Expert Opinion

What are the Greatest Challenges and/or Barriers to Applying Evidence-based Medicine in the Daily Practice of Cardiopulmonary Radiology?

Phillip M. Boiselle, MD, Jannette Collins, MD, MEd, FCCP, FACR, Jonathan D. Dodd, MD, Christian J. Herold, MD, and Ann N. Leung, MD

Although evidence-based medicine is now considered the gold standard for clinical practice in a variety of medical disciplines, it can be challenging for radiologists to integrate this method into their practice. We thus asked several leading experts to respond to the following question:

"What are the greatest challenges and/or barriers to applying evidence-based medicine in the daily practice of cardiopulmonary radiology?"

There is a lack of evidence. Even information that purports to be evidence-based may lack the methodological rigor of true evidence-based medicine (EBM). Evaluating the original research is often not practical. More secondary sources that summarize the literature and provide useful, actionable information are needed. Both radiologists and referring clinicians may not be familiar with evidence-based recommendations. Even when they are, some physicians may not be willing to change their practice. Management of suspected pulmonary embolism is a good example of non-uniformity in patient management even when evidence-based guidelines developed jointly by radiologists and non-radiologists exist. Some individuals have told me they view EBM as a threat to their autonomy in decision making.

Jannette Collins, MD, MEd, FCCP, FACR
Cincinnati, OH, USA

The greatest challenges/barriers are educating radiologists, of all generations, about evidence-based practice (EBP) techniques and applying them to radiology. EBP is particularly suited to fast-moving topics like cardiopulmonary radiology, where technology is moving faster than textbooks, and keeping up with the contemporary literature is challenging. EBP education applied to cardiopulmonary radiology can be achieved through various media including textbooks, websites, article series and workshops.

Jonathan D. Dodd, MD
Dublin, Ireland

The greatest challenges to applying evidence-based medicine in daily practice of cardiopulmonary radiology include the rapid advancement of imaging technology, and the speed with which new discoveries are integrated into daily clinical practice. One classic example for this notion is the evaluation of patients with suspected pulmonary embolism: Whereas evidence based guidelines still named pulmonary angiography as the most appropriate technology to assess patients with suspected PE, clinical practice already relied heavily on CT angiography. Interestingly, European centers were faster in utilizing CT angiography in comparison to US centers, which very likely represents the stronger adherence to guidelines in US medicine. Another more recent example is the management of subsolid pulmonary nodules. Here, guidelines are needed from the clinical point of view, but the current body of knowledge does not provide strong evidence for management strategies and thus recommendations are weak. In this dilemma resulting from a fast moving field, we may need to define other means to determine the appropriate use of methodology, and to create valid recommendations for clinical practice.

Christian J. Herold, MD
Vienna, Austria

Application of evidence-based medicine in the daily practice of cardiopulmonary radiology will require practitioners to have ready access to systematic reviews focused on important clinical questions, to objectively appraise the evidence as to quality and relevance, and to apply the findings with monitoring of self-performance. Challenges to following this paradigm include the relative lack of high quality reviews in radiology as compared to other specialties and the variable quality of research studies that comprise the evidence on which recommendations are based. Physician commitment to evidence-based practice is an indispensable element; experience with Fleischner guidelines on nodule management shows that awareness does not equate to implementation.

Ann N. Leung, MD
Palo Alto, CA, USA

The authors declare no conflicts of interest.