

CAMPAIN Update

A global effort to improve care for patients with severe sepsis and septic shock

January/February 2008

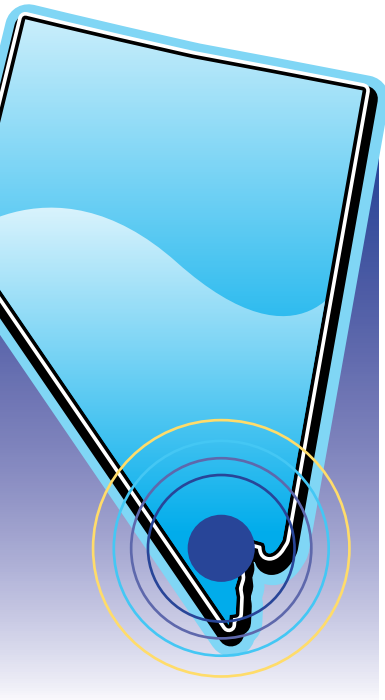


Campaign Update is the official newsletter of the Surviving Sepsis Campaign. The Surviving Sepsis Campaign is a partnership of the European Society of Intensive Care Medicine, the International Sepsis Forum, and the Society of Critical Care Medicine. This bi-monthly communiqué focuses on topics related to local, regional, and national SSC activities. Feedback and content suggestions may be sent to campaignupdate@survivingsepsis.org.



The Think Sepsis Initiative: Trigger for a Culture of Change at UMCSN

By Estrella Evangelista-Hoffman, RN, BSN, MEd



Dale Carrison, MD, chair of the emergency department at the University Medical Center of Southern Nevada (UMCSN), stated, "As an emergency physician, I felt that a big, positive impact on patients' lives, outcomes, and mortality could be achieved through the use of early goal-directed therapy. The evidence was there, so why not? I called for a meeting in early 2007 and several key players that could make it happen gave us their support. From then on, we are all working as a team to make a difference with our severely septic and septic shock patients."

UMCSN is a non-profit, community-owned, academic medical center in the heart of Las Vegas. Its 554 acute care beds have approximately a 90% daily occupancy rate. As UMCSN strives to be one of the best care centers in southern

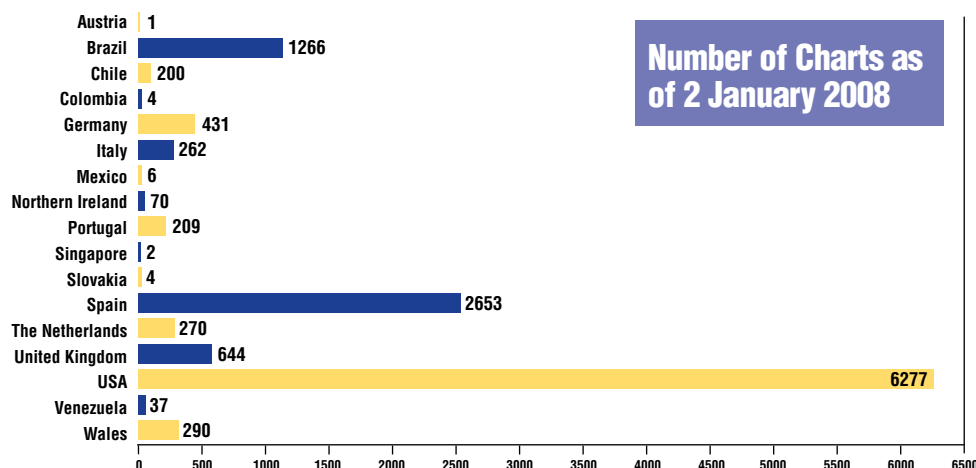
Nevada, it faces the barriers to change common to hospitals of its kind. By May 2007, the Think Sepsis Committee, as the group is now known, created a severe sepsis and septic shock clinical pathway based on treatment recommendations from current reliable evidence.

As the pathway was about to be implemented, Dr Carrison handed the pathway to me, the nurse in charge of clinical research in the emergency department. His response to my question about nursing involvement in its creation was, "I think we forgot to include one of our most valuable resources, the nurses." This sealed my resolve to help institute a culture of change at UMCSN. A major component is the use of multidisciplinary teams in identifying and addressing clinical issues that affect the safety and care of patients. It would also require more active participation among nurses— 1,800 of the 4,500 UMCSN employees.

The Think Sepsis leadership includes a passionate ED physician champion, Ross Berkeley, MD, and a dynamic ED educator, Mitchel Hines.

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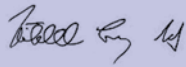
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In addition to the 17 countries represented in the chart above, 31 countries have registered the SSC data tool but have yet to submit charts to the global database.

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Are You Accountable?

Mitchell M. Levy, MD, FCCM



Jimi Hendrix asked, “Are you experienced?” If he were asking professionals in ICUs and EDs around the world (which the guitar-great most certainly was not), there would be no question regarding the answer. The experience of clinicians is invaluable when it comes to treating sepsis patients.

But if the question were, “Are you accountable,” would the answer be the same? Are we, as the experts at the bedside, doing a good job keeping track of outcomes in our critically ill septic patients and applying lessons learned from observing these outcomes so that we might further enhance care based on our experience? While support for the value of evidence-based medicine with its attendant standardized treatments, protocols, and checklists grows, it is difficult to deny the responsibility each of us has to ensure we are accountable to our patients, our profession, and society as a whole.

It takes on average 17 years from discovery of effective therapies to their routine use. The transfer of research from the bench to the bedside does not follow a straight line based on a keen, evidence-based evaluation of the literature. To be used, guidelines need to be known, agreed upon, and able to be used.¹ Literature is mounting regarding the valuable role of standardization of clinical behavior as a means to improve patient care. This has been especially evident in patient safety efforts. We have seen that using evidence-based guidelines for treating myocardial infarction patients has reduced mortality. Improvement concepts that depend on reliability in a learning organization are becoming widely embraced through the efforts of organizations such as the Institute for Healthcare Improvement (IHI).

With so much information available today, healthcare will not move ahead without the application of improvement techniques. Applying the sepsis care bundles, which were developed with the IHI, to precisely measure performance is just one aspect of accountability in sepsis treatment. The bundles eliminate the piecemeal application of guidelines that typify clinical environments today and make it easier for clinicians to bring the guidelines into practice. Early results from the Campaign suggest that monitoring and sharing results by entering them into the SSC global database provides documentation of the value of the sepsis bundles.

We do have to care for patients whose disease processes do not follow set pathways. Their complexity requires more than simple rules and scripted protocols. However, in medicine there are many processes that are chaotic that can be improved significantly through standardization. Our experience, combined with our knowing when to apply the scripts, provides the most accountable care for our patients.

Evidence also exists that by generating more information about the effectiveness of medical treatments we may be able to ensure that the most appropriate and cost-effective approaches to patient care are applied in clinical settings. Changes in behavior that reflect the results of such research might also reduce health care spending—another area of accountability.

How do you demonstrate that you are accountable when it comes to treating your sepsis patients? Early results from the experience of hundreds of healthcare professionals around the world demonstrate that the implementation of the Surviving Sepsis Campaign in their facilities has reduced mortality from severe sepsis and septic shock. Data from the Spanish study that was released at the ESICM meeting in October showed that the application of the principles of the Campaign accounted for a 5% reduction in relative risk of mortality from severe sepsis.² Similarly, preliminary results from the work of the Colorado Critical Care Coalition indicate a 15% absolute risk reduction in mortality in 1500 patients with severe sepsis when the 6-hour bundles are met. If the clinicians hadn’t been willing to be held accountable through process and outcomes reporting, we would only have anecdotes.

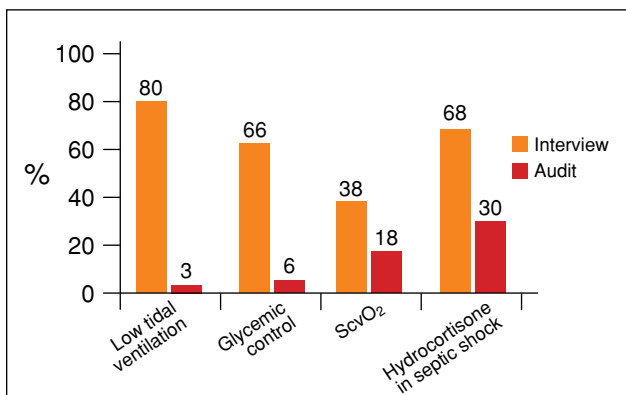


Figure. Supportive and adjunctive therapies results from the German “Prevalence Study.” Brunkhorst FM et al. *Infection* 2005; 33 (Suppl 1): 49 (abstract)

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Articles below may provide additional background for SSC implementation.

Varpula M, Karlsson S, Parviainen I, Ruokonen E, Pettilä V, Finnsepsis Study Group. **Community-acquired septic shock: early management and outcome in a nationwide study in Finland.** *Acta Anaesthesiol Scand.* 2007; 51(10):1320-6.

Local protocols and intensive education of personnel are generally needed for the successful implementation of process change, despite excellent international guidelines. After implementation of early goal-directed resuscitation protocols in individual hospitals, the absolute decrease in mortality (historical controls) has varied from 11 to 30%. This is the first publication of a nationwide study that evaluated the early treatment strategy in community-acquired septic shock in Finnish hospitals using the Surviving Sepsis Campaign Guidelines Sepsis Bundles. Early treatment targets assessed were measurement of lactate during the first 6 h after admission to ED; analysis of blood culture before antibiotics; commencement of antibiotics within 3 h of admission to ED; attainment of a mean arterial pressure (MAP) above 65 mmHg; a central venous pressure (CVP) above 8 mmHg and a central venous oxygen saturation (ScvO2) ≥70% or mixed venous oxygen saturation (SvO2) ≥65% during the first 6 h after admission to ED. The patients were divided into two groups according to the number of achieved targets. One group consisted of patients who achieved 4 or more treatment targets, and the other consisted of those who achieved 3 or fewer targets. The delayed initiation of antibiotics was associated with the greatest impact on mortality.

Carlbom DJ, Rubenfeld GD. **Barriers to implementing protocol-based sepsis resuscitation in the emergency department—results of a national survey.** *Crit Care Med.* 2007; 35(11):2525-32.

An understanding of the barriers is essential to develop effective interventions to change practices in

the intensive care unit. Knowledge translation may be particularly challenging for treatment modalities where no specific drug or technology is involved, as is the case with early goal-directed therapy (EGDT). These authors performed a national telephone survey of emergency department (ED) physicians and nurses to identify the barriers to implementing EGDT with both quantitative and qualitative analysis of open-ended responses. Barriers to initiation and implementation of EGDT, and barriers that distinguish EGDT from other time-sensitive emergency practices (ie, intervention in myocardial infarction and cerebrovascular accident) were examined. The study demonstrated that nursing staffing to perform EGDT, monitoring central venous pressure in the ED, and identification of septic patients are the most important barriers to implementing an early goal-directed therapy resuscitation protocol for severe sepsis. Providing critical care in the ED and coordinating this care with an intensive care unit team will help for rapid identification and intervention of sepsis.

Auerbach AD, Landefeld CS, Shojania KG. **The tension between needing to improve care and knowing how to do it.** *N Engl J Med.* 2007; 357(6):608-13.

The movement to improve quality and safety in delivery of patient care has achieved substantial momentum in recent years. Rationale for rapid dissemination of novel quality and safety strategies has led these authors to identify a number of weaknesses inherent in approaches that consistently favor action over evidence. They propose a framework evaluating interventions to improve the safety and effectiveness of health care that is built around the following points: a) the need to improve the quality of care is urgent; b) any effort to improve quality is better than the current state of affairs; c) emulation and collaboration can speed effective treatment; d) the effectiveness

of some quality-improvement strategies is obvious, yet we need an understanding of not only what to do but also how to help people actually do it; and e) preliminary data may provide an important opportunity to speed innovation and improve care rapidly.

CALENDAR

2008

January 16

SSC North American Summit
Web Conferences (2)
East Coast Collaborative
2-3:30pm EST
West Coast Collaborative
11am-12:30pm EST

February 2-6

SCCM 37th Critical Care
Congress
Honolulu, Hawaii, USA

February 4

SSC Educational Session
6:30-8:30am
Honolulu, Hawaii, USA

March 5

SSC North American Summit,
Session II
East Coast Collaborative
8am-5pm
Hyatt Regency Miami
Miami, Florida, USA

March 26

SSC North American Summit
Web Conference
West Coast Collaborative
2-3:30pm EST

April 29

SSC North American Summit,
Session II
West Coast Collaborative
8am-5pm
The Brown Palace
Denver, Colorado, USA

September 21-24

ESICM Annual Meeting
Lisbon, Portugal

November 19-21

International Sepsis Forum:
Sepsis 2008
Grenada, Spain

2009

January 31-February 4

SCCM 38th Critical Care
Congress
Nashville, Tennessee, USA

Send us your SSC meeting information and we will include it in future issues of *Campaign Update*. Send submissions to campaignupdate@survivingsepsis.org.

The Think Sepsis Initiative

(continued from page 1)

After a month of reviewing a multitude of literature and developing plans with several revisions, we created an educational strategy. It includes an educational workshop, nursing manual, and a patient education handout. This intense process gave us an insight into our learners and, best of all, we learned more about how we work among ourselves.

First Steps

Identifying a goal for Think Sepsis that reflects UMCSN's organizational goals was the first step. The mission of UMCSN's Think Sepsis Initiative is to provide the best possible quality and safest care for patients with severe sepsis and septic shock. Its goal, consistent with the Surviving Sepsis Campaign, is to decrease severe sepsis and septic shock mortality by 25% by January 2009. Obtaining administrative support is a crucial part of starting any program and attaining this was a great boost. Assured of nursing administration support, we created a timeline of 6 months to engage the ED and all 8 critical care areas of UMCSN.

Networking with local and national experts paved the way to making our educational program a success and ensuring utmost participation from hospital staff. Mitchell Levy, MD, from the Surviving Sepsis Campaign executive committee and head of its data collection phase, provided on-site advice about integrating our activities into those of the global campaign. Although the timeline for Think Sepsis may be unrealistic (as most facilities require a year for implementation), we felt that we had all the resources within our reach and could effect change quickly.

Education and Implementation

The Plan-Do-Study-Act change model, the diffusion of innovation model, and the Iowa model of evidence-based practice were the guiding framework used to plan the nursing portion of the Think Sepsis

Initiative. Introducing the concepts of sepsis pathophysiology and treatment using an evidence-based approach not only increases awareness on sepsis facts, mortality, length of stay, and cost, but also creates a sense of responsibility to address the problem in the best way possible—through early identification and treatment. We posted announcements and posters in the ED and all the critical care areas. Where there are hospital walls, there are sepsis reminders; when there is a meeting, we are there talking about sepsis.

Our educational workshops started in August 2007 and, by September, all ED nurses were ready to use an electronic format of the sepsis screening tool. Triage nurses screened patients whose vital signs fit 2 of the SIRS criteria. Obtaining a complete blood count and comprehensive metabolic panel as well as an x-ray of an affected site (eg, chest x-ray for pneumonia patients) was a part of the triage protocol. Every time blood cultures are done, a lactic acid level is automatically drawn. If the patient's WBC is elevated or platelet and creatinine are elevated, the ED attending physician is alerted. The physician decides whether or not to initiate the severe sepsis and septic shock order set. For sepsis patients, the noninvasive portions of early goal-directed therapy (ie, fluid resuscitation and antibiotics) are initiated. These types of patients are currently being tracked to determine if the screening tool and use of antibiotics and fluids prevented them from progressing to severe sepsis and septic shock.

ICU Roll Out

October was a month of introspection and re-evaluation. We have begun implementation in the ED, but only 200 of the ICU nurses have completed the workshop to date. The ICU screening tool had to be developed and converted

electronically and integrated into GRASP. (GRASP is an acuity system that ICU and floor nurses use to determine staffing needs.) Incorporating the sepsis screening tool into a system that nurses currently use every time the patient's condition changes and at every shift change is a convenient means of introducing the protocol. Rolling out in the ICU had to be delayed until all systems are in place. December 25, 2007 was the target date for all ICU roll outs. Floor education is to start in January and we are hoping to implement the campaign hospital-wide by June 2008.

Nursing feedback and input are always solicited, especially in the development of the ED screening tool. Active participation means empowerment. The ED nurses have 95% compliance in screening triage patients who meet 2 of the SIRS criteria. Our goal is to screen all admitted ED patients for sepsis. Patients who have some sepsis-related signs and symptoms but do not necessarily fit in the severe sepsis criteria will be admitted to the floor and monitored more closely depending on their risk factors. The EmSTAT print out will document the sepsis screen as well as the important bundle elements that were used for the patient.

The changes that were made to the ED system include an additional sepsis nurse, the updating of EmSTAT diagnosis for severe sepsis and septic shock, improvement of nursing documentation for bundle elements, continued marketing using the UMCSN intranet, mandatory sepsis education for nurses, availability of a sepsis home study, physician education to ensure proper diagnosis, recruiting trainers from the critical care areas and providing them with incentives for being trainers, more speakers and booster sessions, and the recruitment of ED and ICU sepsis champions.

(continued on page 5)

North American West Coast Collaborative Meets in Denver



Early Successes

Three months after Think Sepsis was piloted in the ED, Dr Levy stated that UMCSN's Think Sepsis has the best resuscitation bundle compliance he has seen. The fact that the application of the Surviving Sepsis Campaign to Think Sepsis evolved from the UMCSN's ED is testament to the importance of intra-hospital teamwork to improve overall patient care. Our triage nurses have screened a total of 61 patients using the triage screening tool. There were 8 severe sepsis cases diagnosed, 6 diagnoses of septic shock, and the rest were diagnosed as sepsis. Review of the 47 sepsis patients indicates that 18 cases actually fit the severe sepsis criteria. The most common secondary diagnoses for sepsis patients are pneumonia, cellulitis, indwelling central catheter infections, pyelonephritis, altered mental status, and surgical wound infection. Follow up education will continue among our ED staff.

Although many systems such as ICU and floor implementation still need to be addressed at UMCSN, ED sepsis, severe sepsis, and septic shock patients are being steadily identified. Septic patients are receiving adequate therapies early in the ED so that their risk of developing severe sepsis and septic shock are minimized. The most amazing improvement is that since the ED roll out, there have only been 2 reported severe sepsis and septic shock patients in the ICU. This is significantly lower than US national estimates.¹

UMCSN is currently applying for the American Nurses' Credentialing Center's magnet status, and it was rewarding to tie in the use of evidence-based practice, research, and shared governance in the goals of UMCSN's Think Sepsis Initiative during this process. Persistence, perseverance, teamwork, listening to feedback, collaboration within and outside the organization, creativity, maximum use of available resources, constant process evaluation, marketing, and providing constructive feedback are the foundations of Think Sepsis. Creating a culture of change by staff empowerment is a task that is challenging. According to Covey,² finding where organizational needs and goals overlap individual needs and goals and capabilities is the key. Working on an agreement to achieve these goals will produce a self-directing, self-controlling, creative staff who will accept accountability, teamwork, and a "win-win" attitude toward change.

References

1. Wang H, Shapiro N, Angus D, Yealy D. National estimates of severe sepsis in United States emergency departments. *Crit Care Med.* 2007; 35:1928-36
2. Covey S: *Principle-Centered Leadership*. New York: Simon and Schuster. Fireside Edition, 1992.

Fifty-two clinicians representing 23 hospitals gathered at The Brown Palace in Denver, Colorado on November 29th at the initial meeting of the Surviving Sepsis Campaign's West Coast Collaborative of the North American Summit series sponsored by the Society of Critical Care Medicine.

Like their east coast counterparts who met in Miami in September, the group shared experiences and advice with their colleagues regarding implementation and evaluation of data collection for the sepsis bundles. Representatives of the Colorado Critical Care Coalition, the Arizona and Kansas state-wide collaboratives, and faculty from regional training sessions attended along with practitioners from Wyoming, Nevada, Virginia, Michigan, Florida, Iowa, Alabama, Texas, Alaska, Washington, Tennessee, and New Jersey. Faculty included Ron Rains, MD, and Ivor Douglas, MD, from Colorado along with SSC leaders Mitchell Levy, MD, R. Phillip Dellinger, MD, Christa Schorr, RN, BSN, and Institute for Healthcare Improvement (IHI) coach Jane Taylor, EdD.

Both the east and west coast groups will convene for webcasts to review their progress on January 16 and are communicating via an extranet provided by IHI and a listserv for summit participants.

View the PowerPoint presentations and listen to Dr Dellinger, Ms Schorr, and Dr Taylor live from the November 29 meeting by visiting the home page at www.survivingsepsis.org and clicking on the link.

Revised SSC Guidelines Published

Dellinger RP, Levy MM, Carlet J, et al for the International Surviving Sepsis Campaign Guidelines Committee. Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock: 2008. *Crit Care Med.* 2008; 36 (1): 296-327 and *Intensive Care Medicine* 2008; 34(1):17-60



Asia

China

Europe

Denmark—*Lone Poulsen*

England—*Ron Daniels*

Germany—*Konrad Reinhart*

Ireland—*Jeanne Moriarty,*

Brian McCloskey

Italy—*Roberto Furnagalli*

Netherlands—*Arthur Van Zanten,*

Dave Tjan

Poland—*Andrzej Kubler*

Portugal—*Antonio Cameiro*

Scotland—*Simon Mackenzie,*

Louie Plenderleith

Spain—*Antonio Artigas*

Sweden—*Hans Hjelmqvist*

Wales—*Mark Smithies*

Latin America

Brazil—*Eliezer Silva*

Chile

Venezuela—

Pablo A. Pérez d'Empaire

North America

Alabama—*Moustaffa Hassan*

Arizona—*Donald Maxwell*

California (Southern)—

Herbert Rogove

California (Sutter)—*John Mesic*

Colorado—*Ron Rains*

Connecticut—*Dawn Martin*

Florida—*Edgar Jimenez*

Georgia—*Kenneth Kalassian*

Illinois—*Nathan Lidsky, John Butler,*

Michael Ries, Jay Cowen

Iowa—*James Boddicker, Jill Morgan*

Kansas—*Steve Simpson*

Maryland/Washington, DC—

Gabriel Hauser

Michigan—*Joseph Bander*

Minnesota—*Henry Mann*

New Jersey—*R. Phillip Dellinger*

New York (NYHHC)

North Carolina—*C. Diane Byrum*

Puerto Rico—*Gloria Rodriguez*

Texas (Memorial-Hermann)—

James Heisler

Virginia—*William Brock*

Your response needed!

Survey Regarding Data Entry for T₀

More than 11,000 patient charts exist in the global database for the Surviving Sepsis Campaign. As might be expected in the case of an unfunded, world-wide quality improvement effort with a multitude of data points, some variability in interpretation of data point definitions is likely to occur. This is especially true for determining time zero in the 6-hr bundle, as has been discussed recently on the Surviving Sepsis Campaign listserv. While this does not impede Plan-Do-Study-Act improvement activities within an individual unit, the accurate interpretation and analysis of the aggregate data from all participating centers in the Campaign require attention to this issue.

As part of the data analysis, the Surviving Sepsis Campaign is conducting a survey of the major networks and contributors to the database to determine the methodology applied locally and, therefore, how best to interpret the results globally. The instrument—a brief questionnaire—will be sent to database contributors in early January 2008. Elaine Rinicker, International Sepsis Forum staff representative to the Surviving Sepsis Campaign, will follow up via e-mail and telephone to ensure the interpretation of the aggregate data is accurate. Please respond to the survey promptly and address any questions about the survey to elaine@sepsisforum.org. Your cooperation in responding to the survey is vital to the Campaign's ability to establish the validity of the data and publish the results of our efforts to reduce mortality from severe sepsis and septic shock.

Leadership Perspective: Are You Accountable?

(continued from page 2)

Embracing accountability in our daily practice is essential to our success. Part of the ability to say we are accountable is the responsibility of accepting that we aren't always doing as well as we think we are in applying the principles we've read and heard. The Figure on page 2 demonstrates the difference in compliance with elements of the 6-hr resuscitation bundle when physicians were interviewed compared with the actual chart data. Some experts believe that less than half of all medical care in the US is based on or supported by firm evidence of effectiveness.³ Arguing about whether protocols are effective in improving outcomes in the face of mounting published evidence could be viewed as academic folly. We are in an era where medicine is changing so fast that busy clinicians must use widely accepted guidelines based on today's evidence to treat our patients. We know that decreased variability improves quality, so adhering to guidelines developed through a rigorous process of literature evaluation and agreed upon by consensus of experts around the world can be a particularly responsible way to make treatment decisions.

The goals of the Surviving Sepsis Campaign were stated at its inception in Barcelona in 2002: to reduce relative risk of mortality from severe sepsis and septic shock by 25% globally. Through development, dissemination, application, and reassessment of guidelines due to experience, we are gathering and sharing the data that show substantial progress toward that goal. That is true accountability.

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Rhode Island Hospital

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Member, SSC Executive Committee

References

1. Cahana MD, Rand CS, Powe NR et al: Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA* 1999; 282:1458-65
2. Ferrer R: Sepsis mortality can be reduced by an educational program based on guidelines [ESICM abstract OP 0001-0005]. *Intensive Care Med* 2007; 33 (suppl 2): S5
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