

The “Open Letter”: Radiologists’ Reports in the Era of Patient Web Portals

Michael A. Bruno, MS, MD^a, Jonelle M. Petscavage-Thomas, MD, MPH^a,
Michael J. Mohr, JD, MPA^b, Sigall K. Bell, MD^{c,d}, Stephen D. Brown, MD^{d,e}

Historically, radiologists’ official written reports have functionally been proprietary communications between radiologists and referring providers. Although never secret, these reports have traditionally been archived in the medical record, with tightly controlled access. Patients rarely viewed reports directly. As patient-centered care, transparent communication, and electronic archiving have converged, however, radiologists’ reports, like many other medical record components, are increasingly accessible to patients via web-based “portals.” Many radiologists harbor justified anxiety about whether and how radiology reports should change in response to these portals. Direct patient access to radiology reports raises several questions, including: who are reports really for, what is their essential purpose, what content should they include or omit, what limits should be placed on their accessibility, and what ethical and legal ramifications arise from the reports’ unfettered accessibility. In this paper, we outline the challenges and opportunities that arise from direct patient access to radiology reports via web-based portals, and propose an approach to optimizing radiologists’ reports in an era of enhanced transparency. We conclude that, in effect, the health information web portal is a “train which has left the station”; patient portals are a nationwide reality, and transparency is now a public and professional expectation. Radiologists urgently need to consider quality implications for their report writing in order to address the challenges these developments pose, and to best harness the potential benefits for patients and providers.

Key Words: Electronic health records, patient portal, radiology, documentation/standards, communication

J Am Coll Radiol 2014;11:863-867. Copyright © 2014 American College of Radiology

INTRODUCTION

The written radiology report is undergoing disruptive innovation. For decades, radiology reports—documents traditionally dictated by radiologists and typed by professional transcriptionists—were stable entities. Historically consisting of free-form prose loosely structured into distinct sections, such as “Findings” and “Impression,” their sometimes capricious organization reflected myriad practice variations. Although peers sometimes mocked poor reports [1], and articles about producing better

reports were occasionally published [2,3], the radiology reporting process never faced serious pressures to improve.

Radiology reports have always held purpose beyond the clinical information they convey. They are the most tangible work product of radiologists’ intellectual labor, and they help justify their billing process. Until now, radiology reports have been essentially private communications among radiologists and other physicians, written in medical jargon that is well understood by radiologists and referring physicians but relatively (perhaps purposefully) opaque to others. Although the core purpose of these reports as written communications among health care providers remains unchanged, evolving expectations in patient care are forcing changes to the reports’ construction, purpose, transparency, and ostensible ownership.

In recent years, nonradiologist physicians have made suggestions for improving radiology reports, such as using standardized language and structured organization to mitigate confusion and optimize information transfer [4,5]. Rapidly evolving information technology adds pressure to improve report quality and accessibility [6-9].

^aDepartment of Radiology, The Penn State Milton S. Hershey Medical Center, Hershey, Pennsylvania.

^bOffice of General Counsel, The Pennsylvania State University, State College, Pennsylvania.

^cBeth Israel Deaconess Medical Center and Harvard Medical School, Boston, Massachusetts.

^dInstitute of Professionalism and Ethical Practice, Boston Children’s Hospital, Boston, Massachusetts.

^eDepartment of Radiology, Boston Children’s Hospital and Harvard Medical School, Boston, Massachusetts.

Corresponding author and reprints: Department of Radiology, Mail Code H-066, The Penn State Milton S. Hershey Medical Center, 500 University Drive, Hershey, PA 17033; e-mail: mbruno@psu.edu.

Recent developments have heightened clinician expectations regarding the availability, completeness, understandability, and accuracy of radiology reports. The fact that written reports are enduring documents that can be readily entered into civil litigation has always put a premium on accuracy; the other expectations are relatively new.

Radiology reporting is also being shaped by movements toward quality, safety, and patient-centered care [10,11]. The Joint Commission now explicitly instructs health care providers to “encourage patients’ active involvement in their own care as a patient safety strategy” [12]. Untethered from traditional physician paternalism, the public now expects greater incorporation of patient values and preferences into physicians’ decision making. This expectation has enduring implications for radiologists who must now focus on the priorities of both patients and referring physicians. Radiologists and referring physicians alike must now consider patient expectations regarding radiological services, which include providing results to some patients far more expeditiously than in current practice. Many patients want report information within hours, regardless of who provides it [13], and to understand how their imaging test findings are relevant to their care.

Emerging standards for transparency about adverse events also have major implications for radiology reports [14-16]. A radiologist’s report is often the place where a variety of diagnostic, therapeutic, communication, and management errors are ultimately documented. Report clarity and accuracy is essential to upholding safety and transparency, given that miscommunication—whether from incorrect information in a report or simply unclear writing—is itself a potential source of clinical error and can become a major impediment to prompt error detection and mitigation of harm. Accordingly, heightened expectations for transparent error documentation in radiology reports may expose radiologists and their nonradiologist colleagues to further vulnerability in medico-legal proceedings [17].

At the same time, however, expectations have increased regarding direct radiologist-patient communication. The ACR has long mandated that radiologists inform patients directly of critical findings when the standard result notification process to the responsible (nonradiologist) physician of record breaks down. This responsibility has been enforced in civil litigation [18]. Radiologists have also been encouraged to communicate directly with patients about radiological errors and to offer forthright apologies when appropriate [15,17,19]. In some states, such disclosures are legally mandated.

In sum, these disruptive changes now situate radiology reports squarely at the crossroads of quality and safety initiatives, norms regarding patient-centered care, and risk management and malpractice procedures, just as they become more readily accessible to patients via web-based portals.

THE WEB-BASED PATIENT PORTAL

Web-based “patient portals” allow patients direct online access to their medical records, including radiologist reports. Their development extends naturally from medical and societal norms emphasizing quality, safety, and patient-centered care. Many hospital systems are rapidly developing patient portals, including our own. The Penn State Hershey Medical Center (HMC) established its portal last year, with radiology reports accessible since October 2013. Boston Children’s Hospital opened its portal in September 2013. The Beth Israel Deaconess Medical Center portal has been accessible to patients since April 2000.

Like many centers using patient portals, these 3 organizations have established embargo periods for access to radiology reports. Embargo periods allow delays between the time reports are electronically finalized and when patients can access them. Embargos allow time for clinician review and discussion with patients when needed. These periods vary widely among institutions. Early adopters of online portals, such as Kaiser Permanente and the Veterans Affairs health system, have provided millions of patients broad access to their health information [20,21].

Radiologists and their clinical colleagues are understandably anxious about wider availability of their previously “private” physician-to-physician communications. Patient portals introduce numerous questions, including: (1) whom does the report primarily serve; (2) what is the report’s essential purpose; and (3) whether and how report structure and content should change. These issues draw in economic, clinical, legal, and ethical considerations regarding what content, if any, should be withheld, and whether reports will undergo heightened scrutiny, given their larger and more heterogeneous audience. Early data suggest that greater medical record transparency can increase patient activism and improve self-reported health outcomes [22]. Although the impact on patients has not yet been fully revealed, one can reasonably expect patients to engage more directly with physicians after seeing their own radiologist reports.

THE IMPERATIVE OF REPORT CLARITY

In our experience, patients are often sensitive to language, grammar, organization, clarity, word choice, and even spelling in radiology reports. Radiologists often lack fastidiousness about such details. Many nonradiologist physicians understand from their own experience that automated dictation and transcription processes are imperfect, and they have historically tolerated typographical errors and other language deficiencies in radiology reports.

Patients, however, may have different expectations [23]. Basic language errors may confuse them. Worse, such errors may undermine their confidence in a report’s quality, the radiologist’s “attention to detail,” and correspondingly, his/her reported findings. A poorly organized,

confusing, or internally inconsistent report with misspellings and typos can erode patient confidence in their provider's work and even their institution. By extension, sloppy reports may render radiologists economically vulnerable in competitive markets. They may also create potent medico—legal liability, and in the age of web portals, evidence of liability may be directly delivered into patients' hands [18].

It seems therefore likely that patient web portals will exert upward pressure on the quality of radiology reports. Indeed, patient portals may ultimately advance quality, safety, and patient-centered care priorities by involving patients in their own care and improving provider-provider and patient-provider communication. Portals may thus provide an opportunity to enhance radiological practice at a time when *value-based* care has become a key priority [24]. By extension, referring physicians may experience pressure to improve their written communication with radiologists, particularly regarding information provided in service requests. Patients, an audience new to imaging requisitions (included in radiology reports) may react adversely to deficient or inaccurate requests.

HOW TO IMPROVE REPORT QUALITY IN THE ERA OF THE PATIENT WEB PORTAL

While radiologists' reports are always *expected* to be organized and clear, in practice they are often neither. By creating a wider readership, patient portals have provided an impetus for radiologists to improve their performance. We believe that radiologists' reports can substantially improve with training and rapid feedback. Few radiologists in practice today have had formal training in crafting radiology reports. Many may have acquired bad habits by emulating mentors and colleagues.

For 6 years, 2 authors (MAB, JP-T) have offered dedicated "report clarity writer's workshops" to HMC radiology residents. Similar to writing workshops offered at colleges, residents grapple with improving actual reports that contain both minor and major deficiencies. In our faculty's experience, this intervention improves the subjective quality of subsequent resident reports. One author (SKB) has been part of the OpenNotes project, a year-long multicenter study evaluating the effects of sharing medical visit notes with patients through a secure patient portal [22,23]. A few specific recommendations from our collective experience have emerged as being particularly valuable:

- **Elicit the full history.** Rather than parroting the limited history commonly provided by requesting physicians, radiologists should glean available pertinent history from electronic records or even directly from patients when possible. Accurate details about patient history may reassure patients reading their reports that the radiologist (whom they may not have

met) knows and cares about them, and has worked to understand the relevant clinical issues.

- **Use standardized organization.** Report content must be organized coherently. Structured or semi-structured report templates (such as those proposed by Larson, et al) are optimal [4].
- **Avoid excessive jargon.** Particularly now that more patients may read their reports directly, radiologists must pay attention to specific use of well-defined vocabulary. Although technical jargon may sometimes be appropriate for what remain primarily clinical communications, some usages common to many radiology reports may be so vague as to preclude understanding. Jargon or uncommon abbreviations may sometimes unintentionally offend patients.
- **Convey uncertainty forthrightly.** The radiologist's confidence level in suggested diagnoses should be conveyed in straightforward language meaningful to clinicians and patients, regardless of their sophistication. Care must be taken to avoid unduly vague reports about equivocal findings or observations with uncertain significance. Equivocal conclusions require attention to ensure that the degree of uncertainty is transmitted faithfully. Related recommendations for additional studies must be explained with clarity to facilitate communication between patients and their physicians regarding whether such recommendations should be followed [25].
- **Describe patient behavior thoughtfully.** Prudence and sensitivity should be exercised in descriptions of patient behavior, cooperativeness, and appearance (including body habitus). Some language may be perceived as unfairly "blameful" (eg, stating in a report that the "patient refused," or that the "patient denied" something, or that the patient provided "poor cooperation"). Factually correct, nonjudgmental descriptive language (eg, "the patient was not able to..." or "the patient expressed concern regarding...") is preferable. Effort should be made to incorporate the patient's perspective into describing why a study may have been difficult to undergo, or why it may have been declined [23].
- **Be sensitive to the patient, but do not unduly avoid sensitive topics.** Focus groups studying clinician and patient experiences with shared visit notes suggest that patients did not necessarily expect doctors to write notes *for them*. They understood that notes were tools for communication among providers [22]. Accordingly, the radiology report remains primarily an interprofessional communication in which clinical language and technical terminology are necessary. Appropriate medical language or diagnoses should not be diluted or couched in euphemism. In an early analysis of OpenNotes, 25% to 33% of participating physicians reported that they changed their descriptions of sensitive topics such as obesity, mental health, cancer, or substance abuse. Although some

patients may take offense to such language, others reported being motivated to embrace challenging behavioral change (weight loss, sobriety) by seeing their conditions described candidly [21,22].

- **Make evidence-based recommendations.** Whenever possible, recommendations for further clinical actions (eg, advanced imaging or biopsy) should be evidence based. This has always been true, but when the report is an “open letter” to both physicians and patients, radiologists must mitigate perceptions of self-referral when recommendations for additional actions may augment their revenue. Similarly, radiologists should minimize imaging recommendations that may evoke perceptions of defensive practice. Radiologists risk their credibility by advocating nonindicated studies. More importantly, such actions potentially undermine physician-physician and patient-physician relationships. Radiologists’ recommendations for nonindicated studies—read by a patient, but disregarded by the ordering or treating physician (who deems it misguided)—can generate unnecessary tensions and communication problems. Risk management-based but clinically irrelevant recommendations made by radiologists who fear future litigation generally do not provide meaningful malpractice protection. The absence of such recommendations does not generally cause lawsuits [26].
- **Document all direct communication.** Radiologists should accurately document relevant communication with patients at the time of radiological procedures, as well as any pertinent direct (eg, telephone) communications among providers. Evolving best practices for communication suggest that the radiology report is the best repository for such information.
- **Proofread.** Careful proofreading to correct typos, spelling, and grammatical errors is essential for every report. This quality check must be counterbalanced against pressures for rapid report turnaround time, but it cannot be omitted.

UNANSWERED QUESTIONS

The patient portal remains an inchoate entity whose implementation has preceded consensus on many key policy questions that have an impact on radiology. This lack of consensus has forced institutions and practices to deliberate on their own about important operational issues. For example, should radiology reports be routinely available to patients immediately upon finalization, or should embargo periods be instituted that allow ordering or treating physicians to communicate with patients first, placing the information into context? How long should embargo periods be, given the consumptive anxiety patients may experience while waiting for their reports, and many patients’ stated preference for receiving their results as quickly as possible [27,28]? How should complex medical systems with myriad referral patterns ensure that all providers

who request imaging exams be made aware of how portals and embargos function?

Another major issue is whether all reports should be made available without exception, or whether reports discussing certain information should be routinely embargoed, such as those relating to adolescent sexuality, pregnancy, and drug use; child abuse; and ongoing criminal litigation. Who should decide whether a particular report is withheld from direct patient (or parental) access? Should individual radiologists be permitted to decide unilaterally, or should such content-driven embargos be based on established criteria, enforced automatically and without exception? If exceptions are allowed, should there be a “central locus” of embargo decisions—an authorized individual or a committee? Individual provider discretion may facilitate efficiency and preserve provider autonomy, but it could exacerbate heterogeneity in information access and health care delivery. Embargoed reports may confuse patients, and they potentially expose radiologists to risk, if they create the impression that a radiologist is trying to conceal information that later becomes available. Such questions must be addressed carefully within individual institutions.

Other practical decisions center on service and efficiency. For example, who should answer calls from patients who are inquiring about their reports? Should such inquiries be directed to the ordering physician or handled within a radiology department, and by whom? If patients disagree with reports or find errors, should their views be formally documented, and where? Most radiology departments lack specific policies in this regard, and practices vary widely. Many radiologists are anxious about fielding such calls and may resent workflow interruptions. In our experience and anecdotal experience cited elsewhere [29], such calls are rare. Early experience with patient access to primary care notes reveals that few patients contacted their doctors, and e-mail volumes through the portal remained unchanged [20,22].

MEDICO—LEGAL CONSIDERATIONS

Radiologists’ anxiety about giving patients access to their reports centers largely on medico—legal concerns. However, radiology reports have always been discoverable in lawsuits. Access via patient portals does not change their admissibility. Recent experience with error disclosure suggests that transparent communication with patients may actually decrease legal risk [30,31]. Further, because patients already have legal access to their medical records, portals do not provide new information but rather alleviate barriers to access.

Plaintiff’s lawyers commonly point to poorly written reports to characterize radiologists as negligent, dangerously harried, and inattentive to detail [18]. By exerting upward pressure on the quality of radiology reports, patient portals may even help reduce medico—legal exposure for radiologists. It is unfortunate that some

radiologists might fear directly exposing their ultimate work product to patients. Ideally, radiologists would be proud of their reports.

CONCLUSIONS

The patient web portal is a “train that has left the station.” It is a nationwide reality, alongside public and professional expectations regarding transparent communication. Radiologists can help control the process or passively comply as others formulate key policies about patient access to radiological reports. Radiologists have much to gain by leading the discourse and much to lose by avoiding it.

Well-implemented portals will enhance patient understanding of their radiological results and empower them to take greater roles in their health care. Portals carry rich potential to reduce errors, improve communication, and promote informed decision making. With added focus on report quality, and development of organizational policy regarding access and responsiveness to patient concerns, radiologists may find that this new development serves their interests as well. By boosting radiology's visibility to and direct engagement with patients, web-based patient portals are an opportunity for radiologists to counterbalance marketplace trends toward commoditization of the specialty. Although many questions remain regarding best practices, patient portals may ultimately prove to be one of the most powerful tools radiologists have to enhance the value they bring to health care.

ACKNOWLEDGMENTS

Dr Sigall K. Bell thanks the Arnold P. Gold Foundation for a career development award through a Gold Professorship. Dr. Bell and Dr. Stephen D. Brown thank the Institute for Professionalism and Ethical Practice for their collaboration in promoting transparent communication practices with patients and family.

REFERENCES

- Wick CW. Lexicon for uncertain times. *J Am Coll Radiol* 2010;6:827-8.
- Kazerooni E. The Radiographic Report. In: Kazerooni EA, Gross BH, eds. *The core curriculum: cardiopulmonary imaging*. Philadelphia, PA: Lippincott Williams & Wilkins; 2004:69-77.
- Gunn AJ, Alabre CI, Bennet SE, et al. Structured feedback from referring physicians: a novel approach to quality improvement in radiology reporting. *AJR Am J Radiol* 2013;201:853-7.
- Larson DB, Towbin A, Pryor RM, Donnelly LF. Improving consistency in radiology reporting through the use of department-wide standardized structured reporting. *Radiology* 2013;267:240-50.
- Bosmans JML, Weyler JJ, De Schepper AM, Parizel PM. The radiology report as seen by radiologists and referring clinicians: results of the COVER and ROVER surveys. *Radiology* 2011;259:184-5.
- Thrall JH. The quality and safety revolution in health care. *Radiology* 2004;233:3-6.
- Johnson AJ, Easterling D, Nelson R, Chen MY, Frankel RM. Access to radiologic reports via a patient portal: clinical simulations to investigate patient preferences. *J Am Coll Radiol* 2013;9:256-63.
- Barron BJ, Banja J. Radiologic reporting: the ethical obligation of the interpreting physician to provide an accurate report. *AJR Am J Radiol* 2013;201:356-80.
- Hall FM. The radiology report of the future. *Radiology* 2009;251:313-6.
- Truog RD. Patients and doctors—the evolution of a relationship. 200th anniversary perspective article. *New Engl J Med* 2012;366:581-5.
- Walker J, Darer JD, Elmore JG, Delbanco T. The road toward fully transparent medical records. *New Engl J Med* 2014;370:6-8.
- The Joint Commission. 2007 national patient safety goals hospital program. Available at: <http://www.jointcommission.org/>. Accessed December 28, 2013.
- Basu PA, Ruiz-Wibbelsmann JA, Spielman SB, Van Dalsem VF, Rosenberg JK, Glaser GM. Creating a patient-centered imaging service: determining what patients want. *AJR Am J Radiol* 2011;196:605-10.
- Leape L, Berwick D, Clancy C, et al. Transforming healthcare: a safety imperative. *Qual Saf Health Care* 2009;18:424-8.
- Brown SD, Lehman CD, Truog RD, Browning DM, Gallaher TH. Stepping out further from the shadows: disclosure of harmful radiologic errors to patients. *Radiology* 2012;262:381-6.
- Gallagher TH, Mello MM, Levinson W, et al. Talking with patients about other clinicians' errors. *N Engl J Med* 2013;369:1752-7.
- Berlin L. To disclose or not to disclose radiologic errors: Should 'patient-first' supersede radiologists' self-interest. Annual Oration. *Radiology* 2013;268:4-7.
- Berlin L. Communicating results of all radiologic examinations directly to patients: Has the time come? *AJR Am J Radiol* 2007;189:1275-82.
- Berlin L. Pitfalls of the vague radiology report. *AJR Am J Radiol* 2000;174:1511-8.
- Weingart SN, Rind D, Tofias Z, Sands DZ. Who uses the patient internet portal? The PatientSite experience. *J Am Med Inform Assoc* 2006;13:91-5. Available at: <http://www4.va.gov/bluebutton/>. Accessed January 5, 2014.
- Delbanco T, Walker J, Darer JD, et al. Open Notes: doctors and patients signing on. *Ann Intern Med* 2010;152:121-5.
- Delbanco T, Walker J, Bell SK, et al. Inviting patients to read their doctors' notes: a quasi-experimental study and a look ahead. *Ann Intern Med* 2012;157:461-70.
- Landro L. “What the doctor is really thinking,” *The Wall Street Journal*, July 20, 2010. Accessed: <http://online.wsj.com/news/articles/SB10001424052748704720004575377060985974450>. Accessed November 15, 2013.
- Parti JA. 2013 ACR presidential address: a personal view on the future of radiology. *J Am Coll Radiol* 2013;10:665-71.
- Brown SD. Professional norms regarding how radiologists handle incidental findings. *J Am Coll Radiol* 2013;10:253-7.
- Berlin L. Radiologic malpractice litigation: a view of the past, a gaze at the present, a glimpse of the future. *AJR Am J Radiol* 2003;181:1481-6.
- Kolata G. “Sick and scared, and waiting, waiting, waiting,” *The New York Times*, August 20, 2005; sect A1:3. http://www.nytimes.com/2005/08/20/health/20waiting.html?pagewanted=all&_r=0.
- Glaser GM, Ruiz JA. The state of radiology in 2006: very high spatial resolution but no visibility. *Radiology* 2006;241:11-6.
- Kaplan DA. Patient portals: should patients have access to images, reports? Available at: <http://www.DiagnosticImaging.com>. Accessed December 20, 2013.
- Kachalia A, Kaufman SR, Boothman R, et al. Liability claims and costs before and after implementation of a medical error disclosure program. *Ann Intern Med* 2010;153:213-21.
- Arnold CW, McNamara M, El-Saden S, Chen S, Taira RK, Bui AA. Imaging informatics for consumer health: towards a radiology patient portal. *J Am Med Inform Assoc* 2013;20:1028-36.