

# Follow-up recommendations: the challenge, the opportunity and our future

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Received: 28 July 2017 / Accepted: 11 August 2017 / Published online: 26 August 2017  
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*Where do we go?  
Where do we go now?  
Where do we go?*

— *Sweet Child O' Mine, Guns N' Roses, 1987*

Dr. Lee and colleagues are to be commended for their paper highlighting the important and growing role of the radiology report follow-up recommendation [1]. To paraphrase Rock & Roll Hall of Fame band Guns N' Roses, knowing where to go after the imaging exam is an essential component of patient care.

Follow-up recommendations in radiology reports are both common and increasingly utilized [2]. But what is the fundamental role of the recommendation? I would suggest that the role is twofold: improve patient care and lower costs. The latter may seem counter-intuitive because recommendations generally involve additional tests, and thus additional direct costs.

As the authors noted, the American College of Radiology (ACR) practice parameters specify the need to occasionally include follow-up recommendations in the impression section. The parameters themselves state that "Follow-up or additional diagnostic studies to clarify or confirm the impression should be suggested when appropriate" [3]. The need to use only appropriate recommendations cannot be overemphasized. A

goal of maximal adherence to follow-up recommendations is only reasonable if it can be shown that the recommendations themselves are appropriate. Such best-practice follow-up recommendations should be evidence-based. Perhaps one reason that a referring clinician may not follow a radiologist's guidance is that the recommendation itself was not appropriately given.

In addition to recommending appropriate follow-up, it is also important to specify when follow-up imaging is inappropriate. For example, if a benign lesion is detected, then it is good practice to indicate the benign nature of the finding and when necessary to specify that no follow-up is required.

As an example, the authors make reference to incidental thyroid nodules. Optimizing policies for incidental thyroid nodules is low-hanging fruit when it comes to follow-up recommendations. First, there are data that such nodules are commonly seen in the adult population and that their management is highly variable [4]. Furthermore, there is an evidence-based white paper on management [5]. This best practice workflow represents an opportunity to impact both the numerator and denominator in the value equation of quality/cost. Quality, in terms of patient care, is optimized by helping ensure that patients who need further care receive it and that patients who do not are not subjected to unnecessary tests. Such unwarranted tests not only add cost, but also expose the patient to the possibility of complications. To avoid such tests, it may be necessary, as our practice does, to include language in the report that follow-up imaging is not required. Simply excluding a follow-up recommendation may not be sufficient, because without guidance many clinicians will order additional tests. Avoiding unnecessary imaging while simultaneously encouraging necessary imaging is the core tenet of Imaging 3.0, the ACR initiative to improve the practice of radiology [6].

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It is also worth noting that many follow-up recommendations can be avoided altogether if prior examinations can be located and compared. While this is occasionally a local problem (meaning that a radiologist, for whatever reason, did not compare the study to a prior exam from the same facility), more often this problem is due to a lack of coordination between facilities such that older exams are often unknown and thus “invisible” to the interpreting radiologist. If, for example, an outside CT from 3 years ago can be identified, direct comparison can be made and often unnecessary follow-up imaging can be avoided.

The authors brought up another interesting question: What actions may radiologists take to improve adherence to follow-up recommendations? I suggest that there are three steps that we can take to address this issue. The first step, as mentioned, is to use evidence-based best-practice guidelines when making recommendations.

The second step to improve adherence is to consistently use follow-up guidelines. To be most impactful, the recommendations across the practice or department should be standardized. It is not hard to imagine a clinician questioning the value of a recommendation when they see different recommendations for the same type of lesion. Such report standardization may be easy to explain but is challenging to operationalize. First, it requires that staff understand and agree on the recommendation. Second, it requires development of a workable method to reliably insert this recommendation into the report. This process can be accomplished by having printed documents with the various follow-up policies at each workstation or available online, but this radiologist-dependent process only works with a limited number of best-practice guidelines — it cannot be scaled. In a busy practice, where efficiency is a requirement, having technology-enabled solutions is crucial. In my practice we refer to this as “making it easy to practice well.”

The third step to improve adherence is to be clear and specific in the recommendation. “Recommend thyroid ultrasound in 6 months” is preferable to “Suggest follow-up.” There is evidence that stronger wording and clear statements increase the likelihood of adherence [7]. While it is true that the interpreting radiologists sometimes (often) do not have complete clinical information, that does not abdicate them of their responsibility to provide appropriate guidance. It may, however, mean that they occasionally have to put in some modifier statement (“In isolation of other clinical findings, the appropriate imaging-based follow-up for this lesion is repeat CT in 6 months”). This type of statement clearly indicates what the next imaging step should be, but

acknowledges that there is a broader clinical picture that may impact decision-making.

Finally, there is the philosophical question regarding our role as radiologists and our duty to the overall care of the patient. I believe that making appropriate recommendations is part two of an at least three-part evolution in radiology. Part one is correctly identifying, interpreting and communicating the imaging findings. This has historically been perceived as the role of radiology. Evolving beyond this role, part two is institution of processes to encourage appropriate imaging. The ACR’s R-SCAN (Radiology Support Communication and Alignment Network) is an example of this. Additionally, this second evolutionary step also requires the consistent and clear usage of best-practice follow-up recommendations. Many practices and departments are currently evaluating ways to support this goal, highlighting the timely nature of the article by Dr. Lee and colleagues. Part three is care coordination efforts taken to ensure that the recommended follow-up is being obtained. For example, in patients with an abdominal aortic aneurysm, ensuring that appropriate guidelines are given and followed has the potential to save lives [8]. In pediatrics, when we have a previously healthy 5-day-old patient with bilious emesis and an abnormal bowel gas pattern and recommend an emergent upper gastrointestinal examination to exclude malrotation, are we not obligated to follow up if the child doesn’t arrive in fluoroscopy in a timely fashion? Or does our duty end at the initial recommendation, made either via the electronic report or even directly? Perhaps it is not an obligation but instead good practice to follow up on such patients and ensure the medical imaging study is performed? Many such questions are left to be answered.

While there are numerous challenges ahead, the inclusion of best-practice follow-up recommendations that advance patient care while simultaneously limiting unnecessary cost drivers represents an important and evolving role for radiology and the radiologist. This, I believe, is our future.

**Conflicts of interest** None

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