Original Investigation

Communicating Radiology Test Results: Are Our Phone Calls Excessive, Just Right, or Not Enough?

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Rationale and Objectives: This study aimed to determine the preferences of radiology and referring provider residents regarding direct communication of radiology test results.

Methods: This Health Insurance Portability and Accountability Act-compliant quality improvement effort was exempt from institutional review board oversight. An anonymous survey was emailed to 44 radiology residents and 364 referring resident providers who routinely provide or receive direct communication of test results at our quaternary care medical center. The survey focused on the frequency, indication, clinical utility, and methods of direct communication of radiology results. Proportions were compared to chi-square or Fisher exact test.

Results: The response rates were 86% (37 of 43) (radiology) and 41% (151 of 364) (referring providers). Approximately half of radiology residents (49% [18 of 37]) thought the frequency of direct verbal communication was excessive, and none (0 of 37) thought more communication was needed. In contrast, only 1.3% (2 of 151; $P < .001$) of referring providers felt the frequency was excessive, and 24% (36 of 151; $P < .001$) desired more. The majority (66% [100 of 151]) of referring providers felt phone calls from radiologists often or always added value beyond a timely radiology report, and 59% (44 of 74) felt it is the radiologist's responsibility to call about abnormal findings. Furthermore, 83% (125 of 151) of referring providers preferred to receive a phone call about non-emergent unexpected findings, although preferences varied for various example abnormalities. For outpatients with non-emergent unexpected findings, most providers (90% [64 of 71]) prefer written communication rather than a phone call.

Conclusions: Referring providers prefer direct communication of radiology results, even for non-urgent unexpected findings, whereas radiology residents prefer less direct communication and are more likely to consider radiologist-to-provider communication superfluous.

Key Words: Communication; quality; multidisciplinary; collaboration; value; results; closed-loop.

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INTRODUCTION

The American College of Radiology Practice Parameter for the Communication of Diagnostic Imaging Findings (1) states that "quality patient care can only be achieved when study results are conveyed in a timely fashion to those responsible for treatment decisions," and advises that the interpreting physician should expedite communication of emergent or non-routine results in a way that ensures they will be received in a timely fashion "to provide the most benefit to the patient" (1). Similarly, The Joint Commission has prioritized effective communication as a national Patient Safety Goal (2), and requires that critical, urgent, and unexpected findings be communicated directly to the referring provider in a closed-loop fashion. Together, these establish a clear practice standard that requires certain non-routine test results be communicated directly.

However, there is a "gray area" in which a radiology test result could arguably be delivered electronically rather than by phone, or by open- rather than closed-loop communication. With the ever-rising volume of radiologic testing, this equipoise occurs on a daily basis, and is a source of anxiety and frustration for radiologists. When confronted with this situation, radiologists are often torn between a medico-legal pressure to communicate, an uncertainty about the relevance of the finding in question, competing pressures that demand they continue their other work, and a feeling that the recipient of their message may be irritated at the interruption—particularly if asked to call the radiologist back.

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This is especially true overnight, when on-call radiologists and their referring providers are doing work at an accelerated pace in a higher acuity environment, and referring providers may be less available to receive direct communication.

Given these competing priorities, we wanted to explore the sentiments of both radiology and referring provider residents with respect to the delivery and receipt of directly communicated radiology test results. It was our hope this would better inform the decision-making process of radiologists caught in the balancing act of whether and how to communicate radiology findings. Resident providers were targeted because they were perceived to be most familiar with the pressures of on-call work, and are poised to become the next generation of attending physicians. Our purpose was to determine the preferences of radiology and referring provider residents regarding direct communication of radiology test results.

METHODS

This Health Insurance Portability and Accountability Act-compliant prospective quality improvement effort was “not regulated” by the host institutional review board (ie, exempt from institutional review board oversight). No protected health information was collected or analyzed. No extramural funding was used.

Subjects

Anonymous surveys were delivered electronically through a Health Insurance Portability and Accountability Act-compliant anonymous online platform (Qualtrics.com) to 43 diagnostic radiology residents and 364 residents from the emergency medicine, surgery, and internal medicine residencies at our quaternary care institution. Surgical residents were from the following residency programs: general surgery, vascular surgery, plastic surgery, cardiothoracic surgery, oral and maxillofacial surgery, otolaryngology, and urology.

Surveys were sent over a 3-day period in December 2016. Respondents were encouraged to respond by being informed that the results may be used to influence local radiologist practice patterns. There were two similarly themed surveys—one for the radiology residents and one for the referring providers—reflecting their different roles in the delivery and receipt of radiology test results. Surveys focused on the frequency, indication, clinical utility, and methods of direct communication of radiology test results. Internal medicine residents were asked two additional questions regarding receipt of non-emergent radiology results for examinations performed on outpatients. In addition to their current opinions, radiology residents also were asked specifically about their experience serving as referring providers during their intern year. Free-text commentary was solicited from referring providers about the effect of direct communication on daily work. The surveys are provided in Appendix A, and the free-text responses are provided in Appendix B.

Local Communications Policy

It is the local policy at our institution for radiologists to directly communicate to a member of the treatment team in a closed-loop fashion any of the following types of radiologic findings: critical, urgent, unexpected, medically significant change from a resident preliminary report. This most commonly involves a page with a note to call the radiologist back at a specified phone number. For inpatients, a “first contact” for the care team is listed in our electronic medical record system (Epic, Verona, WI). For emergency department patients, the ordering provider includes in the radiology order a call-back number of a portable phone they carry during their shift for radiologists to call directly.

On call, radiology residents dictate and sign preliminary results using electronic dictation software (Powerscribe 360, Nuance Communications, Burlington, MA). The preliminary result is sent to the radiology chart review section of the electronic medical record system and is immediately visible to the treatment teams. For time-sensitive findings that are anticipated to have an immediate effect on patient care, it is policy to discuss the results verbally, which is usually by phone and may be in person. For other findings that need non-emergent communication, residents are encouraged to use the internal messaging system integrated into the electronic medical record system.

For context, out of 555,805 finalized radiology reports generated at our institution over the 1-year period from October 2015 to September 2016, the proportion of reports with documented communication using our standardized internal templates was 15.9% (88,295 of 555,805). This included 12.4% (69,186 of 555,805) flagged “routine,” 2.2% (12,203 of 555,805) flagged “unexpected,” 0.7% (3987 of 555,805) flagged “urgent,” and 0.5% (2919 of 555,805) flagged “critical.” This is an underestimation of the total number of communications because it reflects only those that used the standardized templates.

Data Analysis

The type of practice at which each of the radiology residents did their preliminary or transitional year before entering radiology residency was recorded. Descriptive statistics (proportions) were calculated. Proportions were compared between specialties to chi-square or Fisher exact test. $P < .05$ was considered significant for hypothesis testing.

RESULTS

The response rates were 86% (37 of 43) for radiology residents and 41% (151 of 364) for referring resident providers (emergency medicine: 48% [32 of 67]; surgery: 34% [45 of 134]; internal medicine: 45% [74 of 163]), with representation from all post-graduate year levels for all specialties (Table 1). Most (79%) radiology residents had done their preliminary or transitional year training at a community hospital ($n = 31$)

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