Comparative Effectiveness Research in Clinical Practice

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The Agency for Healthcare Research and Quality (AHRQ) has funded systematic reviews of comparative effectiveness research in 17 areas over the last 10 years as part of a federal mandate. These reviews provide a reliable and unbiased source of comprehensive information about the effectiveness and risks of treatment alternatives for patients and clinicians. This article describes comparative effectiveness research, provides an overview of how physicians can use it in clinical practice, and references important contributions made by the Minnesota Evidence-based Practice Center.

Given the growing volume of medical literature, it has become increasingly difficult for clinicians to keep up with what’s current and easy for them to miss relevant studies, potentially leading to a biased view of the available research. One strategy for keeping up with the literature is to read systematic reviews, in which the evidence on various topics is synthesized. Of particular relevance to clinicians are studies on the effectiveness and risks of treatment alternatives and outcomes in “real-world” settings. Such research has come to be called “comparative effectiveness research.”

Systematic reviews of comparative effectiveness research (also known as comparative effectiveness reviews) are important, as the results of an individual study are rarely sufficient for decision-making.

Over the past 10 years, the Agency for Healthcare Research and Quality (AHRQ) has funded the systematic review of comparative effectiveness research in 17 areas (Table 1). These reviews provide a reliable and unbiased source of comprehensive information on topics for patients and physicians in clinical practice. Some of this work has been conducted in Minnesota by the Minnesota Evidence-Based Practice Center, one of 11 AHRQ-supported research centers that produce comparative effectiveness reviews or effectiveness reviews on medications, devices and other health care services. The evidence-based practice centers are funded by the Patient-Centered Outcomes Research Trust Fund, a revenue source established by the Patient Protection and Affordable Care Act of 2010. The Minnesota center is a collaborative venture of the University of Minnesota School of Public Health and the Minneapolis VA Health Care System.

What is Comparative Effectiveness Research?

Definitions of comparative effectiveness research have been put forth by several organizations, including the Institute of Medicine and the Federal Coordinating Council for Comparative Effectiveness Research, which was established under the American Recovery and Reinvestment Act of 2009. Although definitions vary, comparative effectiveness research is characterized by several attributes: 1) Its goal is to inform decisions about health care; 2) it compares both the benefits and harms of interventions and tests; 3) it evaluates outcomes in real-world patients and settings and emphasizes outcomes that matter to patients; and 4) it considers the effect of interventions on subgroups that may have heterogeneous outcomes.

The AHRQ was the first federal agency with a legislative mandate to conduct such research through its Effective Health Care Program. Section 1013 of the Medicare Prescription Drug, Improvement and Modernization Act of 2003 directed AHRQ to support research with a focus on outcomes; comparative clinical effectiveness; and appropriateness of pharmaceuticals, devices and health care services.

The teams that develop comparative effectiveness systematic reviews typically include a project manager (a Ph.D.-level researcher who is responsible for leading the research review and writing the bulk of the report on it), one or more clinical experts who know the topic, research assistants and a project director who provides general oversight. These teams are supported by a panel of technical content experts who provide insights and advice at various stages.
Once a topic is identified and assigned to a team, the team refines it and develops key questions that form the basis for the review. This involves consulting a broad range of stakeholders to be sure that the answers to the questions will provide useful information and that the questions are formulated in a way that they can be reasonably answered with the resources available. The team then searches various databases to identify potentially relevant articles and winnows those down to a few by reviewing abstracts and/or the original articles. Selected articles are abstracted and the data summarized. Each study is assessed for risk of bias and strength of evidence for each major outcome. The reports identify what is known and the confidence that can be placed in the knowledge that is currently available. Gaps in knowledge form the basis for recommendations for future research; however, a primary goal of these reviews is to provide actionable information to assist clinicians and policy makers.

**Clinician and Patient Resources**

Since 2005, AHRQ’s Effective Health Care Program has completed more than 140 reviews, which compare treatments and testing options on clinical conditions ranging from diabetes to cancer to depression. To encourage the use of the evidence in those reports in shared decision-making between clinician and patients, AHRQ packages the information in brief, practical summaries. Summaries for consumers provide useful background information on health conditions as well as plain-language information about the benefits and harms of treatment alternatives. Summaries for clinicians provide more detailed scientific information, a “Clinical Bottom Line” on the report’s findings, and a rating of the strength of the evidence behind the reports’ conclusions. The research summaries are not clinical recommendations or guidelines and should not be interpreted as such; rather, they are intended to inform decision making while allowing for individual choices. Table 2 lists some examples of research summaries that have been completed.

These reviews and others are used for a variety of purposes. More than 600 organizations representing practicing clinicians, consumers, researchers, public health professionals and others have signed on to help promote the use of research summaries and other offerings from the AHRQ’s Effective Health Care Program. More than 40,000 clinicians have earned continuing education credit by completing modules based on the reviews. In addition, more than 4 million Effective Health Care Program publications have been distributed to patients at health fairs and through grocery and pharmacy chains and to clinicians at professional meetings.

**Comparative Effectiveness Research in Minnesota**

The Minnesota Evidence-Based Practice Center has made important contributions to AHRQ’s growing inventory of resources and tools. Funded since 2002, the Minnesota center has conducted more than 40 systematic reviews on a variety of topics and has received funding to conduct comparative effectiveness reviews in the area of disabilities. Among the topics studied are long-term care for older adults, treatment for restless legs syndrome, migraine in children and adults, physical therapy for knee pain secondary to osteoarthritis, and nonsurgical treatments for urinary incontinence in adult women. (For more information, go to www.mnepc.org.)

Some of the reviews compiled by the Minnesota center have been used to inform clinical practice guidelines. Among those are:

- Recurrent Nephrolithiasis in Adults: Comparative Effectiveness Review of Medical Preventive Strategies (July
2012), which was used by the American College of Physicians and American Urological Association to inform clinical practice guidelines for their professional societies.

- Nonsurgical Treatments for Urinary Incontinence in Adult Women: Diagnosis and Comparative Effectiveness (April 2012), which was used by the American College of Physicians and the U.S. Preventive Services Task Force to inform their recommendations.

- Chronic Kidney Disease Stages 1-3: Screening, Monitoring and Treatment (January 2012), which was used by the American College of Physicians and the U.S. Preventive Services Task Force to inform their recommendations.

The recommendations of professional medical societies, as well as the U.S. Preventive Services Task Force, influence how care is provided. Hospitals and health systems in Minnesota and around the country implement these clinical practice guidelines as they see fit in order to improve how care is provided to patients.

**Conclusion**

The goal of comparative effectiveness research is to inform those making decisions about health care. Systematic reviews provide a comprehensive view of what we know from existing research and illuminate gaps in our knowledge. Because comparative effectiveness research focuses on interventions and tests and outcomes that are important to patients, these reviews can help clinicians and patients as they discuss options and make decisions. The hope is that by disseminating the research, we are ensuring that clinicians and patients have the information they need to improve the overall quality of patient care.

William Lawrence and Stephanie Chang are with the Agency for Healthcare Research and Quality. Robert Kane and Timothy Wilt are with the Minnesota Evidence-based Practice Center.

**EMPLOYMENT OPPORTUNITIES**

**Fairview-Southdale Hospital ICU Medical Director**

University of Minnesota Physicians is seeking a Medical Director for the Fairview-Southdale ICU (FS-ICU). This position will provide and direct outstanding care of critically ill patients in a multidisciplinary ICU at Fairview-Southdale Hospital. This position will also serve as Chair of the multidisciplinary critical care committee. The majority of efforts will be onsite at Fairview-Southdale Hospital.

Requirements for this position include:

- Have or be eligible for MN State Medical License
- Board certified in Critical Care (Anesthesia, Medicine, Surgery or Pulmonary Pulmonary physicians will have opportunity to develop additional practice if desired)
- Four years of experience post fellowship preferred
- Experience in a community setting strongly desired

FOR MORE INFORMATION AND A COMPLETE JOB DESCRIPTION, CONTACT:

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**REFERENCES**