



Radiology's Adoption of Structured Reporting

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ABSTRACT

Radiology reports are essential for patient care since referring doctors rely on them to choose the best course of treatment for their patients. Traditional narrative reports have a reputation for having an excessive amount of variation in their language, length, and style. This can reduce the clarity of the report and make it challenging for referring clinicians to locate the crucial information required for patient treatment. It has been suggested that structured reporting could be used to raise the calibre of radiology reports. This article provides a summary of the findings of the Association of University Radiologists—Radiology Research Alliance Structured Reporting Task Force's investigation into the present and potential future of structured reporting in radiology. We examine the benefits and drawbacks of structured radiology reports and talk about the opinions radiologists currently hold about these reports. We also go over the barriers to using structured reports and point up solutions for some of them. We also talk about how radiology reporting will develop in the era of customised medicine.

Keywords: Radiology; research; patient-centered radiology; structured reports; patient care.

INTRODUCTION

The radiology report is essential for managing patients. By correctly interpreting imaging data and effectively communicating imaging findings to referring physicians, radiologists contribute significantly to patient care. Despite the fact that certain referring doctors may interpret imaging findings independently, radiologists' reports have been demonstrated to be more accurate and thorough, leading to improved patient care (1–5). The reports must be accurate and timely, and they must also provide a solution to the clinical question, if we are to improve patient care. These indicators may be the most significant and easily accessible ones for a healthcare system to use to assess the value of radiology services.

Although reporting imaging results is a crucial part of radiology residency training programmes, there is typically less than 1 hour of formal training each year on how to

frame a radiology report (6). The majority of trainees, however, learn the craft of reporting by imitating peers, senior residents, fellows, and instructors. Traditionally, freetext, narrative language was used to write radiological reports. According to studies, utilising narrative language in nonstructured reports can hinder providing the best possible treatment for patients. Too much variety in language, length, and style can reduce the clarity of reports, making it challenging for referring doctors to locate the crucial data required for patient treatment (7–10).

It has been suggested that structured reporting could be used to raise the calibre of radiology reports. Structured reporting has been described using a tiered approach (7, 11–13). A structured report should, at the very least, be arranged under categories like "clinical history," "indication," "method," "findings," and "impression" . The "findings" part of structured reports

containing subheadings, such as the various photographed organs (or anatomical structures), is the next level of organisation. The structured radiology report, which is the highest level, possesses all the qualities listed above and employs a standard language built on a well-recognised terminology. Academic centres are increasingly utilising organised radiological reports that include templates, macros, or prefilled checklists.

ADVANTAGES OF STRUCTURED REPORTING

Structured reports provide significant benefits for radiologists and referring doctors, according to a study of the literature. The percentage of diagnostic mistakes, which accounts for up to 4% of reports for radiologists, is something that both radiologists and referring doctors are interested in lowering (14–18). A missed diagnosis is one of the most frequent reasons for malpractice claims against radiologists. Although there are many other contributing factors to diagnosis errors in radiology, cognitive bias—which results from the radiologist's "satisfaction of search"—is a significant one (23). This mistake happens when a radiologist makes the initial diagnosis based on the clinical history and then prematurely quits "hunting" for additional diagnoses. Avoiding such diagnostic blunders can be possible by using a checklist and a methodical search strategy (24–27). In a retrospective analysis of 3000 magnetic resonance images of the lumbar spine (MRI)

OBSTACLES TO STRUCTURED REPORTING

Despite the obvious advantages, radiologists have not yet come to accept

radiology report structuring (28). Only 51% of 265 academic radiologists in the United States used structured radiology reports consistently, while 33% used them occasionally, according to a survey. Only 60% of respondents to the same research expressed satisfaction with structured reports, while 27% were neutral or unsure and 13% were dissatisfied (29). Studies have out in other nations have likewise revealed similar outcomes. For instance, a survey of 1159 radiologists in Italy revealed that 56% of them never used organised radiology reports (30). Only 55% of the 132 radiologists surveyed in a related study done in Belgium thought organised reports for complicated tests like CT and MRI were a good idea.

Instead of more complex examinations like CT or MRI, report templates may be more helpful for simpler studies like x-rays or ultrasounds. Templates might not be complete enough to provide all of the relevant information for very complex scenarios. Additional drop-down menus, keyboard commands, and mouse clicks might be needed to accommodate the additional information, which would be inefficient (12). The coherence of the report and the referring physicians' ability to understand it may be negatively impacted by report templates' inclusion of extraneous or irrelevant information. In order to describe the large ovarian tumour with carcinomatosis and bowel obstruction, for instance, a rigid organ-based template may require dictating about incidental thyroid nodules, benign pericardial cysts, numerous liver and renal cysts, and various other wholly irrelevant findings in multiple organs.

OVERCOMING CHALLENGES

Structured reporting in breast imaging is one notable exception to the often difficult adoption of structured reporting in radiology. A great illustration of how structured radiological reporting can be successfully implemented in clinical practise is the history of BI-RADS (31). The necessity for reporting that was not only clear and succinct but also directed patient management was championed by several experts in the field of breast imaging. The most crucial takeaway from the BI-RADS success story is that radiological reports must influence patient treatment.

The Radiological Society of North America is one professional society that has underlined the value of using organised reports (RSNA). With a collection of standardised report templates, the "RSNA Reporting Initiative" seeks to enhance radiography practise (32). Over 200 report templates that are free to use from the RSNA were created with the assistance of expert committees of specialist radiologists (32). Other radiographic organisations, such the Society of Abdominal Radiology, have undertaken similar initiatives that have led to the development of disease-specific report templates (33).

The radiology leadership should identify areas where structured radiological reporting may be especially helpful before attempting to implement it at the institutional level. Committees with specialist knowledge may be needed for this (34). In order to guarantee that the organised radiology report contains all the necessary information for patient treatment, it is crucial to work together with the referring physicians and to solicit their feedback when creating disease-specific report templates. It is possible to adapt

structured templates from other national societies to suit local requirements. For instance, in surgical cases declared unresectable at other institutions, recommending doctors at tertiary cancer centres may take into account potential curative treatment. In such cases, it would be necessary to modify the structure and content of the structured radiology report to include all relevant extra information regarding resectability.

FUTURE DIRECTIONS

The radiology report is the single most significant deliverable that radiologists produce to interact with patients and referral doctors. As we transition from a volume-based to a value-based reimbursement model with specified quality measures, working with referring physicians to improve the clarity and consistency of radiology reports through structured reporting is crucial. We have already entered the future where our compensation will depend on which words we use in our reports. As more radiology practises start to take part in the Merit-based Incentive Payment System (MIPS), which is a component of the Medicare Access and CHIP Reauthorization Act, data extraction from structured reports offers a way to collect the quality metrics required for reimbursement (35). The radiologist report must contain data or follow-up recommendations for several of the MIPS quality measure proposals. These include documenting the number of prior ionising radiation tests, utilising a uniform nomenclature for imaging study types, and including follow-up advice for pulmonary nodules based on nodule size and patient risk. In addition to making it more likely that these data will be included, structured

reporting also makes it simpler to find such data.

CONCLUSION

In conclusion, structured radiology reports present special chances to enhance the calibre of a radiology report. Structured reports improve communication of radiological findings and increase clarity by utilising defined terminology. Initiatives for research and quality control can be greatly improved by the simplicity of data mining from structured reports. Despite the difficulties that structured radiology reporting faces, including the depersonalization of radiology reports and issues with productivity and efficiency, these issues can be resolved with a coordinated effort by the radiology community. The usage of structured radiology reporting may be increased globally by promoting additional research examining its effects on patient outcomes.

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