Comparative Effectiveness Research in Radiology – Universal Definitions and Methods

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This talk will provide a framework for understanding comparative effectiveness research (CER) in radiology. CER can be broadly defined as research that seeks to identify superior healthcare strategies by comparing new or current options to conventional standards. An important feature of CER, which distinguishes CER from other types of clinical research, is its emphasis upon patient-centered studies that translate readily to real-world settings. As such, CER efforts focus upon comparing innovations to standard-of-care practices rather than to placebo or “do nothing” options, and prioritize generalizability of results over idealized study conditions.

It is generally recognized that the infrastructure for CER must be supported hand-in-hand with CER studies themselves. This means that CER activities encompass a much greater scope than randomized controlled trials or observational studies alone. Consider, for example, the use of liver MRI for hepatocellular carcinoma surveillance in patients with cirrhosis. Related CER would ideally compare the effectiveness of MRI to other imaging modalities. However, the development of patient databases to support such comparative studies - as well as of electronic health record (EHR) search engines to automate identification of patients who could benefit from specific surveillance strategies - are also likely to be considered activities under the CER umbrella by many funding agencies.

A common debate pertains to whether or not economic analyses, in particular cost-effectiveness analyses, should be included as part of CER. Arguments in favor of including economic analyses within CER are primarily based upon the reality that healthcare funds are restricted, and that providing the best possible care for a population requires knowing the monetary value of differing healthcare strategies. Arguments against inclusion of economic analyses within CER are primarily based upon fears of inappropriate healthcare rationing and restrictions in access to care. Nations have highly disparate views on this issue – for example, acceptance of cost-effectiveness analyses in the U.S. has been challenging, while such analyses play a more central role in policymaking in the U.K.

In this talk, CER will be defined from an imaging perspective, and concepts that are universal to CER – across nations – will be presented. Examples from radiology, including MRI, will be discussed. Critical elements for building CER in MRI will be highlighted, and a strong rationale for conducting economic analyses alongside CER will be provided.