Is industry guiding the sepsis guidelines? A perspective

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Improvements in clinical care require change in both clinicians' behavior and the systems in which they practice. Information published in peer-reviewed journals and continuing medical education have been the primary methods available to inform physicians and other caregivers of advances in medical practice. The impact of these educational activities is limited, however. In 1999, the Institute of Medicine published a landmark report, "To Err Is Human: Building a Safer Health System" (1). The report identified, in part, a widening gap between what research has demonstrated will improve patient outcomes and clinicians' actual practice. To improve care and reduce unnecessary variation in clinical practice, professional societies have developed and disseminated evidence-based practice guidelines (2).

Guidelines Infrequently Change Practice

Presently, 1,844 "best practice" guidelines are included in the National Guidelines Clearinghouse (3). Despite the major investment of time, effort, and money undertaken to produce these guidelines, there is little evidence that clinical care has reliably improved based on their publication alone (4). Many barriers prevent implementation of the recommendations included in practice guidelines (5).

To achieve and sustain clinical change, a multifaceted approach that includes development of not only guidelines but also educational programs for physicians and nurses, use of reliable and reproducible quality indicators, and public reporting of results may be required.

The Surviving Sepsis Campaign

In 2002, the Society of Critical Care Medicine (SCCM), the European Society of Intensive Care Medicine, and the International Sepsis Forum developed the Surviving Sepsis Campaign (SSC) to publicize and coordinate the adoption of proven treatments for severe sepsis (6). The primary goal was to improve the survival of patients with this often undiagnosed and frequently fatal illness. The Campaign's ambitious 5-yr agenda aims to produce rapid and sustained change in healthcare systems and to decrease mortality attributable to severe sepsis by 25%. The methods used by the SSC were adapted from strategies championed by leading healthcare improvement organizations. These methods include the following: 1) promoting increased clinician and patient awareness of severe sepsis and septic shock; 2) encouraging earlier diagnosis using established diagnostic criteria; 3) developing sepsis treatment guidelines using an evidence-based process; 4) establishing treatment priorities by developing care bundles based on the guidelines; 5) establishing reliable and reproducible quality indicators for the therapies included in the bundles; 6) developing partnerships across specialty areas; and 7) developing a data collection tool to measure progress implementing the bundles.

Resources Needed for Change

The first step of any attempt to change clinical behavior, especially in medicine, is to publicize the need for change. By identifying and publicizing the tremendous impact that severe sepsis and septic shock have on patients and healthcare systems worldwide and by highlighting the gap between existing knowledge and actual practice, the SSC has made a compelling case for change.

Public funding is highly limited for quality improvement in general and especially so for raising public and professional awareness. Despite knowing that gaps exist between knowledge and practice, public funding to address this situation has been repeatedly diverted or delayed. In 2001, Congress allotted 50 million dollars in annual funding for general patient safety research through the Agency for Healthcare Research and Quality. Within 3 yrs, these funds were diverted to information technology research. Leape and Berwick (7) lament that this initial funding and subsequent reversal both legitimized health services research and then starved new researchers of the ability to undertake further efforts.

The inability to translate top quality research into medical practice has been identified as a major failing of representative healthcare agencies worldwide. To overcome the uncertainties of success by simply publishing guidelines without further efforts to implement them, medical societies on behalf of SSC applied for and received industry-sponsored educational grants to conduct sepsis-related educational initiatives. These grants have enabled the SSC to develop the components of a global performance improvement program to elicit significant and rapid clinical change. Without such sponsorship, an ambitious project of this scale would not have been possible in the present funding climate. The sources of funding have always been prominently disclosed, including in the 2004 guidelines publication itself. Transparency regarding disclosure of potential conflicts of interest is not a definitive solution to the possibility of undue influence, but this disclosure is an important step on the way to a broader solution.

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Avoiding Inappropriate Influence

The SSC has recently been criticized regarding its relationship to Eli Lilly and Company (8). The major concern has been that Eli Lilly may have influenced the content of the treatment guidelines. To establish Eli Lilly's intent, the critics refer to a posting on the website of the Council on Public Relations Firms. The posting, attributed to the public relations firm Belsito and Company, describes a complex marketing strategy to promote sales of Eli Lilly's drug, recombinant activated protein C. In 2003, Belsito and Company won a contract to handle media relations with the medical societies that developed the SSC. Whether Eli Lilly also retained Belsito and Company and plotted a strategy that manipulated the role of the SSC is an important and fair question. Eli Lilly has denied masterminding the strategy (9). From this flap, a reasonable person can fairly conclude that the truth lies somewhere between the two positions. We appreciate that these questions of influence were raised, as they allow public discourse of the issues to occur. The critical care community is actively engaged in developing the best methods of interacting with industry in educational programs and guideline development. The publication by Eichacker et al. (8) reinforces our resolve to press forward on this front. Despite the importance of the issues raised, the debate remains a "red herring" with respect to the question about whether industry sponsorship of the SSC actually led to the development of specific content in the guidelines. Such influence has not been and cannot be substantiated. The medical societies that received the grants maintained full control over their use, and the societies' ethical safeguards and transparency in governance ensured that any misuse would have been identified. The framework successfully provided physicians an umbrella of integrity to work confidently with intellectual and academic freedom in their efforts.

In the development of the 2004 SSC guidelines, industry support was limited to funds for logistic planning. No industry representatives participated in the conference or reviewed the guidelines in any form before peer-review and acceptance for publication. Evidence-based methods identified in the literature were applied to evaluate the available science. The guidelines produced reflected a consensus opinion of an international group of experts. Importantly, the performance improvement program developed for hospitals from the guidelines, the SSC bundles, only required hospitals to develop their own policy on the appropriate administration of recombinant activated protein C, which may include not administering the drug under any clinical circumstances.

Practice guidelines are subject to periodic update and revision. As a knowledge-based organization, SCCM took great interest in learning from previous efforts. When the SSC guidelines revision process was begun in 2006, SCCM decided to fund the effort without industry sponsorship to prevent unwarranted criticism. A new up-to-date evidence-based grading system was used. All items included in the revised guidelines were subject to a private ballot, and tabulated results for each item will be included in the final publication. After a complete review of the science, the overall treatment recommendations are likely to remain unchanged both in the guidelines and in the bundles. The results support that the 2004 guidelines committee had acted appropriately in its recommendations.

Pragmatics of Improving Care

The SSC is a noble, well-intentioned approach to transfer knowledge gained from research into practice at the bedside. The SSC promotes multiple-professional engagement, formation of change teams, and collaborative networks, as well as the sharing and dissemination of key knowledge learned by participants along the way. The Campaign provides essential tools for change and facilitates measurement and reporting of progress. Broadly criticizing the SSC's evidence-based methods, guidelines and bundles may have a chilling effect on improvement-minded institutions. Moreover, much good can be accomplished lauding the best aspects of the campaign, despite individual differences, and working to improve the quality of care by implementing the individual therapies of unchallenged efficacy in the bundles.

Ultimately, the success of the Campaign will be gauged impartially only when the data being collected are published. If mortality attributable to severe sepsis is reduced by 25% because of the Campaign's interventions, which is the stated goal of the Campaign, this will mark the first time that an improvement program on this scale had a measurable effect. In addition to more than 50,000 lives saved annually in the United States alone, the lessons learned from this approach can be used to develop future efforts to narrow the gap between knowledge and practice.

Conclusions: A Glimmer of Hope?

Although the performance gap remains large and public funding for projects on the scale of the Campaign remains scarce, there is some reason to be hopeful. In 2004, Representative Patrick Kennedy (Democrat–RI) introduced the Josie King Act, legislation that would directly fund quality improvement work. This bill and several related proposals have not been passed. At present, caregivers are left to marvel at the scope of funded biomedical research but grimace at resources available to translate the benefits of that research into practice. The mission of the National Institutes of Health to evaluate proposals and fund research should serve as a model to develop a new mechanism to evaluate and fund healthcare quality-improvement efforts. Otherwise, the performance gap will continue to grow until market forces, such as pay-for-performance, mandate change with harsh repercussions for institutions not yet trained in quality improvement methods.

Viewed pragmatically, the SSC under the stewardship of respected medical societies is a fundamentally sound and promising endeavor to improve patient care. The premises of the Campaign remain vital: 1) the mortality rate for severe sepsis is unacceptably high; 2) practice guidelines, developed through a rigorous evidence-based review of the literature, must be translated into practice; and 3) research questions about the efficacy of a bundle approach in severe sepsis and the differential impact of combining sepsis therapies must be answered. SCCM strongly supports the call for the creation of public funding mechanisms to accomplish translational research. In the meantime, the Campaign will press forward to reduce mortality attributable to severe sepsis with the resources available.

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