

System-Level Process Change Improves Communication and Follow-Up for Emergency Department Patients With Incidental Radiology Findings

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Abstract

The appropriate communication and management of incidental findings on emergency department (ED) radiology studies is an important component of patient safety. Guidelines have been issued by the ACR and other medical associations that best define incidental findings across various modalities and imaging studies. However, there are few examples of health care facilities designing ways to manage incidental findings. Our institution aimed to improve communication and follow-up of incidental radiology findings in ED patients through the collaborative development and implementation of system-level process changes including a standardized loop-closure method. We assembled a multidisciplinary team to address the nature of these incidental findings and designed new workflows and operational pathways for both radiology and ED staff to properly communicate incidental findings. Our results are based on all incidental findings received and acknowledged between November 1, 2016, and May 30, 2017. The total number of incidental findings discovered was 1,409. Our systematic compliance fluctuated between 45% and 95% initially after implementation. However, after overcoming various challenges through optimization, our system reached a compliance rate of 93% to 95%. Through the implementation of our new, standardized communication system, a high degree of compliance with loop closure for ED incidental radiology findings was achieved at our institution.

Key Words: Incidental findings, communication, system implementation, patient safety, emergency department, radiology

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INTRODUCTION

Acknowledged communication of incidental findings identified on radiologic testing is an integral component of high quality and safe patient care. The Commonwealth of Massachusetts Board of Registration in Medicine issued an advisory in 2016 where they defined an incidental finding as “a result that lies outside of a test or procedure’s aim” [1]. In the advisory, they also conveyed the need for action regarding improved communication

of incidental findings on radiology studies from the emergency department (ED) and inpatient settings. Although many incidental findings do not have an immediate life-threatening impact on patients’ health, some carry significant implications for future morbidity and mortality (eg, potential neoplastic disease). In fact, 27% of incidental findings in the systematic review by Lumbreras et al of 44 relevant studies were related to an initial diagnosis of neoplasm, and of the 44 studies, only 11 (25%) were found to have completed follow-up of the incidental finding [2].

There is also inconsistent management and follow-up of incidental findings. On a survey of radiologists regarding their recommendation for future patient management for a series of 12 different incidental findings, 70% or greater agreement among the group was observed for only 6 of the 12 findings [3]. Another study found

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that only 29% of the incidental findings that should prompt a follow-up recommendation based on the Fleischner Society Guidelines included that recommendation. This highlights the importance of having communication systems in place to report these incidental findings [4]. Since 2008, a number of published recommendations for how to properly define incidental findings have been put forth, many by the ACR [5-14].

At our institution, quality and risk management leaders became aware of a number of patient safety incidents related to inadequate follow-up of incidental findings described in ED radiology examination reports. Several of these safety incidents resulted in patient morbidity and mortality, prompting deeper investigation. Analyses revealed that contributing factors were often multifactorial but tended to be due to circumstances unique to the ED, such as the ED physician not receiving the radiology report before patient discharge; the incidental finding “falling through the cracks” because of more “urgent or critical” findings; the patient not being informed that he or she needed follow-up; the radiologist not seeking acknowledgement from the ED provider(s) about the finding; the patient’s primary care doctor not being notified; and the patient simply not going for the follow-up imaging (or other) recommendation. From the incident analyses, institutional quality and risk management leaders also concluded that although no objective baseline data existed, there was potential that a high number of such ED incidental finding-related patient safety incidents were going undetected. With this background, our institution aimed to improve communication and follow-up of incidental radiological findings in ED patients through the collaborative development and implementation of system-level process changes including a standardized loop-closure method. This system is separate from the direct verbal and written communication of immediate life-threatening critical radiological findings to the ED provider by the radiologist in real-time. In this article, we describe our incidental findings communication and follow-up system and investigate the frequency of successful closed-loop communication as measured by ED staff acknowledging receiving the incidental finding and acting upon it.

MATERIALS AND METHODS

Study Setting

The study setting included EDs at four of our health system hospitals. The largest hospital in our system is an urban, academic center with approximately 95,000 annual

ED visits and is a level 1 trauma center (ED D). The next largest hospital is a medium-sized, urban, acute care hospital with approximately 40,000 annual ED visits (ED C). The next hospital is a medium-sized, suburban community hospital that has approximately 26,000 annual ED visits (ED B). The smallest hospital is a rural hospital with approximately 14,000 annual ED visits (ED A). All the EDs function within a single health system and are staffed by providers in a single group practice; however, the EDs have separate local operational processes and leadership. Radiology studies from all four EDs are interpreted by seven radiologists in the emergency division of the radiology department organized into single day, double evening, and single overnight attending shifts. Single resident coverage is also present during all attending shifts.

To address the suboptimal communication of incidental findings in EDs, our institution established a multidisciplinary team in April 2016. The team was collaboratively led and included the vice chair of quality and patient safety in radiology, the clinical director of the largest ED in our system, the vice chair for clinical operations in emergency medicine, additional emergency medicine and radiology physician champions, nursing leads from each of the four EDs, the quality director for radiology, and both radiology and ED informatics staff. This team functioned in the capacity of evaluating the existing workflow, reviewing deficiencies, developing an improved workflow (optimizing clinical, nursing, IT, and administrative assets), and ensuring implementation of the new workflow. Project development and implementation took place during bimonthly full-team member meetings and biweekly subgroup (project leader and IT) meetings over the course of 6 months (April 2016 to October 2016).

Intervention Description

The previous method for the communication of incidental findings was not standardized but typically involved the radiologist sending a nonstandardized e-mail to the ordering provider, usually the ED physician. One of the major problems with this process was that the ED physicians frequently did not receive the notifications or check their e-mails for these messages contemporaneously to their clinical contact with the patient. This resulted in difficulties in implementing the appropriate actions because the ED providers, due to the nature of their work, did not have an ongoing relationship with the patient. This system sometimes resulted in the communication “falling through the cracks” entirely due to issues such as incorrect e-mails or unclear delineation of responsibility for actions. The shortcomings of this system

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