency departments should have all their radiological investigations reviewed within a time frame of 48 hours of the request by either a radiologist or reporting radiographer. The radiology department should have clear guidelines on the action needed to be taken when 'high risk' abnormals (e.g. missed cervical spine fracture) are discovered as well as the action to be taken when abnormals of a lower risk are discovered; this may be informing the emergency department but may more appropriately be taking active steps such as referral to two week wait clinic or the arranging of further radiological investigations – as in vignette 3.

For patients in whom the primary responsibility of their care rested with the emergency department then the actioning of abnormal radiological results remains with the emergency department. For those patients who are admitted under the care of an in-patient team or who had a radiological test whilst in the emergency department but this

was performed by a specialty team then the follow-up of any abnormal results should be by that specialty team.

For patients who remain the responsibility of the emergency medicine team, it is essential that processes are agreed that ensure the handover of ongoing clinical care and further investigations occurs, and that there are clear responsibilities. These systems should be traceable. This may involve discussion with non-ED clinical teams, including primary care. Whilst it is entirely appropriate that the ED follows up a patient with a 'missed fracture' it is clearly much more appropriate that primary care takes responsibility for urgent follow-up see case vignettes 1 and 2. Many of the processes will be predictable, and a Standard Operating Procedure (SOP) delineating these elements is advisable, one is included in Appendices.

A clear SOP has the advantages of ensuring lines of responsibility are clear, and that there is consistency or responses to results. The administrative resources and IT should be robust and support this SOP. It is preferable not to have multiple systems (e.g. paper based and IT based reporting working contemporaneously).

It is important that patients are kept informed of the results of the investigations; when these are unexpected it is important that this is done sensitively. Anecdotal experience suggests that for a medium sized ED, this radiology report reviewing to about 2-4 hours work per day. As this involves named patient record, it is Direct Clinical Care (non-patient facing), and needs to have provision in the senior team work plans.

It is important that the review process is not taken as sole evidence that action has been taken, there needs to be a process of tracing of actions resulting from review of investigation results.

Regular meetings between the emergency medicine and radiology teams are to be encouraged, in which to focus a number of areas of shared interests such as: performance against review of reports, performance against reporting targets, clinical governance surrounding reporting and review of reports, patient pathways and access, and review requesting protocols. Additionally this will permit analysis of trends in requesting to help highlight any unnecessary requests as per the recommendation of the Academy of Medical Royal Colleges – Choosing Wisely [6].

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Review

Usually within three years or sooner if important information becomes available.

Conflicts of Interest

None declared

Disclaimers

The College recognises that patients, their situations, Emergency Departments and staff all vary. This guideline cannot cover all possible scenarios. The ultimate responsibility for the interpretation and application of this guideline, the use of current information and a patient's overall care and wellbeing resides with the treating clinician.

Research Recommendations

None

Audit standards

Audit of compliance against the key recommendation summary is suggested

Key words for search

Investigation, investigation results, patient safety

Appendix 1

Example SOP

STANDARD OPERATING PROCEDURE FOR ENDORSEMENT OF RESULTS- V2 LF April 2015

- This SOP aim to standardise the clinical responses to radiology and pathology reports in the best interests of our patients to ensure that the process is safe, timely and robust.
- This SOP is guidance only and does not cover all eventualities- individual Consultant discretion is advocated.
- All results are to be endorsed within **5 days of report.**
- Endorsement activity is to be incorporated into direct clinical time (DCC) 7 days a week.
- An audit trail for appraisal purposes will be generated
- ***Upon activation of the pooled ED inbox, endorsement will be the daily responsibility (including weekends) of the duty ED Consultant during times designated by the Consultant body on both sites. Outside these times, endorsement will be incorporated as clinical pressures allow.***
- An administration pooled inbox has been set up. Tracey Pearson will co-ordinate the administration of endorsement JRH site. Emma will do the same at HGH. A separate SOP exists for the ED administration team to enable process in absence of TP/ EBG.
- Where actions are required administratively please forward to TP/ EBG inbox.

Missed fracture 1. No change to clinical pathway 2. Change to clinical pathway	 No action- Consultant discretion- EPR narrative to describe reasoning OR letter to GP, consideration copy to patient Phone call to patient by clinician, reception number given to patient to make appointment for NPC. If no contact possible, letter to patient with copy to GP. Notification to doctor with copy to mentor.
Repeat X-ray 6/52	Letter to GP with copy of ED discharge summary and radiology report whether the patient is discharged by ED or admitted by IP team.
Microbiology results No change to clinical pathway (sensitive) No action Change to clinical pathway (not sensitive) Phone call to patient to see GP/ return to ED	*Microbiology endorses and reviews all positive blood cultures and therefore these can be auto endorsed.* For all other results cross check sensitivities with EPR dc summary:
MDT fax referral-" *this does not constitute a referral"*	Letter to GP, copy to relevant speciality
CXR abnormality 1. Current in-patient 2. Discharged patient	 Send to in-patient lead consultant through EPR. Contact in-patient Consultant/ SpR to ensure FU. Letter to GP for consideration of appropriate FU through 2 week wait process. Phone call to GP practice to ensure FU
Patient does not have registered GP, does not live within Oxfordshire/ Visitor/ Out of Area	Letter direct to patient
Report consistent with NAI	Review of patient notes mandatory, ensure "safeguarding" alert activated on EPR
No Fixed Abode	Look for mobile contact, pragmatic solution as presents. If the patient is Oxfordshire based, letter to Luther Street may well be reasonable.
Reported as "Red Report"	*The red reporting system will cease to exist when the pooled inbox for endorsement is activated.*
Scaphoid X-rays taken, no FU	Blanket NPC follow up/ correlation with clinical narrative. Strong anecdotal medico-legal evidence to support blanket referral.

Incidentalomas 1. Current in-patient 2. ED discharged patient	Send to lead consultant of in-patient speciality Letter to GP

References

1 National Imaging Board. Radiology Reporting times: Best Practice Guidance. London, NIB, 2008. Available at: http://www.imporvement.nhs.uk/documents/radiology_reporting_times_best_practice-guidance.pdf

2 The Royal College of Radiologists. Standards for the reporting and interpretation of imaging investigations. London: The Royal College of Radiologists, 2006. Available at: https://www.rcr.ac.uk/sites/default/files/bfcr061_standardsforreporting.pdf

3 General Medical Council (UK). Accountability in multi-disciplinary and multi-agency mental health teams. Available at: http://www.gmc-uk.org/guidance/ethical_guidance/accountability_in_multi_teams.asp. Accessed on 21st May 2015

4 General Medical Council (UK). Good Medical Practice (2013) Manchester, General Medical Council, 2013 ISBN: 978-0-0901458-60-5

5 General Medical Council (UK). Delegation and referral. Available at: http://www.gmc-uk.org/Delegationandreferral.pdf_60. Accessed on 21st May 2015

6 Choosing Wisely in the UK: the Academy of Medical Royal Colleges' initiative to reduce the harms of too much medicine, *2015; 350 doi: http://dx.doi.org/10.1136/bmj.h2308 (Published 12 May 2015)*

Excellence in Emergency Care

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