

CAMPAIN Update

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

May/June 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.



Spanish Multicenter Educational Program Results Published in JAMA



The May 21, 2008 issue of *Journal of the American Medical Association* includes the results of the Spanish multicenter application of the Surviving Sepsis Campaign bundles of care.¹ A news release announcing the paper's findings states, "A national educational effort in Spain to promote appropriate care for severe sepsis and septic shock was associated with a lower rate of sepsis deaths in hospitals and improved guideline adherence, although the improvement in compliance with some resuscitation procedures diminished after one year."

The study, conducted by Ricard Ferrer, MD, of the Universidad Autonoma de Barcelona and colleagues throughout Spain, determined that a national educational program based on the SSC guidelines improved compliance with bundle elements at 59 Spanish ICUs. A total of 854 patients were enrolled in the pre-intervention; 1465 in the post-intervention period; and 247 during

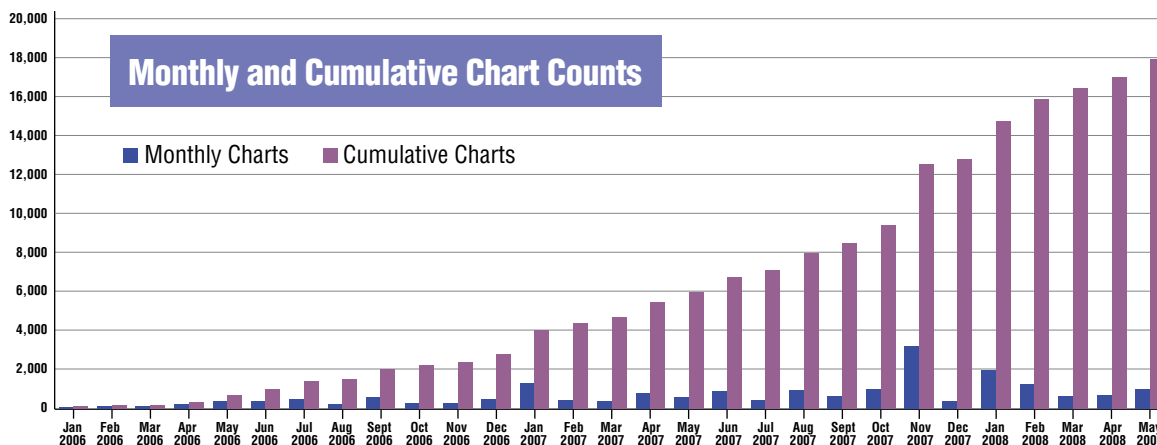
the long-term follow-up period one year later.

The educational program consisted of training physicians and nursing staff from the emergency departments, wards, and ICUs in the definition, recognition, and treatment of severe sepsis and septic shock according to the SSC guidelines. Patients in the post-intervention group had a statistically significant lower risk of hospital mortality (44.0% vs 39.7%) and 28-day mortality (36.4% vs 31.1%) compared with the pre-intervention group. Compliance with the bundle elements improved after the intervention in the sepsis resuscitation bundle (5.3% vs 10.0%) and in the sepsis management bundle (10.9% vs 5.7%). The percentage of patients in whom care complied with all resuscitation and all management measures improved significantly after the educational program. During follow-up at one year, compliance with the resuscitation bundle returned to baseline but compliance with the management bundle and mortality remained stable with respect to the post-intervention period.

"The decreased mortality observed in our study and other studies might derive from better identification of patients with severe sepsis or

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Guidelines are Good—and Make Us Better

By Sean R. Townsend, MD



We're not as good as we think we are. We think we do the right thing; we think we're practicing the latest and best; we think we've done the best for our patients. We certainly *want* to do the best for our patients. But based on a study by McGlynn et al, we can conclude that the defect rate in the

technical quality of American healthcare is approximately 45%.¹ Of 439 indicators of clinical quality of care for 30 acute and chronic conditions identified in 6712 patient records, participants had received 54.0% of the scientifically indicated care. A German study of supportive and adjunctive therapies in the ICU comparing actions physicians said in interviews they had taken compared to chart audits showed major misperceptions of care provided. For example, 92% of those interviewed said they complied with low tidal ventilation protocols, when only 4% did according to the chart audit; 67% said they followed glycemic control protocols, when only 9% really did per the charts.²

Publishing evidence-based guidelines is a vital component in improving the care we provide; but, we only think we're complying with them. We're working within systems that don't promote reliability; with policymakers who waffle; without substantive funding for quality improvement research, and with no funding at all for quality improvement work. Can we do anything to ensure that the care we provide is what has been scientifically indicated? If we can't achieve 100%, surely we can embrace incremental changes.

Affecting knowledge of guidelines are a lack of familiarity with primary studies perhaps due to the volume of new information and lack of time to keep up. Educational issues can also be a barrier to clinicians' knowledge. Lack of agreement with studies or different interpretation of the results, the desire for multiple confirmatory studies, cost issues, and applicability to individual patients create attitudinal barriers to adoption of evidence-based medicine. Behavioral barriers include external factors such as patient/family expectations and environmental factors such as time, resources, organizational constraints, and malpractice considerations.

Basically, a clear part of the problem is a fundamental failure to translate research into practice. Tools such as guidelines, protocols, checklists, and standardization are the only tools available. While we await big breakthroughs, we can use these tools to create small changes. Yet the resistance to applying guidelines includes arguments that protocols undermine the art of medicine. Other arguments suggest that guidelines will be used in a punitive manner to discipline non-adherent physicians or against physician judgment calls. Further concerns cite that medical dogma has been wrong before and that recommendations can be corrupted by bias. Another argument is that guidelines inappropriately encourage pay-for-performance initiatives.

Creating small changes that will incrementally lead to better care requires organizational learning. The aim of strategies such as guideline application and protocol development is to learn how to accomplish our objectives more effectively and on a larger scale each time we apply them. Only through learning and applying what we learn will we reduce mortality, reduce spending, and improve care.

Standardization is necessary for organizational learning. All quality improvement lessons are based on the framework of studying deviation from a standard. It is impossible to learn from chaos. When no standards exist, there is no common point from which to measure. Only by measuring, can we determine what impact the deviation creates and what changes should be recommended. It is an illusion that guidelines and protocols never change. They probably change faster than clinical practice. No guideline is ever the last word; no protocol is ever finished. Whoever takes ownership of the process can control the change continually.

Standardized care is good because it permits organizational learning. Given the complexity of medical practice today and the proliferation of literature, physicians seek guidance to keep up. Evidence-based guidelines and protocols provide the standards from which to measure patient care. When properly implemented, protocols avoid rigidity and allow for dynamic adjustment based on the measurements from the standard. Patient care benefits from good guidelines, a good team, and the input of experience.

If done right, protocols and guidelines should not undermine the art of medicine. While judgment and artistry must take a backseat to evidence-based actions, deviation from the protocol must be tolerated and recorded. By studying deviation from the practice we learn how to revise protocols and, potentially, the underlying guideline.

The Surviving Sepsis Campaign's championing organizational learning has galvanized the arguments of those who oppose the process. But doing so has encouraged the SSC to rethink what strategies and guideline components need further attention. This is the foundation of learning. By placing rules or criticism around activities, we learn what things may improve; by measuring the deviation from protocols and studying the causes of the deviation and recording the results, we learn and re-evaluate our weaknesses. That's why protocols and guidelines, however imperfect at any given time, will ultimately make us better.

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1. McGlynn EA, Asch SM, Adams J, et al: The quality of health care delivered to adults in the United States. *N Engl J Med* 2003;348: 2635-2645

2. Bauer M, Brunkhorst F, Welte T, et al: Sepsis : Update on pathophysiology, diagnostics and therapy. *Anaesthetist*. 2006;55(8):835-45

Articles below may provide additional background for SSC implementation.

Sprung CL, Annane D, Keh D, et al; CORTICUS Study Group. **Hydrocortisone therapy for patients with septic shock.** *N Engl J Med.* 2008; 358(2):111-24

In this European multicenter, randomized, double-blind, placebo-controlled trial, 251 patients were assigned to receive 50 mg of intravenous hydrocortisone and 248 patients to receive placebo every 6 hours for 5 days; the dose was then tapered during a 6-day period. Patients who remained hypotensive or required treatment with vasopressors for at least 1 hour after adequate fluid resuscitation were randomized within 72 hours after the onset of septic shock with 19.2% of the patients' receiving etomidate before enrollment. This large trial of corticosteroids in sepsis showed no benefit in intent to treat mortality or shock reversal. The lack of treatment effect was also consistent regardless of the duration of septic shock before recruitment. On the other hand, steroids did produce earlier reversal of septic shock. However, more rapid weaning from vasopressors did not correlate with improved survival in this study. Septic shock reversal was unrelated to corticotropin stimulation test results, suggesting this test does not identify patients who would benefit from corticosteroids. In this patient population, superinfection and new sepsis/septic shock occurred more frequently in the steroid group. Steroids were not associated with increased incidence of polyneuropathy. These results suggest that hydrocortisone therapy cannot be recommended as routine adjuvant therapy for all patients with septic shock. In light of this trial, the recommendation in the Surviving Sepsis Campaign's 2008 guidelines has been downgraded from the previous (2004) edition. Based on clinical evidence and opinion, steroids are still recommended (suggested) for patients with blood pressure poorly responsive to fluid

*resuscitation and concomitant vasopressor therapy. This is in line with the patient population enrolled in the French trial (Annane D, Sébille V, Charpentier C, et al. Effect of treatment with low doses of hydrocortisone and fludrocortisone on mortality in patients with septic shock. *JAMA.* 2002; 288(7):862-71). Subjects in the French trial were treated earlier and had more cardiovascular instability.*

Butler J. **The Surviving Sepsis Campaign (SSC) and the emergency department.** *Emerg Med J.* 2008; 25(1): 2-3

This article reviews the application of the Surviving Sepsis Campaign in the emergency department. In the United States, an estimated 390,000 patients with severe sepsis and septic shock initially present to emergency departments each year. The majority of the patients in the SSC database (approximately 60%) come from emergency department admissions. It has been already accepted that emergency medicine plays a vital role in the chain of survival for sepsis similarly to what is seen in many acute disease presentations such as AMI, stroke, and trauma. The rapid diagnosis and management of sepsis is critical to successful treatment outcomes. Strategies available within the emergency department to optimize patient care include early patient identification and diagnosis, rapid identification of causative organisms where appropriate, timely antimicrobial therapy, and goal-directed hemodynamic support. In this paper, the author highlighted the importance of multispecialty cooperation of healthcare professionals as one of the keys to the success of the Campaign. Close collaboration between emergency departments and critical care departments is crucial to provide the optimal management for these patients.

CALENDAR

2008

June 28-July 2

6th Congress of the International Federation of Shock Societies
31st Annual Conference of the US Shock Society
7th International Conference on Complexity in Acute Illness
Cologne, Germany

September 21-24

ESICM Annual Meeting
Monday, September 22
SSC Update
8:30-9:30 am
Lisbon Room
Lisbon, Portugal

November 19-21

International Sepsis Forum:
Sepsis 2008
Granada, 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.

Data Collection Survey Closes 6/6

SSC thanks those Campaign participants who took part in the survey on data collection methods. We have achieved a response rate of nearly 65% of those who initially registered and remained involved in the Campaign. The results of the survey will be used as we analyze the database. We expect to start the data analysis midyear with a view to presenting a preliminary analysis at the ESICM meeting in Lisbon in October and the final results' being presented at SCCM's Critical Care Congress in Nashville in January 2009. You will still be able to enter data past the cutoff date of June 6 for the analysis, but we encourage all centers to submit their data as soon as possible. If your center has not completed the survey, you may do so until June 6. You can locate the survey on-line at: https://www.surveymonkey.com/s.aspx?sm=oyrkMsZOYD_2fQnK9Nwj2KQg_3d_3d Any questions regarding the survey should be directed to Elaine@sepsisforum.org



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- Europe**
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England—*Ron Daniels*
Germany—*Konrad Reinhart*
Ireland—*Jeanne Moriarty, Brian McCloskey*
Italy—*Roberto Fumagalli*
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*
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Brazil—*Eliezer Silva*
Chile
Venezuela—
Pablo A. Pérez d'Empaire
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Colorado—*Ron Rains*
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Florida—*Edgar Jimenez*
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Gabriel Hauser
Michigan—*Joseph Bander*
Minnesota—*Henry Mann*
New Jersey—*Janet A. Urbanowicz*
New York (NYHHC)
North Carolina—*C. Diane Byrum*
Puerto Rico—*Gloria Rodriguez*
Rhode Island—*Margaret Cornell*
Texas (Memorial-Hermann)—
James Heisler
Virginia

Spanish Multicenter Educational Program Results Published *(continued from page 1)*

from improved compliance with quality indicators, including earlier administration of antibiotics, or both,” the authors write.

In an accompanying editorial in *JAMA*, Jeremy M. Kahn, MD, MSc and David W. Bates, MD, MSc, provide insight into the implications of this study, as well as its limitations. They conclude their comments with the statement “...this study should be a wake-up call to policy makers, a challenge to the leaders of professional societies, and a road map for the path ahead. No longer is it acceptable to simply publish practice guidelines and hope that quality improvement happens at the local level. Development of these guidelines should be followed by rigorous testing, and, when results are positive, by dedicated regional, national, and even international implementation efforts. Such broad-based efforts are needed to achieve

population-level benefits from interventions known to be effective.”²

“This publication is significant for the Campaign,” says Mitchell Levy, MD, head of SSC’s Implementation phase and coauthor of the paper. “We have shown that compliance with the sepsis bundles of the Surviving Sepsis Campaign leads to improved survival for patients with severe sepsis, which is sustained over time. It is clear, though, that regular education is needed to sustain higher levels of standardized care. In this study, we achieved the goals of the Campaign—to reduce mortality from sepsis and create behavior change at the bedside.”

1. Ferrer R, Artigas A, Levy MM, et al for the EduSepsis Study Group: Improvement in process of care and outcome after a multicenter severe sepsis educational program in Spain. *JAMA* 2008; 299:2294-2303
2. Kahn JM, Bate DW: Improving sepsis care: the road ahead. *JAMA* 2008; 299:2322-2323

Campaign widens involvement in 2 states

The extending impact of the Surviving Sepsis Campaign is evident in recent activities of the New Jersey Hospital Association (NJHA) and the Hospital Association of Rhode Island (HARI). Both organizations have embraced the Campaign as a quality improvement initiative in their states. The New Jersey group has prior experience in quality improvement with the ventilator-acquired pneumonia and catheter-related bloodstream infection bundles.

Leadership of both HARI and NJHA contacted SSC to ask for direction in moving the sepsis collaborative forward in their respective states. The experienced team of SSC leaders Phil Dellinger, MD, Christa Schorr, RN, Sean Townsend, MD, and Mitchell Levy, MD, will conduct a series of launch meetings followed by monthly conference calls in both states. The Rhode Island initiative started in May of 2008 chaired by Townsend and the New Jersey activities will begin in June 2008 chaired by Levy.

SSC is now actively involved in leading both states toward their goals of improving compliance with the bundles to 40% in 6 months and 70% by 12 months, and reducing mortality by 15%.

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