

# CAMPAIN Update

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

July/August 2007



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](mailto:campaignupdate@survivingsepsis.org).



## Development of the Minnesota Surviving Sepsis Network: Steps to Success

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The University of Minnesota Center for Excellence in Critical Care ([www.cecc.umn.edu](http://www.cecc.umn.edu)) is an interdisciplinary program of the academic health center with a mission to advance research, training and practice in critical care. More than 300 critical care practitioners including physicians, nurses, pharmacists, respiratory therapists and even veterinary medicine critical care specialists participated in the Center's programs in 2006. Sepsis management has been a strong research and education interest for the Center members since its founding in 1998. This interest led to organizing a state-wide network around the Surviving Sepsis Campaign.

multiple-step process that began with identifying target participants and developing a survey to assess knowledge of the Campaign and attitudes toward its recommendations. The target participants represented the 15 largest hospitals in the state and each had an active critical care practitioner who previously participated in Center programs. Five of the hospitals are teaching hospitals and the remaining 10 are community hospitals. These hospitals represent more than 800 ICU beds.

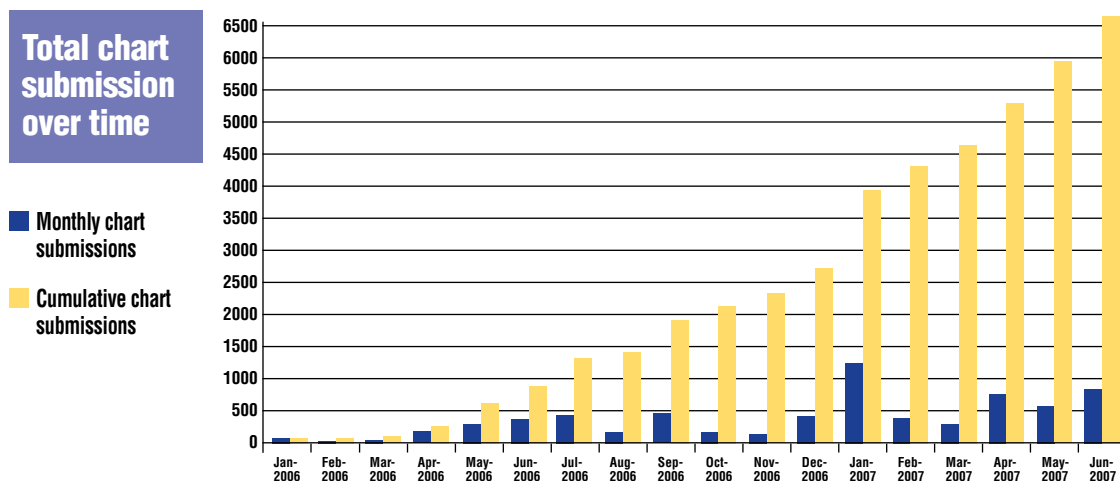
The organizational meeting for the Minnesota Surviving Sepsis Network was held in June 2006 with representation from IHI (Sean Townsend, MD) and the Surviving Sepsis Campaign (Deborah Branch). The goals for the Minnesota Surviving Sepsis Network included accelerating the adoption of the Campaign, creating community through endorsement and commitment to improving care of the severe sepsis patient, and identifying quality improvement benchmarks. In preparation for the meeting, sites were asked to complete a survey and to provide copies of protocols they either had in place or were currently developing. Debbie Bagroo, PharmD, provided invaluable assistance in the survey development.

### Network development

Organization of the network was a

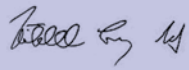
*(continued on page 4)*

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## Using Computers to Improve Care of Patients with Severe Sepsis



Integration of computer technology with bedside care is commonplace in most hospitals throughout the world today. The application of computer-assisted alerts has been demonstrated to improve outcomes for patients in both outpatient and in-hospital settings. Computerized data collection tools have also been used to conduct audits and provide feedback on adherence to performance measures.

A good example of how the field is moving forward to combine computer applications to enhance the quality of patient care both on a micro- and macro level has occurred in conjunction with the Surviving Sepsis Campaign. The Campaign itself has designed the software of its interactive data collection tool to allow individual units to measure their improvement in specific elements of the 6-hour and 12-hour care bundles as well as to contribute their results to the global database so the entire healthcare community can benefit from

*“The application of computer-assisted alerts has been demonstrated to improve outcomes for patients in both outpatient and in-hospital settings.”*

experiences of all participants. The software has two important functions: First, to challenge clinicians to identify patients with sepsis via the screening tool and second, to guide the management of the septic patient through interactive data entry.

The data collection tool, or “chart review database,” is available free from the Surviving Sepsis Campaign. It can be loaded on a laptop for use in the intensive care unit, emergency department or throughout the hospital. The software can also be loaded on hospital networks with the assistance and cooperation of local IT departments. Some clinicians still use a paper version of the data collection tool, but the best way to facilitate data entry is to collect information on rounds or afterward by entering pertinent data points into the database online.

A recent study presented at the 2006 American Thoracic Society’s annual meeting identified the time involved in collecting data for the Surviving Sepsis Campaign’s program, after the initial learning curve, is 8 minutes per patient for the 6-hour

resuscitation bundle and 2 minutes or less per patient for the 24-hour management bundle.<sup>1</sup> Surely improved patient care is worth this minor additional staff time to collect and enter such data.

The literature shows that computers can improve the quality of care. As mentioned previously, published studies have demonstrated significant benefit from computerized prompts and reminders.<sup>2</sup> While most of these applications have been in out-patient settings, commercially available computer information systems for intensive care have recently incorporated the Surviving Sepsis Campaign bundles into their software. VISICU has added prompts to their eICU program; Cerner has incorporated bundle elements into their ICU product; and Philips Medical Systems has developed “smart alerts” and advisories that are based on the sepsis guidelines from the Campaign. All of these products have developed alerts that automatically identify patients who might be appropriate for sepsis bundle application and then guide the clinician through each element of the care bundle.

These features of commercially available products represent an important blending of science and technology that foreshadows the future of computers in facilitating best practice models. They also highlight the value of quality improvement campaigns such as the Surviving Sepsis Campaign in making tools available for wide application to patient care. Seeing the impact of compliance with the Campaign guidelines and the resultant improved outcome of patients with sepsis is rewarding to all of us involved in the Campaign. This convergence of bedside care, data collection and technologic innovation provides powerful tools that all of us can use to improve patient care.

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Providence, Rhode Island, USA

Member, SSC Executive Committee

1. Ventetuolo C, Lee MD, Palmisciano A, Townsend S, Levy MM: Surviving sepsis: Assessing clinical practice [ATS abstract 3500] 2006

2. Evans RS, Pestotnik SL, Classen DC: A computer-assisted management program for antibiotics and other anti-infective agents. *N Engl J Med* 1998; 338:232-238

Listed below are articles that may provide additional background to practitioners as they implement the SSC. *Campaign Update* welcomes Ismail Cinel, MD, PhD, Visiting Associate Professor of Anesthesiology (Turkey), Division of Critical Care Medicine, Cooper University Hospital, Camden, NJ, USA, as the new section editor.

Sivayoham N. **Management of severe sepsis and septic shock in the emergency department: a survey of current practice in emergency departments in England.** *Emerg Med J* 2007; 24:422

*A survey of 173 English emergency departments was carried out over March-April 2006 to ascertain which departments had initiated a protocol for early goal-directed therapy of the patient with sepsis-induced tissue hypoperfusion. Only 19% had done so. It points out that although there is difficulty in initiating a time-sensitive protocol in a small percentage of presenting patients, this has been successfully accomplished with acute myocardial infarction.*

Shorr AF, Micek ST, Jackson WL Jr, Kollef MH. **Economic implications of an evidence-based sepsis protocol: can we improve outcomes and lower costs?** *Crit Care Med* 2007; 35:1257-62

*Authors compared septic shock patients treated before the institution of an emergency department sepsis protocol very similar to the SSC bundles with those cared for after the protocol was implemented. Overall hospital costs represented the primary end point, whereas hospital length of stay served as a secondary end point. Use of a sepsis protocol can result not only in improved mortality levels but also in substantial savings for institutions and third party payers. The authors concluded that broader implementation of sepsis treatment protocols represents a potential means for enhancing resource use while containing costs.*

Patel GP, Elpern EH, Balk RA. **A campaign worth joining: improving outcome in severe sepsis and septic shock using the Surviving Sepsis Campaign guidelines.** *South Med J* 2007; 100:557-8

*Authors stated that despite convincing evidence of improved outcomes, adherence to severe sepsis guidelines is suboptimal. The authors concluded that the SSC guidelines and use of sepsis bundles are an excellent starting point to increase physician awareness and standardized sepsis management. The authors encouraged all to join the Campaign.*

Chalfin DB, Trzeciak S, Likourezos A, Baumann BM, Dellinger RP, DELAY-ED study group. **Impact of delayed transfer of critically ill patients from the emergency department to the intensive care unit.** *Crit Care Med* 2007; 35:1477-83

*A study of emergency department patients analyzed those that were held 6 hours or longer in the ED after ICU admission versus those that were not. From January 1, 2000 to December 31, 2003, 50,322 patients were admitted from the ED to the ICU. Of these, 1,036 (2.1%) boarded in the ED for ≥ 6 hrs before ICU transfer (DEL), and 49,286 (97.9%) were transferred from the ED to the ICU in 6 hrs (non-DEL). Mortality was significantly greater in those held 6 hours or longer, with severe sepsis being a particularly good example of a patient group exhibiting this finding. Although not proven cause and effect, it does clearly establish the association.*

Trzeciak S, Dellinger RP, Chansky ME, Arnold RC, Schorr C, Milcarek B, Hollenberg SM, Parrillo JE. **Serum lactate as a predictor of mortality in patients with infection.** *Intensive Care Med* 2007; 33:970-977

*The authors' aim is to determine the utility of an initial serum lactate measurement for identifying high risk of death in patients with infection. They concluded that measurement of lactate in patients with infection and possible sepsis can affect assessment of mortality risk.*

## CALENDAR

### 2007

**September 24**  
SSC North American Summit, Session I  
East Coast Collaborative  
8am-5pm  
Miami, Florida, USA

**September 26-29**  
Sepsis 2007  
Institute Pasteur  
Paris, France

**October 7-10**  
ESICM 20th Annual Congress  
SSC Educational Session  
Wednesday, October 10, 2007  
11:10am – noon  
Berlin, Germany

**November 7**  
SSC North American Summit  
Web Conference  
East Coast Collaborative  
2-3:30pm EST

**November 29**  
SSC North American Summit, Session I  
West Coast Collaborative  
8am-5pm  
Denver, Colorado, USA

### 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 Annual Congress  
SSC Educational Session  
TBD  
Honolulu, Hawaii, USA

**March 5**  
SSC North American Summit, Session II  
East Coast Collaborative  
8am-5pm  
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  
Denver, Colorado, USA

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

## Development of the Minnesota Surviving Sepsis Network

(continued from page 1)

### Survey conducted

The survey instrument was approved by the University of Minnesota's IRB and consisted of 11 questions on the overall Surviving Sepsis Campaign and 52 questions on individual recommendations within the Campaign guidelines. Eleven responses representing 9 of the 15 hospitals were returned. The respondents were familiar with the Surviving Sepsis Campaign with 82% stating they had read the recommendations and the remainder knowing the goals and having discussed them with colleagues. Five sites (45%) stated they had adopted the Surviving Sepsis Campaign in a formal way at their sites with order sets in place. The remaining 55% were in the process of adopting the guidelines. For the sites still in process, the reasons for not having adopted the guidelines included inadequate resources, lack of a champion for adoption, lack of administrative support, and the perceived complexity of collecting required data. All 6 sites who had not adopted the guidelines responded that they believed their sepsis treatment outcomes were better than the national average, but the majority (4/6) did not have data to support their opinion.

### Planning committee established

Following an open discussion of the pros and cons of working together as a network, there was general endorsement and a planning committee was solicited. The planning committee met in August and recommended that the Network support using the Surviving Sepsis Campaign database at all participating sites; that the Plan-Do-Study-Act process be followed and outcomes compared with baseline for each site be collected; that additional education programs around the Surviving Sepsis Campaign be conducted; that teams from sites be invited to participate together; and that the team concept be widened to include emergency room personnel and administrators at most sites. Topics identified for the educational

programming included:

- Process implementation
- Training and discussion of Surviving Sepsis Campaign Database
- Early goal-directed therapy
- ICD9 codes and cost analysis/cost saving financial outcomes
- Staffing necessities
- Mortality and morbidity as outcomes
- Long term impact including 3rd party payer involvement and payer rebate

The Center for Excellence in Critical Care hosted a half-day education program on these topics in December 2006 as well as presentations by Dr. J. Perrin Cobb on "Injury in the Genomics Era" in November 2006, Dr. Emanuel Rivers on "Early Goal-Directed Therapy" in February 2007 and Dr. Ivor Douglas on "Creating the Colorado Critical Care Collaborative" in May 2007. In addition, 4 of the hospital sites sent participants to the Surviving Sepsis Campaign Networking Meeting held in Orlando in February 2007.

Working in parallel with the development of the Minnesota Surviving Sepsis Network, the Center also restructured its day-long critical care education program, "Update in Critical Care," into a 2-day program focusing on application of quality improvement and adoption of best practices. The previous one-day interdisciplinary conference was traditional in its educational approach, which we felt was not effecting change in critical care at the bedside.

### Goals set

The goal of the restructured Critical Care Update is to improve the care and outcomes of the critically ill and injured throughout the state of Minnesota through introduction to and discussion of guidelines for care; establishing a consistency of care incorporating best practice across all areas and locations of care; and encouraging all hospitals to document the change that occurred at their institutions and to report their results. We expect many of our hospitals will choose Surviving Sepsis as their program for quality improvement through this program.

The first day of this conference will be presentations of recent research findings and proposed or accepted guidelines for improving the safety, care and outcomes of the critically ill and injured patient. The second day of the conference will focus on the translation of those findings into practice and the issues and the barriers to their adoption. The targeted audience for the conference is practitioners across the continuum of care from the ED to the ICU at the large metropolitan or academic hospitals currently participating in the Network including larger trauma and Level I centers, as well as healthcare workers not trained in critical care from rural hospitals where critically ill patients may first present. Through planned interactive workshops and poster presentations we expect this revised Critical Care Update program to open new opportunities for networking around quality improvement in critical care.

Over the last year we have made a concerted effort to improve the care of the critically ill patient with sepsis in Minnesota. We are working in partnership with the Surviving Sepsis Campaign to implement best practice for these patients and to document that those improvements in the care process result in decreased mortality. We encourage our participant sites to share their information with the Surviving Sepsis Campaign database and use the powerful force of networking to speed the rate at which improvements occur in their hospitals. The changes required by the Surviving Sepsis Campaign cannot be accomplished overnight or by one person in a system; however we can make a difference by working together and sharing our skills. We hope establishing the Minnesota Surviving Sepsis Network can play a key role in making improvements in care a reality.

*For further information about the Minnesota Surviving Sepsis Network, contact [hmann@umn.edu](mailto:hmann@umn.edu)*



## CAMPAIGN at-a-Glance

### Asia China

### Europe

Denmark—*Lone Poulsen*  
England—*Jane Eddleston*  
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

### 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)—  
*Karen Scott Collins*  
North Carolina—*C. Diane Byrum*  
Puerto Rico—*Gloria Rodriguez*  
Texas (Memorial-Hermann)—  
*James Heisler*  
Virginia—*William Brock*

## Improvement summits planned for North America

The Society of Critical Care Medicine (SCCM) is offering a series of summits over the next 9 months for Campaign participants who are actively submitting data to the global SSC database (by September 1, 2007) as a means of enhancing the quality improvement aspect of the Campaign. The series, sponsored by an unrestricted educational grant from Eli Lilly and Company and reviewed by an independent oversight committee from SCCM, is available by invitation to those hospitals in North America who complete an application committing to change over time. One physician and one nurse from the SSC team in each hospital will attend 2 separate day-long, in-person programs, participate in 2 web conferences, and implement process improvement techniques in their hospitals, which will include sharing data with other participants in the program.

Attendees will commit to a 6-month process, which includes collaboration within their group and with the faculty designated for the sessions. All expenses for travel will be underwritten by the grant. Participation in the program is on a first-come, first-served basis.

The summit, limited to hospitals contributing data to the Surviving Sepsis Campaign, will include programs on the east and west coasts. Session I will be presented on September 24, 2007 in Miami and on November 29, 2007 in Denver for those nearer Colorado. The day's program comprises sessions on achieving compliance with specific bundle elements including discussions on factors affecting compliance. Work groups and lectures will address PDSA (Plan-Do-Study-Act) cycles and aim statements and include collaborative learning to share ideas for practical implementation of Campaign activities.

Participants will attend 2 1-1/2 hour web conferences following their attendance at the first session during which they will share their progress and gather tips from the top performers. Faculty will lead the group in responding to questions about their activities and issue a challenge to the participants to close gaps in performance. Before the close of the conference, a plan for the next meeting of the group will be developed. Involvement in an extranet site to share information with other program participants between sessions will be an

1. In-person, full-day meeting, east coast (September 24, 2007) or west coast (November 29, 2007)

2. After 2 months, participate in the first virtual conference (teleweb from your location) and collaborate in ongoing extranet activities

3. After 2 months, participate in the second virtual conference and continue collaboration in ongoing extranet activities

4. After 1-2 months, participate in second in-person, full-day meeting with group

integral aspect of the quality improvement process as members share their data to demonstrate change.

The second face-to-face sessions will be held in Miami on March 5, 2008, and in Denver on April 29, 2008. Conducted by the same faculty as Session I and the web conferences, Session II will concentrate on perpetuating improvement by discussing what participants have done and how they have achieved success. Sessions on sustaining change as hospitals continue their improvement efforts will be on the agenda. The Campaign will highlight the achievements of individual hospitals on programs and in publications and encourage them to publicize their results themselves.

Faculty for the program includes members of the Surviving Sepsis Campaign executive committee: Mitchell Levy, MD; R. Phillip Dellinger, MD; Sean Townsend, MD; as well as Christa Schorr, RN, BSN, from Cooper University Hospital, Camden, NJ; Jane Taylor, EdD, from the Institute for Healthcare Improvement; and other nurses and physicians who have advanced experience in Campaign activities. The summits have been designed in concert with faculty from the Institute for Healthcare Improvement's (IHI) national learning collaborative Improving Outcomes for High-Risk and Critically Ill Patients.

While this program is currently available only in North America, SSC hopes to provide programs globally. Watch for more information about applying to participate by clicking on the education bar at [www.survivingsepsis.org](http://www.survivingsepsis.org)

*Campaign Update* is a publication of the Surviving Sepsis Campaign. Comments or suggestions should be sent to [campaignupdate@survivingsepsis.org](mailto:campaignupdate@survivingsepsis.org).

SSC Industry Support Policy: The SSC leadership adopted the policy document titled *Surviving Sepsis Campaign Implementation and the Appropriate Role of Industry* in February 2006. This policy is intended to clarify and delineate official SSC implementation activities from those initiated by third parties, including, but not limited to, the pharmaceutical and medical device industries. A copy of the policy is available at [www.survivingsepsis.org](http://www.survivingsepsis.org).