

# The Era of Evidence-Based Medicine: What Are the Implications for *JNM* and Other Imaging Journals?

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**T**he population is aging, and the cost of health care is increasing rapidly to unsustainable levels. High-technology molecular imaging procedures such as PET/CT and SPECT/CT have developed rapidly in the past decade, and new radiopharmaceuticals have been approved by regulatory agencies (e.g., radiopharmaceuticals for imaging amyloid and dopamine transporters). These advances in medical imaging have greatly increased the need for evidence-based data to facilitate comprehensive reimbursement decisions.

The national coverage policy of Medicare reads, “Medicare coverage is limited to items and services that are reasonable and necessary for the diagnosis or treatment of an illness or injury. National coverage determinations (NCDs) are made through an evidence-based process, with opportunities for public participation.” In the hierarchic model of study designs based on efficacy outcome described by Fryback and Thornbury in 1991, imaging studies are often at the level of “technical efficacy or diagnostic accuracy efficacy” and sometimes at the level of “therapeutic efficacy” (impact on management). Rarely, however, are they at the level of “patient outcome” or “societal efficacy” (cost-effectiveness).

The pyramid for levels of evidence ranges from case reports to randomized trials, and the literature can be compiled in systematic reviews and metaanalyses. Metaanalyses provide the highest level of evidence but are often limited by the heterogeneity of the data available in the literature, although reporting standards do exist. There are the STAndards for the Reporting of Diagnostic accuracy studies (STARD statement and checklist), the CONSORT state-

ment and checklist for reporting randomized trials, the PRISMA flow diagram and checklist for reporting metaanalyses and systematic reviews, and the REporting recommendations for tumor MARKers prognostic studies (REMARK). There is also the QUADAS tool (questions) to assess the quality of studies evaluating diagnostic tests.

In an effort to improve the quality and level of evidence of the articles published in *The Journal of Nuclear Medicine*, we encourage authors to follow the reporting standards that apply to their studies. The submission checklist for the authors has been revised to include definitions of the reporting standards and a link to the different checklists. Authors have the opportunity to submit the checklist related to their manuscript as supplemental material online. The availability of the completed checklist related to a submitted manuscript will facilitate the review process and likely improve the quality of the submission and likelihood of acceptance.



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## REFERENCE

1. Fryback DG, Thornbury JR. The efficacy of diagnostic imaging. *Med Decis Making*. 1991;11:88–94.