Comparative effectiveness research in neurosurgery

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Comparative effectiveness research (CER) is defined by the Institute of Medicine as “the generation and synthesis of evidence that compares the benefits and harms of alternative methods to prevent, diagnose, treat, and monitor a clinical condition or to improve delivery of care,” by the Federal Coordinating Council for Comparative Effectiveness Research as “the conduct and synthesis of research comparing the benefits and harms of different interventions and strategies to prevent, diagnose, treat, and monitor health conditions in ‘real world’ settings,” and by the American College of Physicians as “the evaluation of the relative (clinical) effectiveness, safety, and cost of two or more medical services, drugs, devices, therapies, or procedures used to treat the same condition.” The purpose of CER, as stated by the Institute of Medicine, is “to assist consumers, clinicians, purchasers, and policy makers to make informed decisions that will improve health care at both the individual and population levels.” In its current manifestation, CER seeks to integrate data derived from various forms of clinical research with patient outcomes data, quality of life assessments, and possibly with economic analyses to construct a more thorough foundation on which patient management strategies can be constructed.

The CER paradigm has gained prominence over the past several years in scientific and public policy arenas. Comparative effectiveness research is now regularly discussed on the national scale by clinicians and policymakers, and recent federal funding initiatives have all but guaranteed its place in the health care sciences, in the public policy forum, and in the lives of patients for years to come. Notwithstanding, subspecialty surgeons in general and neurosurgeons in particular have been relatively metered in their enthusiasm for this approach and hesitant to adopt CER as part of their standard methodological repertoire. The reasons for this are multifactorial and may include a general unfamiliarity among surgeons with the CER model, a perception that CER is applicable only to public health or medical (nonsurgical) questions, an underemphasis of surgical topics among the enumerated “Initial National Priorities for CER,” or a concern that CER represents an effort to supersede individual clinical judgment or to ration health care. All of these issues can be addressed by increasing exposure to and familiarity with the CER paradigm among surgeons because, barring a dramatic shift in public opinion or political climate, CER will likely continue to occupy a progressively important role in clinical practice and in health care policy.

The goals of this issue of Neurosurgical Focus are twofold, and the structure of the issue reflects this bipartite intent. The first objective is to provide neurosurgeons with a general introduction to various dimensions of the CER paradigm, and the articles comprising the first half of this issue (E1–E8) are intended to achieve this goal. This section includes a general introduction to CER and its relevance to the neurosurgical community, reviews of the current status of CER in various neurosurgical subdisciplines, explanations of specific research methods that may be employed in CER investigations, a discussion of the relationship between CER and health care policy, and a balanced assessment of the current implementation of CER on the national scale, accompanied by a critical appraisal of the relative merits, limitations, and potential alternatives to current CER practices.

The second goal of this issue is to highlight specific applications of the CER approach for answering clinically relevant neurosurgical questions. Accordingly, the second half of the issue (E9–E16) contains actual neurosurgical investigations conducted using CER methods. Because...
neurosurgical CER represents a relatively recent undertaking by a limited number of investigators, inclusion of articles in this section was not predicated upon strict adherence to the most rigid, formal definitions of CER. Instead, we have attempted to provide an exemplary overview of the potential utility of CER in neurosurgery by including manuscripts that present comparisons among alternative therapeutic modalities and that consider domains beyond efficacy (for example, cost and quality of life) whenever possible. This has allowed us to include reports that describe preclinical, clinical, and health care systems–level investigations that reflect at least some application of the CER approach to neurosurgery-related questions.

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Disclosure

The authors report no conflict of interest.

References