

## SHEA Position Paper

# Public Disclosure of Healthcare-Associated Infections: The Role of the Society for Healthcare Epidemiology of America

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Prior to 2004, only two states, Pennsylvania and Illinois, had enacted legislation requiring healthcare facilities to collect nosocomial or healthcare-associated infection (HAI) data intended for public disclosure. In 2004, two additional states, Missouri and Florida, passed disclosure laws. Currently, several other states are considering similar legislation. In California, Senate Bill 1487 requiring hospitals to collect HAI data and report them to the Office of Statewide Health Planning was passed by the legislature, but was not signed into law by Governor Schwarzenegger, effectively vetoing it. The impetus for these laws is complex. Support comes from consumer advocates, who argue that the public has the right to be informed, and from others who view HAI as preventable and hope that public disclosure would provide an incentive to healthcare providers and institutions to improve their care.

With these new state laws, the focus of attention is not directly on individual providers, but rather on healthcare facilities, which will be mandated to collect and report hospital-level performance indicators. The debate over public disclosure often pits consumers, insurance carriers, and health maintenance organizations ("the payers") against healthcare providers. The payers want performance data made available so that they can be better purchasers of healthcare services. Healthcare providers are concerned that the data may be flawed and misleading.

Personnel at healthcare institutions also are concerned about the additional cost for resources that will have to be expended to collect the required data. The stakes may be even higher because the results of these analyses can conceivably be used by health plans to choose among competing providers or incorporated into the reimbursement process ("pay for performance").

These laws mandating HAI reporting are not revolutionary, but are simply the latest development in the movement to improve the quality of medical care and to hold healthcare providers more accountable. The establishment of the Professional Standards Review Organizations (PSROs) in the 1970s was among the first attempts at legislating the quality of care.<sup>1</sup> The goal of state and local PSROs was the review of the care provided by physicians in order to find "bad doctors." The net value of such peer review was certainly questionable. Beginning in the early 1990s, the emphasis shifted away from individual case review toward identifying and promoting patterns of care (process indicators) that were associated with improved outcomes. In 1989, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), as part of its Agenda for Change, developed and field tested quality of care indicators, including infection control indicators, that hospitals would be required to collect in the process of seeking or renewing their accreditation.<sup>2,3</sup> JCAHO's

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requirement for mandatory participation in a quality indicator program, as a prerequisite for accreditation, led many states to develop their own quality indicator reporting systems. In 1995, a survey of members of the Society for Healthcare Epidemiology of America (SHEA) who served as state liaisons to SHEA identified 13 states with quality indicator reporting systems, the largest and most notable of which was the Maryland Hospital Association Quality Indicator Project.<sup>4</sup> At that time, all 13 state quality improvement reporting systems included HAI indicators.

At its height, the Maryland Hospital Association Quality Indicator Project had more than 950 participating hospitals reporting data, which were aggregated and provided back to participants for their own internal use. When these early quality indicator programs are compared with the currently legislated programs in the 4 states, several important distinctions can be made. The early programs were voluntary; in the 4 state-legislated programs, participation is mandatory. In the early programs, the results were confidential and were fed back to individual hospitals for use in their own quality improvement efforts. In contrast, under the current law in the 4 states, the results will ultimately be disclosed to the public and used specifically to compare hospitals based on rates of HAI outcomes.

Performance indicators can be chosen to measure a process of care, such as hand hygiene or vaccination, or a specific outcome, such as pneumonia or bloodstream infection. Current state disclosure laws that have passed are mandating the collection of an outcome indicator—*infections*. In 1995, SHEA published a position paper on the reporting of quality of care indicators in which a panel of experts outlined the prerequisites for a valid indicator.<sup>4</sup> The ideal valid indicator event must be clearly defined, with numerators and denominators. The indicator variables should be easy to identify and collect. The data collection method selected must be sensitive enough to capture the data; and once selected, the same method must be used across all institutions. States may be tempted to use administrative databases to capture HAI because of its general availability, but studies using administrative databases to detect specific HAIs, such as bloodstream infections or surgical-site infections, have generally found this approach to be insensitive and inaccurate.<sup>5-7</sup>

The frequency of the event to be monitored also must be considered because the final sample size must be adequately powered so that there is confidence in the accuracy of the outcome being measured. This last consideration would argue for the use of process indicators, such as the use of barrier precautions and hand hygiene when inserting a central venous catheter, which are much more common, and against the use of outcome indicators, such as bloodstream infections, which occur less frequently. Finally, the populations being observed must be similar to avoid “apples and oranges” comparisons. If they are not, HAI rates need to be adjusted for differences in severity of illnesses in the populations being treated at each healthcare facility.<sup>8</sup>

The state laws that have passed so far acknowledge

that risk adjustment is important. Item 7 of Section 25 of the Illinois Public Act 93-0563 states that “comparisons among hospitals shall adjust for patient case-mix and other relevant risk factors and control for provider peer groups, when appropriate.” The Missouri Hospital Infection Control Act of 2004 empowers the Department of Health to collect and disseminate HAI incidence data that are “risk adjusted.” Although the language in these laws may be appropriate, unfortunately, there is currently no widely agreed upon, scientifically validated method for risk adjusting HAI indicators. Available systems for assessing severity of illness, such as the Acute Physiology and Chronic Health Evaluation (APACHE) score or systems using discharge diagnoses, were designed to predict the risk of death rather than the risk of HAI acquisition and therefore are useful tools to adjust for differences in expected mortality among comparison groups. These systems, however, have not been validated to predict a patient’s risk for developing a HAI.

The Centers for Disease Control and Prevention (CDC), based on the experience with the National Nosocomial Infections Surveillance (NNIS) System, concluded that use of overall HAI rates for inter-hospital comparisons was crude, inaccurate, and potentially misleading because of the lack of scientifically validated methods of risk adjustment.<sup>9</sup> Service- and site-specific HAI rates (eg, HAI from the medical intensive care unit versus the surgical intensive care unit) are better, but are limited because they do not fully capture variations in patients’ intrinsic and extrinsic risks for HAI. Further research clearly is needed, but until such time, SHEA advocates that reporting systems select as indicators existing outcome measures that incorporate risk adjustment and, although not ideal, have some scientific backing. Examples of such indicators include an institution’s surgical-site infection rate that can be risk adjusted by the NNIS System surgical wound infection risk index or device-associated infection rates, such as ventilator-associated pneumonia or central venous catheter-associated bloodstream infection.<sup>9,10</sup> With device-associated infection rates, the number of days of device use (ie, ventilator-days or central catheter-days) has been found to be useful as a proxy risk adjustment factor for host debilitation and his or her intrinsic risk for HAI. In considering which outcome measures to recommend for public reporting, the Hospital Infection Control Practices Advisory Committee (HICPAC) in its draft document, “Guidance on Public Reporting of Healthcare-Associated Infections,” similarly recommended surgical-site infections and device-associated infections as the two preferred outcome indicators.<sup>11</sup>

What is the role of SHEA in this current environment? In Illinois, Pennsylvania, Missouri, and Florida, the legislative train has left the station. In these states, laws mandating the collection of HAI data have passed; any objections by SHEA or anyone else likely will not be productive and, in fact, may be perceived by consumers as attempts by healthcare providers to stonewall, foot-drag, or obfuscate. However flawed it may be, reporting of

health quality data to external agencies has become a way of life. In 2004, the Centers for Medicare & Medicaid Services (CMS) announced the National Voluntary Hospital Reporting Initiative asking hospitals to submit data on 10 quality indicators in 3 areas: myocardial infarction, heart failure, and community-acquired pneumonia.<sup>12</sup> Although reporting of data is “voluntary,” hospitals not reporting will receive lower Medicare reimbursement. CMS’s community-acquired pneumonia indicator is, in fact, a process indicator (ie, did patients receive antibiotics in a timely way, did they receive influenza and pneumococcal vaccination, and was their oxygen level measured). Moreover, the CMS is working with state quality improvement organizations (QIOs) to develop other infection control process indicators, such as appropriate preoperative antimicrobial prophylaxis administration, under the Surgical Infection Prevention (SIP) Project.<sup>13</sup> It is unclear whether true outcome indicators, including HAI, will ever be adopted.

SHEA members should do what they do best—promote practices that are epidemiologically sound and evidence based. In the states with disclosure laws, some of the laws at the time of passage did not specify which infectious outcomes to monitor nor which surveillance methodology to use, leaving such details to be worked out by subcommittees or state health agencies. This provides an opportunity for SHEA members to bring science to the table, by becoming involved in the process of selecting indicators, case definitions, and case-finding methods. In those states that are contemplating such legislation, SHEA is strongly encouraging its local members to be proactive and offer their services to enhance the process.

On an organizational level, SHEA is and will continue to be a partner with organizations that have a stake in this important issue. SHEA will continue its involvement with the CMS’s SIP Project as it broadens its scope to monitor other complications of surgery. SHEA responded to HICPAC’s “Guidance on Public Reporting of Healthcare-Associated Infections” when the draft document was available for public comment.<sup>11</sup> SHEA is co-sponsoring a consensus conference, “Healthcare-Associated Infections: Realizing the Benefits of Mandatory Public Reporting,” with the Association for Professionals in Infection Control and Epidemiology (APIC).<sup>14</sup> Through efforts on the indi-

vidual and organizational level, SHEA hopes that it can influence the process, with the ultimate goal being a public reporting system that is epidemiologically sound, scientifically valid, and fair to both healthcare providers and consumers.

## REFERENCES

1. Tucker JH, Rogers J. New federal regulations, professional standards review organization, JCAH and criteria development. *Medical Record News* 1975;46:25-37.
2. Ente BH. The Joint Commission’s agenda for change. *Current Concepts in Hospital Pharmacy Management* 1989;11:6-14.
3. Joint Commission on Accreditation of Healthcare Organizations. *2004 Comprehensive Accreditation Manual for Hospitals: The Official Handbook*. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations; 2004.
4. The Quality Indicator Study Group. SHEA position paper: an approach to the evaluation of quality of the outcome of care in hospitalized patients, with a focus on nosocomial infection indicators. *Infect Control Hosp Epidemiol* 1995;16:308-316.
5. Romano PS, Can BK, Schembri ME, Rainwater JA. Can administrative data be used to compare postoperative complication rates across hospitals? *Med Care* 2002;40:856-867.
6. Wright AB, Huskins WC, Dokholyan RS, Goldmann DA, Platt R. Administrative databases provide inaccurate data for surveillance of long-term central venous catheter-associated infections. *Infect Control Hosp Epidemiol* 2003;24:946-949.
7. Sands KE, Yokoe DS, Hooper DC, et al. Detection of postoperative surgical-site infections: comparison of health plan-based surveillance with hospital-based programs. *Infect Control Hosp Epidemiol* 2003;24:741-743.
8. Localio AR, Hamory BH, Sharp TJ, et al. Comparing hospital mortality in adult patients with pneumonia: a case study of statistical methods in a managed care program. *Ann Intern Med* 1995;122:125-132.
9. Report from the CDC. Nosocomial infection rates for interhospital comparisons: limitations and possible solutions. *Infect Control Hosp Epidemiol* 1991;12:609-621.
10. Culver DH, Horan TC, Gaynes RP, et al. Surgical wound infection rates by wound class, operative procedure, and patient risk index. *Am J Med* 1991;91(suppl 3B):152-157.
11. Hospital Infection Control Practices Advisory Committee. *HICPAC Guidance on Public Reporting of Healthcare-Associated Infections (HAIs), September 10, 2004* [draft]. Atlanta, GA: Centers for Disease Control and Prevention; 2004. Available at [www.cdc.gov/ncidod/hip/HICPAC/meeting.htm](http://www.cdc.gov/ncidod/hip/HICPAC/meeting.htm).
12. Center for Medicare & Medicaid Services. *National Voluntary Hospital Reporting Initiative*. Baltimore, MD: Center for Medicare & Medicaid Services; 2004. Available at [www.cms.hhs.gov](http://www.cms.hhs.gov).
13. Centers for Medicare & Medicaid Services. *Surgical Infection Prevention Project*. Baltimore, MD: Centers for Medicare & Medicaid Services; 2002. Available at [www.medqic.org](http://www.medqic.org).
14. Association for Professionals in Infection Control and Epidemiology. *Conference on “Healthcare-Associated Infections: Realizing the Benefits of Mandatory Public Reporting.”* Washington, DC: Association for Professionals in Infection Control and Epidemiology; 2004. Available at [www.apic.org/Content/NavigationMenu/Advocacy/Legislative/State/MandatoryReporting/mand\\_rep\\_program.htm](http://www.apic.org/Content/NavigationMenu/Advocacy/Legislative/State/MandatoryReporting/mand_rep_program.htm).