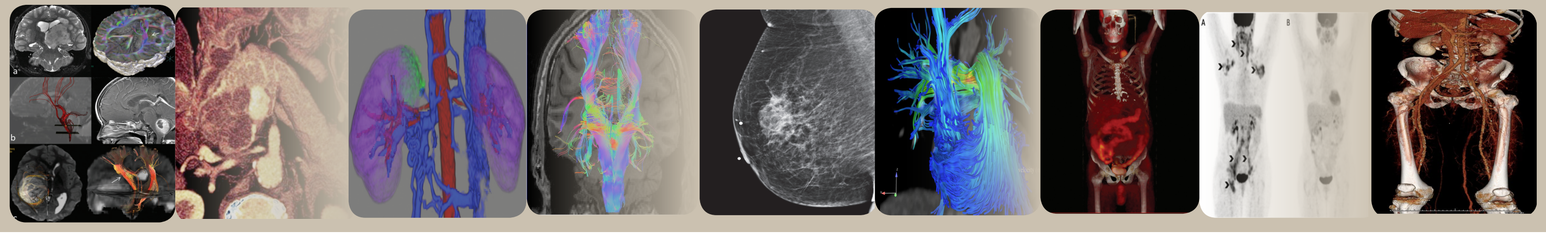
STANFORD SCHOOL OF MEDICINE

Department of Radiology

CME RADIOLOGY GRAND ROUNDS



"Challenges for Imaging Journals and Their Readers: Getting to the Truth"

Herbert Kressel, MD

Editor, Radiology
Miriam H. Stoneman Professor of Radiology
Harvard Medical School
Chairman, Emeritus
Beth Israel Deaconess Medical Center Radiology Dept.

Tuesday, May 6, 2014
7:30 AM - 8:30 AM
Li Ka Shing Center - Room LK130

Global Learning Objectives

- Critically analyze research, guidelines and appropriate use criteria to develop best-practice diagnosis and treatment strategies
- Evaluate latest innovations in imaging to assess safety and effectiveness

Session Learning Objectives

- To learn to evaluate the sources of bias in manuscripts due to conflict of interest issues and to assess their effect in biomedical publications
- To recognize "spin" or overinterpretation of in biomedical research manuscripts

Accreditation

The Stanford University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation

The Stanford University School of Medicine designates this live activity for a maximum of 1.00 *AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Cultural and Linguistic Competency

California Assembly Bill 1195 requires continuing medical education activities with patient care components to include curriculum in the subjects of cultural and linguistic competency. The planners and speakers of this CME activity have been encouraged to address cultural issues relevant to their topic area. The Stanford University School of Medicine Multicultural Health Portal also contains many useful cultural and linguistic competency tools including culture guides, language access information and pertinent state and federal laws. You are encouraged to visit the portal: http://lane.stanford.edu/portals/cultural.html

Course Directors: Sanjiv Sam Gambhir, MD, PhD
Andrei Iagaru, MD

ABSTRACT

Over the past several decades increasingly, concerns have been raised as to the validity and ability to generalize from published scientific articles. The causes of this problem appears to be multifactorial but include ethical issues, including conflict of interest and redundant publication, and issues relating to the quality of the science and the tendency to over-interpret or "spin" the findings that are being reported.

The rate of retraction of scientific manuscripts has grown ten-fold in the past decade. Nearly half of the retractions, unfortunately, are due to some form of misconduct, including plagiarism, redundant publication, and data falsification. There is ample evidence that conflict of interest particularly as it relates to industry sponsored research also contributes to the problem. Despite recent efforts in mandating trial registration before the study begins, and in making the primary data available for review, these commercially driven problems appear to persist.

Scientifically, the validity of a result is largely dependent on the statistical power of the study, and the many sources of bias, including publication bias, the apparent desire of journals to publish positive results. Smaller studies, testing multiple variables, and within study flexibility as to designs, outcomes and analyses are all sources of potential problems. Recently a number of investigators have begun to look at "spin" in scientific publications. In a study reviewing over 126 articles on diagnostic performance, a variety of journals with impact factors of 4.0 or greater, 31 % had some form of over-interpretation and a much larger number, perhaps as high as 89%, had some evidence of potential over-interpretation including lack of a sample size calculation, lack of a clear test hypothesis, and failure to report confidence intervals in accuracy measurements. To deal with these issues we will need a multifaceted approach including restructuring the incentives in science, encouraging the publication of high quality studies with negative results, promoting Meta-analysis and creating a culture of ethical scientific research throughout the research community.