We at MetaStar are delighted that the Wisconsin Medical Journal has adopted evidence-based medicine as the theme of this issue. For over a decade, spreading the practice of evidence-based medicine has been the foundation of MetaStar’s work.

The mission of Medicare quality improvement organizations (QIOs) like MetaStar, according to the Social Security Act, is to “improve the efficiency, effectiveness, economy, and quality of services delivered to Medicare beneficiaries.” At first, peer review organizations (PROs), as the statute calls them, pursued this mission via retrospective case review. This approach soon was seen as wrongheaded: case reviews were of questionable reliability; they focused on individual incidents long past, they failed to account for the findings of variations research, and they elicited animosity from physicians and providers. A report by the Institute of Medicine in 1990 recommended a shift to a quality-oriented approach.

In 1992, Health Care Finance and Access (HCFA) (now the Centers for Medicare & Medicaid Services) published a seminal article calling for a new approach to quality of care for Medicare beneficiaries: improving the mainstream of care rather than going after “bad apples,” and establishing cooperative partnerships with those who deliver care rather than taking a punitive approach.

At the heart of the new approach—today called the Health Care Quality Improvement Program (HCQIP)—is the use of published studies, and of guidelines based on those studies, to identify diagnostic and therapeutic modalities whose evidence of benefit to patients is unmistakeable. Indicators are created to measure adherence to those evidence-based guidelines. Data are collected to determine how well physicians and providers actually are following such guidelines. Where the data reveal an opportunity for improvement, MetaStar and other QIOs work in partnership with physicians and other health professionals to adopt changes designed to increase adherence to evidence-based recommendations. Follow-up rates on the quality indicators are calculated to gauge the success of our efforts and to pinpoint areas for further improvement.

The first major HCQIP project, the Cooperative Cardiovascular Project, offers a good example of the evidence-based approach to quality. It originally was piloted in four states, including Wisconsin. HCFA worked with leading cardiologists to create quality indicators based on the guidelines for acute myocardial infarction published by the American College of Cardiology and the American Heart Association. For example, was aspirin given on admission and at discharge? Were beta blockers? If patients were offered reperfusion, how long did it take for them to receive it? Patients were excluded from an indicator if the relevant treatment was contraindicated. The indicators went through a validation process. Data then were collected from hospital charts to determine how well the guidelines were being followed. We then shared the data with hospitals and worked with them to develop and implement improvement plans. Remeasurement showed decreased mortality from acute MI in the pilot states as compared with national rates. The project then was implemented nationwide.

Since that time, HCQIP has expanded to include other clinical topics in hospitals (heart failure, pneumonia, surgical care) and to encompass health care delivered in physician offices, nursing homes, and by home health agencies. There is a new emphasis on the adoption and enhancement of health information technology. Through it all, the grounding of our work in solid scientific evidence remains at the heart of MetaStar’s activities.

Project to Reduce Central Venous Catheter-related Bloodstream Infections

MetaStar is embarking on a new project devoted to dramatically reducing the burden of central venous catheter-related bloodstream infections (CR-BSI) in Wisconsin. All hospitals in the state will be invited to work together to implement prac-
tices known to reduce the risk of such infections.

There are millions of central venous catheters in use annually in the United States. Unfortunately, CR-BSI is the major cause of nosocomial bacteremia. Average CR-BSI rates range from 2.9 to 8.5 infections per 1000 catheter-days in intensive care units. Each CR-BSI can be associated with increased morbidity, prolonged hospitalization, and an increased risk of dying. Estimates of the additional cost associated with each CR-BSI range from $6000 to $25,000.

Certain interventions have been shown to decrease the incidence of CR-BSI, sometimes dramatically. In its analysis of patient safety practices, the Agency for Healthcare Research and Quality identified the use of maximum barrier precautions (use of sterile gloves, long-sleeved gowns, and a full-size drape in addition to a non-sterile mask and cap) at the time of central line insertion as one of the most highly-rated safety practices in terms of the evidence supporting implementation. Other measures to decrease the rate of CR-BSI include use of the subclavian insertion site when patient factors permit, cutaneous antisepsis with chlorhexidine, avoidance of catheter exchanges over a guidewire, avoidance of prolonged or unnecessary central venous catheters, and antimicrobial-impregnated catheters in high-risk patients who will have the catheter for a short time.

Richard P. Shannon, MD, chair of the Department of Medicine at Allegheny General Hospital and Claude R. Joyner Professor of Medicine at Drexel University, has led an effort in his MICU and CCU to decrease the CR-BSI rate by adopting recommended practices. The results his team has achieved are phenomenal: over a brief period, they have sustained a 90% reduction in CR-BSI and a 95% reduction in CR-BSI-related mortality. Furthermore, of the relatively few infections that have occurred since Dr Shannon’s team implemented its changes, two-thirds can be attributed to failure to follow their guidelines.

The Institute for Healthcare Improvement (IHI), one of the premier organizations committed to advancing the quality and value of health care, has started a major effort to decrease preventable deaths associated with health care. In its 100,000 Lives Campaign, IHI is enlisting hospitals across the country to adopt six interventions where evidence has shown that certain interventions can make a substantial difference in mortality. One of those interventions is the prevention of central line infections.

MetaStar has identified the reduction of CR-BSI in Wisconsin as an important project this year. On June 27, 2005, we will be sponsoring an initial meeting to describe the current state of knowledge concerning CR-BSI and to present speakers who have made changes in their intensive care units to dramatically reduce these infections. Wisconsin hospital teams will then have the opportunity to work with your hospital to take advantage of this opportunity. Visit our Web site www.metastar.com or contact Judy Frisch at jfrisch@metastar.com or 608.274.1940.

References
1. Social Security Act §1862g.
The mission of the Wisconsin Medical Journal is to provide a vehicle for professional communication and continuing education of Wisconsin physicians.

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