Communication and follow-up of unexpected significant radiological findings

17 September 2018

This interim bulletin contains facts which have been determined up to the time of issue. It is published to inform the NHS and the public of the general circumstances of events and incidents and should be regarded as tentative and subject to alteration and correction if additional evidence becomes available.
History of the event

A 76-year-old woman presented at the Emergency Department (ED) with chest pain and shortness of breath.

Following tests in the ED, which included a chest X-ray, the patient was diagnosed as having had a heart attack. She was admitted to a cardiac ward and six days later had a stent\(^1\) inserted in one of the blood vessels to her heart to improve blood flow. The patient was discharged home following insertion of the stent with a follow-up appointment arranged.

The radiology report on the chest X-ray was completed 12 days after the examination had been performed. The report identified a possible lung cancer. The report was sent to the ED as they had requested the X-ray. As the patient had been discharged from hospital several days earlier, a hard copy letter and email were sent to the cardiology team involved. The hard copy letter was also sent to the patient’s GP. However, these letters were not received, and the email and X-ray result were not acted upon.

Three months later, the patient attended her GP with back pain. The GP documented additional symptoms of weight loss, cough, shortness of breath and left-sided chest pain. The GP was able to access, via the IT system, the results of tests taken during the patient’s hospital admission and saw the chest X-ray report of a possible lung cancer. The GP requested a repeat chest X-ray which confirmed the findings. The patient was referred for an outpatient appointment with the respiratory team at the hospital for a suspected lung cancer. At this appointment, tests including a CT scan were ordered.

Three days after the appointment with the respiratory team, the patient was admitted to hospital with shortness of breath. During this admission the diagnosis of lung cancer was confirmed.

The patient became progressively unwell and died just over two months after this admission.

\(^1\) A stent is a tiny tube inserted inside a vessel to keep it open.
Notification of event and decision to investigate

The Healthcare Safety Investigation Branch (HSIB) identified communication breakdown and failure to act on significant radiological findings as a priority patient safety risk for investigation.

The Trust where the reference event occurred was contacted by HSIB after they reported it as a serious incident and collaborated with the investigation’s information gathering.

Following the preliminary investigation, the Chief Investigator authorised a full investigation as the risk met the following criteria:

**Outcome Impact – What was, or is, the impact of the safety issue on people and services across the healthcare system?**

Failure to communicate and act on unexpected significant radiological findings can be life-threatening. Incidents resulting in serious harm and death were highlighted by the National Patient Safety Agency in 2007 and recommendations were made to address the issue. In 2018 similar incidents continue to occur. Analysis of the national serious incident reporting database identified 41 cases relating to a delayed diagnosis of lung cancer where radiological findings were reported but not actioned, or there was a significant delay in action being taken.

If significant unexpected findings are of possible cancers, the earlier the diagnosis is made, the better the chance of curative treatment or optimal benefit from palliative treatment.

There is substantial human cost when these incidents occur, and these events undermine patient confidence and trust in healthcare services. They also incur a financial burden and can seriously damage a hospital’s reputation.

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Systemic Risk - How widespread and how common a safety issue is this across the healthcare system?

Radiological examinations include X-rays, computed tomography (CT) scans, ultrasound and magnetic resonance imaging (MRI). X-rays are the most common radiological examination performed, with 22.9 million examinations carried out in 2016/17. The scale of radiology examinations adds to the imperative to ensure processes result in all significant findings being communicated to the correct clinician, in a timely way, with responsibility taken for any actions required.

Radiology plays a central role in diagnosing and monitoring a wide range of clinical conditions, from broken bones, to cancers, to blood clots and gastrointestinal conditions. Examinations are requested by both primary and secondary care. Communication and follow-up of radiological findings affects many different parts of the healthcare system, and many different specialties, which are all involved in managing the risk alongside radiology departments.

Pressures on the healthcare system add to the challenge of effective and timely communication and follow-up of radiological results. These include:

- Pressure to reduce in-patient length of stay, which increases the risk of tests not being reported before a patient is discharged.
- Increasing numbers of patients under the care of multiple specialist teams, creating ambiguity about who has the responsibility for the follow-up and actioning of test results.

These pressures mean there is potential for this risk to escalate.

Learning Potential – What is the potential for an HSIB investigation to lead to positive changes and improvements to patient safety across the healthcare system?

Following the National Patient Safety Agency’s recommendations in 2007, the Royal College of Radiologists issued four publications detailing standards for the communication and follow-up of radiological findings.

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Initial information gathered by HSIB identified that different systems and processes exist in different organisations to address the risk. There may be opportunities to share learning to positively influence processes and practices across other organisations.

**National context**

Recommendations and professional standards, published to ensure significant radiological results are seen and acted upon, have so far not resolved this patient safety risk. Different processes have emerged and evolved in different Trusts depending on the IT systems in place and other local factors.

The initial investigation identified that some Trusts have invested time and resources to develop and design processes to reduce the risk of communication breakdown and failure to follow-up unexpected significant findings. There is the opportunity to share this learning across other organisations. Emergency Departments face a particular challenge as patients are likely to have been discharged or admitted under the care of other teams by the time their imaging is reported.

**Identified safety issues**

The following safety issues were identified during the HSIB initial review and will form the basis of the ongoing investigation:

- Human factors which impact on the communication and follow-up of unexpected significant radiological findings, such as the IT systems in place.
- Variation in practice in how unexpected significant findings are communicated, acknowledged and follow-up assured.
- Opportunities to learn from organisations that have implemented systems and processes to improve the communication and follow-up of unexpected significant radiological findings.
Next steps

The HSIB investigation will continue to explore the identified safety issues and welcomes further information that may be relevant, regardless of source.