Witnessing the Engagement of Radiology, Neurology, Health Policy, Economics, and Technology in the Science of Healthcare Delivery for Stroke

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Stroke is one of the most significant health problems in the United States and imposes a significant economic burden on our healthcare system. Stroke is ranked among the most expensive diseases such as cancer, diabetes mellitus, and depression. Total direct and indirect cost resulting from stroke has been reported to exceed $65 billion. Direct cost encompasses all expenditures from hospitalization, including treatments and diagnostics, nursing homes, physicians, and other healthcare expenditures, pharmaceuticals, and other medical durables. Despite the high financial burden, there are only a limited number of health economic studies associated with stroke. A systematic review was conducted to determine current US costs of stroke and to assess whether a gap in available information exists. The literature review revealed that the majority of cost-related analyses focused on acute, early diagnostic evaluation, critical care, and short-term in-hospital care as these were recognized as the key drivers of acute stroke hospitalization costs. An accompanying systematic review concluded that the high costs associated with stroke clearly indicate that there was an imperative need for more health economic evaluations of various models of acute stroke care delivery systems, including various diagnostic neuroimaging.

The science of healthcare delivery is research aimed at improving healthcare delivery, outcomes, and cost. As the authors Burton et al have pointed out, high-quality economic evaluations are important tools used to estimate the impact of a particular health intervention, whether diagnostic or therapeutic, on health costs and consequences. Advanced diagnostic radiological evaluations for acute stroke are ideal for study because multiple imaging modalities and paradigms exist at variable associated costs, with various outcomes.

Burton et al addressed a well-posed research question: What was the quality of existing economic evaluations of medical imaging in patients exhibiting stroke symptoms? The authors present well-defined inclusion and exclusion criteria. Studies published in any year, in any language, and describing patients of any age were included if they performed comparative analysis of both costs and consequences of ≥2 different imaging strategies that are commonly used to manage patients presenting with a clinical profile potentially consistent with acute stroke. Studies not reporting primary data were excluded. Convincing efforts were made to find all relevant articles, including the development of a comprehensive search strategy in conjunction with an evidence-based medicine library scientist, searches of large and small electronic bibliographic databases, hand searches, and probes of the gray literature. The quality of the studies was assessed with an acceptable instrument designed for evaluation of health economic research. Although ≥2 investigators participated in every phase of the systematic review, including the design of the search strategy, the screening of the search yield, the application of eligibility criteria, the evaluation of the study quality, and the data abstraction, the authors did not report the reproducibility of the independent assessments (eg, agreement or k). Predominantly qualitative, or descriptive, analyses were chosen for expression in the study. The principle quantitative result was the reporting of median and range of quality score and quality percent score. The authors did not specifically address the assessment of heterogeneity or publication bias. Sources of variability between studies were identified. Summary estimates of study methodological quality and precision were presented. Study patients and their management were satisfactorily similar to current standards. It is anticipated that the results of this overview will help guide the development of high-quality economic models in stroke imaging that will inform those interested in the most cost-effective evaluative strategies for patients presenting to hospitals with acute stroke syndromes.

Overall, the methodological quality of the systematic review, critical appraisal, and analysis, featured in this issue, was high. Equally impressive was the way in which clinicians, clinical scientists, health policy scientists, healthcare delivery scientists, and health economic researchers all collaborated over a neurological problem.

Disclosures

None.

References


**Key Words:** delivery of healthcare ■ economics ■ health care costs ■ health policy ■ radiology ■ stroke
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