Editorial

SHEA Consensus Panel Report: A Smooth Takeoff

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Icing . . . check. Strobe lights . . . on. EICAS (electronic indicating crew alert system) . . . recall. Transponder . . . check. These are just a few of the approximately 100 line items that the pilot and copilot review as part of the takeoff and landing of a Boeing 767 aircraft. Most of the airline industry has standardized the checklist for its flight crews so that any randomly picked group will be able to work together smoothly and will know one another's assignments. This structured system often is cited by quality-improvement experts as a model for other industries.

Medicine has begun to emulate the quality-improvement model with the development of core recommendations for various clinical situations, clinical practice guidelines that include evidence-based recommendations and expert opinion to assist clinicians and patients, and disease-management strategies that attempt to integrate healthcare delivery systems to improve clinical results and to reduce costs.[1] The development of such documents and plans is facilitated by the availability of clinical evidence from scientifically conducted studies and, in the absence of rigorous scientific evidence, by the consensus opinions of experts in disease management and clinical outcomes.

Hospital epidemiologists have begun to consider the utility of infection control practice guidelines and core recommendations. The Society for Healthcare Epidemiology of America (SHEA) has produced a long and influential series of position papers on a variety of specific topics. Similarly the Centers for Disease Control and Prevention (CDC) and its Hospital Infection Control Practices Advisory Committee (HICPAC), the Association for Professionals in Infection Control and Epidemiology, Inc. (APIC), and the Surgical Infections Society, among other professional organizations, also have produced important position papers and guideline statements.

How does one put all of these pieces together into a meaningful whole? The CDC's Study on the Efficacy of Nosocomial Infection Control (SENIC) project reported that, in the late 1970s, those hospitals that had four key components of infection control programs (an effective hospital epidemiologist, an infection control practitioner for every 250 beds, active surveillance mechanisms, and ongoing control efforts) reduced nosocomial infection rates by approximately one third compared to institutions that did not introduce fully functional programs. This information and accreditation standards that had been published in 1976 by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) created the impetus and need for hospitals to provide administrative and financial support for infection control programs.

As we approach the millennium, what are the essential activities and necessary infrastructure for hospital infection control programs? In this issue of *Infection Control and Hospital Epidemiology,* SHEA, in collaboration with APIC, JCAHO, the American Hospital Association (AHA), the Infectious Disease

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Society of America, the Pediatric Infectious Disease Society, the CDC and HICPAC, and the National Foundation for Infectious Diseases, has provided an answer to this question in a consensus panel report.[2] As the panel notes in the introduction to its report, a number of events and organizations, including the AHA's Advisory Committee on Infections Within Hospitals, the CDC, JCAHO, and the SENIC project, have shaped the course of nosocomial infection control efforts over the past 30 years. The plan for the current consensus panel was developed at a SHEA board strategic planning session held in January 1996 and at a subsequent board meeting.

The consensus panel report provides 23 specific recommendations that are divided among six "function" and two "resource" areas: managing critical data and information; setting and recommending policies and procedures; compliance with regulations, guidelines, and accreditation requirements; employee health; direct intervention to prevent transmission of infectious diseases; education and training of healthcare workers and providers; personnel resources; and nonpersonnel resources. Important aspects of the consensus panel document include the use of an evidence-based format wherever possible, the provision of specific recommendations, the grading of the recommendations, and the broad group of organizations represented on the panel.

As with all guidelines and consensus documents, this report will prompt comments from others in the field and eventually will require updating. Several issues warrant discussion now. First, many of the recommendations are based on the consensus opinion of the experts rather than on any scientific studies. This document, it is hoped, will prompt such needed investigations. For example, it would be helpful to determine whether certification of infection control professionals improves job performance. Second, I am reminded that pundits view the camel as a horse that was created by a committee. To avoid this type of criticism, the consensus document has been subjected to review by a group of experienced hospital epidemiologists and infection control professionals who were not on the panel. Third, pundits also might be concerned that advice provided by such a document is like the answer you might get if you asked your barber whether you needed a haircut. To avoid such criticisms of self-interest, the panel was comprised of representatives from a number of disciplines and has done an excellent job in producing largely nonpartisan recommendations. Nevertheless, I have my own personal suggestions, as an added-value aspect of this editorial. I view monitoring of, and feedback on, personnel compliance with policies and procedures as a very important, useful, and essential, but often overlooked, activity of infection control programs and feel that educational activities need to be updated frequently, some perhaps as often as every 3 months, because of the limited retention and rapid performance decay after many adult teaching sessions. Fourth, the recommendations about the role of infection control programs vis-à-vis quality-assurance departments in hospitals are not fully articulated in the document, but I suspect this reflects the reality that local expertise and individual hospital politics often will determine the relations of these two activities.

Fifth, in the present economic climate, the issue of payment for infection control activities is particularly important. The panel has not attached a specific dollar figure to infection control expertise and activity; however, this issue is perhaps best addressed by surveys of practicing hospital epidemiologists to determine the current market value. Sixth, this panel has had to deal with a number of issues that will depend importantly on future events, and, as we know, all predictions are very difficult, especially when they involve the future. However, I think the panel has been on target in pointing out the importance of certain technological advances, such as the role of pulsed-field gel electrophoresis and the need for its ready availability to evaluate clusters of nosocomial infections. Seventh, I introduced this editorial with an analogy to the quality-assurance activities undertaken by airlines. However, it is important to note that each commercial pilot usually flies a specific model of aircraft. It is the rare hospital epidemiologist who has the luxury of doing only *Klebsiella* urinary tract infection outbreaks. Therefore, there always will be a need for flexibility and some degree of generality in such a report. Finally, I believe that all infection control guidelines must pass my "four Ps" test: Are the recommendations plausible biologically (eg, does it look like they will work)? Are they practical (eg, can they be afforded)? Are they politically acceptable (eg, will the administration pay)? Will all involved personnel agree to follow them (eg, can they, and will they)? I believe that the consensus panel has produced a document that should stand up to such a test.

What are the implications of these guidelines? They provide a benchmark against which hospitals may judge and, if necessary, revamp their current programs. In addition, they point to a number of areas where scientific investigations are needed to determine the validity of the opinions of the experts.

Moreover, with the decreasing length of stay in hospitals and the increasing outpatient delivery of complex medical and surgical care, we now need to look at the infrastructure and essential activities for infection control programs in out-of-hospital settings, such as long-term care, home care, and ambulatory surgery. Clearly, infection control programs will need to adapt to the differences between these venues and the traditional in-hospital setting. Similarly, the increasing application of epidemiology to the broader discipline of healthcare delivery warrants a blueprint for the expanded use of epidemiological principles and methods for prevention and control of noninfectious adverse events and as tools in quality assessment and outcome measurement. These two issues—infection control in the out-of-hospital setting and use of epidemiological principles for surveillance and control of noninfectious nosocomial events—should keep our next consensus panels flying.

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Update on Reuse of Hemodialyzers

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The Council on Dialysis of the National Kidney Foundation recently convened an expert panel to evaluate current practice related to the reuse of hemodialyzers and to review and evaluate literature related to reuse published since the last report of the National Kidney Foundation in 1988.

The foundation takes no position for or against dialyzer reuse. The principal reason for the practice of reuse is economical. In view of the uncertainties related to the safety and biological impact of reuse procedures, the task force recommended that a full discussion of the issue of reuse and its potential beneficial and detrimental effects be undertaken with each patient. The paper found no conclusive evidence that morbidity or mortality differed with single use or reuse. Microbial contamination of the water used for dialyzer reprocessing increases patient morbidity; the chemical quality of water used for dialyzer reprocessing should, at least, fall within the same standards as those recommended for product water intended for hemodialysis. Dialyzers should not be reprocessed from patients who have tested positive for hepatitis B surface antigen. The effects of reprocessing high-flux dialyzers on β2-microglobulin clearance are dependent on the reprocessing technique, the number of reuses, and the nature of the dialyzer membrane used; there are insufficient data on the effects of reuse on β2-microglobulin behavior to make uniform recommendations. Untoward effects of reused dialyzers still may occur in spite of rigorous adherence to Association for Advancement of Medical Instrumentation (AAMI) guidelines. For example, use of the total cell volume method for assessing changes in small molecule clearances will not show the loss of performance attributable to dialysate shunting. For this reason, the measurement of Kt/V for urea, as recommended by the AAMI, or the determination of the urea reduction ratio is recommended strongly at least monthly to gauge the adequacy of the dialysis procedure. Given the significant fall in dialyzer efficiency for urea removal that can occur after repeated uses of a dialyzer, dialysis prescriptions in units practicing reuse should be designed to deliver a Kt/V or urea reduction ratio value that exceeds the dose used for patients treated with single-use dialyzers to make allowance for any possible reuse-induced reduction in dialyzer efficiency. Technicians and other personnel responsible for the reprocessing of dialyzers should receive proper training and certification.

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