

CAMPAIN Update

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

November/December 2008



This is the final issue of Campaign Update, the official newsletter of the Surviving Sepsis Campaign. The Surviving Sepsis Campaign was 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.



SWC³ Embraces the Challenge

Donald K. Maxwell, DO, and Leslie Rach, RN
- on behalf of the SWC³

Recognizing a “hidden” disease like severe sepsis isn’t easy. Historically, individual hospitals have had challenges combating this disease. Emerging from our silos to work together in this battle isn’t simple, either. But, after a Surviving Sepsis Campaign (SSC) regional training program in April 2007 in Phoenix, Arizona, our newly formed Southwest Critical Care Collaborative (SWC³) embraced the challenge to do just that to maximize the delivery of evidence-based severe sepsis care to our patients.

SWC³ is a grassroots effort in Arizona and surrounding areas to address challenges in common critical care issues. The first topic is severe sepsis recognition and management.

Active participating facilities in the SWC³ are:

- Banner Health System
 - Banner Desert Medical Center
 - Banner Estrella Medical Center
 - Banner Gateway Medical Center
- Catholic Healthcare West
 - Chandler Regional Medical Center
 - Mercy Gilbert Medical Center

- John C. Lincoln Health Network
 - John C. Lincoln Hospital – North Mountain
- Scottsdale Healthcare
 - Shea Campus
- University Medical Center – Tucson
- Southern Arizona VA Health System - Tucson
- Yuma Regional Medical Center

The SWC³ began with teleconference and in-person meetings on a monthly basis. In these early meetings, we shared our current successes and challenges related to severe sepsis management. Due to the variable starting points of the application of sepsis protocols in participating facilities, this effort gave us significant opportunity to learn from seasoned hospitals. We also were able to gain a fresh perspective from hospitals just starting to tackle severe sepsis recognition and treatment.

The first mission of the collaborative is to reduce the mortality and morbidity from severe sepsis across the Southwestern region through implementing evidence-based sepsis care, heightening awareness of sepsis, and educating our community and healthcare professionals.

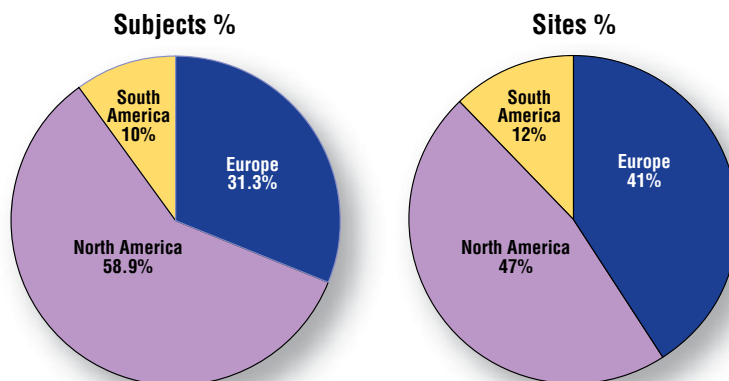
Some of the current activities of the SWC³ include:

- Sharing strategies and lessons learned that improve the care of septic patients among hospitals within the Southwestern United States

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Characteristics of SSC Database Contributors



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Success Yields Success: The Surviving Sepsis Campaign Past, Present, and Future



Mitchell M. Levy, MD, FCCM, head of SSC Phase III



R. Phillip Dellinger, MD, FCCM, head of SSC Phase II



Graham Ramsay, MD, head of SSC Phase I



Sean R. Townsend, MD



Julian F. Bion, MD

With the close of Phase III of the Surviving Sepsis Campaign, and the data analysis and subsequent preparation of the main manuscript for publication, we have had the opportunity to reflect on this historic initiative. Much has happened over the 6-year course of the Campaign: In Phase I, under the leadership of Graham Ramsay, we brought to the attention of critical care providers the frequency and severity of sepsis and septic shock; in Phase II, we developed and published the initial guidelines for management of sepsis in 2004 with a subsequent revision in 2008; we initiated the Campaign in more than 250 sites in 18 countries; *JAMA* published a major paper on the Campaign efforts in Spain, and we now look forward to the publication of the overall results from Phase III.

The sense of reward that we, the heads of the 3 phases and those who were instrumental in creating the infrastructure and proliferation of local efforts, feel as leaders of this very successful project is overwhelming. This totally voluntary global healthcare quality improvement effort is unique among efforts to save lives via evidence-based guideline development and implementation. While the Campaign will no longer actively recruit patients as part of a centralized global initiative, the tools and resources remain in place on the Web site and in hospitals all over the world for healthcare professionals to begin, continue, and enhance participation in saving lives through application of the SSC guidelines. The foundation is in place for current participants to grow their programs and for new groups to begin to implement the Campaign.

Departments, hospitals, networks, and regions who have seen improvement via Plan-Do-Study-Act cycles applied to the SSC bundles know the value of building on their existing successes. The database will continue to be available for the next 3 years for data entry and analysis. We certainly anticipate that, inspired by the published success of the Campaign, clinicians will continue to implement the bundles (perhaps tailored for local implementation), track compliance, and report outcomes. (See "Maximizing the Chart Review Database Locally" on page 4 of this newsletter.) Future revision of the guidelines will be managed by the Society of Critical Care Medicine and the European Society of Intensive Care Medicine as appropriate.

Consistent with the published literature, the Campaign has demonstrated that a successful performance improvement initiative must be multi-factorial and must include regional champions in a collaborative partnership for change, robust

educational tools and programs, and rely on audit and outcomes reporting to drive change. The Surviving Sepsis Campaign, including not only the central leadership of the Campaign, but even more important, the local champions and clinicians, has demonstrated that it is possible to change clinical practice using evidence-based guidelines and improve outcomes. SSC is certainly not the first group to do this, but has been clearly historic in its global involvement.

As head of the guidelines development phase of the Campaign, R. Phillip Dellinger says, "The road has been long and the toil significant, but in the end tremendously satisfying when you think of the difference we have made in patient care." Hundreds of healthcare professionals around the world have been involved in this Campaign at all levels. Their volunteer efforts along with unrestricted educational grants from industry and the support from SCCM, ESICM, and ISF made this Campaign possible. "Being able to partner with the Institute for Healthcare Improvement and bring their expertise to bear on the improvement process, primarily through the efforts of Sean Townsend, was a boon to the entire effort," reports Dellinger. "We owe thanks to many people at IHI who consulted with us and incorporated the Campaign into their programming. Further, Julian Bion was tireless in supporting the Campaign before, after, and during his presidency of ESICM. As an educator and researcher, his input into the design of the Campaign and enthusiasm for its implementation as a study in clinical behavior was fundamental to the process."

While the Campaign was not without its critics, the final analysis shows that the process of examining clinical actions and applying what 16 international societies supported, improves care around the world. According to Mitchell Levy, "At the end of the day, after all the controversy and academic debate over the bundles, the Surviving Sepsis Campaign saved lives. The Campaign demonstrated that it is possible, through a multi-faceted approach and the dedicated efforts of inspired caregivers, to establish an evidence-based standard of care and facilitate knowledge transfer to the bedside of critically ill septic patients around the world. Everyone involved in the Campaign should take enormous pride in their participation in this historic project."

Mitchell M. Levy, MD, FCCM
R. Phillip Dellinger, MD, FCCM
Graham Ramsay, MD

Articles below may provide additional background for SSC implementation.

Zambon M, Ceola M, Almeida-de-Castro R, et al. **Implementation of the Surviving Sepsis Campaign guidelines for severe sepsis and septic shock: We could go faster.** *J Crit Care* 2008; 23:455-460.

This single hospital study analyzed 69 consecutive patients with severe sepsis or septic shock for compliance with the full 6-hour (resuscitation) and 24-hour (management) SSC sepsis bundles. In this 31-bed intensive care unit, full compliance with the 6-hour bundle was achieved in 72% of the patients and was associated with better outcomes. Full compliance with the 24-hour bundle was not associated with better outcomes. The authors offer the possibility that earlier completion of the management bundle (ie, targeting less than 24 hours) might make it more successful.

Rubulotta FM, Ramsay G, Parker MM, Dellinger RP, et al. **An international survey: Public awareness and perception of sepsis.** *Crit Care Med*. 2009; 37:167-170.

This survey, performed in 2002 and 2003 in France, Germany, the United Kingdom, Italy, Spain, and the United States, targeted a random sampling of the lay public by telephone and was performed by a professional research company. The questionnaire was field tested prior to use. The survey was brief, and consisted of questions to ascertain (1) had the respondents heard of sepsis; (2) could they choose the correct general lay definition; (3) if they did know about sepsis, how that knowledge had been acquired; and (4) if they understood what sepsis is, their estimate of mortality from sepsis. In Italy, Spain, the United Kingdom, France, and the United States, a mean of 88% of interviewees had never heard of the term "sepsis." This contrasted to 53% in Germany (the highest positive response). Outside of Germany, people who recognized the term sepsis (58%) did not recognize sepsis as a leading cause of death.

Martin C, Priestap F, Fisher H, et al. **A prospective, observational registry of patients with severe sepsis: The Canadian Sepsis Treatment and Response Registry.** *Crit Care Med*. 2009; 37:81-88.

This prospective observational study of 12 Canadian community and teaching hospital critical care units determined the location of acquisition, timing, and outcomes of patients with severe sepsis. Hospital mortality was 38.1%. Variables associated with mortality in a multivariable analysis included age, chronic renal failure, oliguria, thrombocytopenia, metabolic acidosis, and severity scoring. Mortality increased as severe sepsis was acquired more distally into hospitalization, increasing from community to hospital to early ICU to late ICU acquisition.

Shapiro NI, Trzeciak S, Hollander JE, et al. **A prospective, multicenter derivation of a biomarker panel to assess risk of organ dysfunction, shock, and death in emergency department patients with suspected sepsis.** *Crit Care Med*. 2009;37:96-104.

Novel strategies that improve clinicians' ability to risk-stratify patients with suspected sepsis would facilitate early and appropriate therapeutic intervention, improve triage decisions, and provide a means to follow response to therapy. Although a number of laboratory measures such as leukocytosis or novel sepsis biomarkers such as IL-6 and procalcitonin have been proposed for clinical use, currently no accepted biomarkers exist in patients with suspected sepsis. In this study, 971 patients with 2 or more systemic inflammatory response syndrome criteria and with suspected sepsis or a serum lactate level >2.5 mmol/L were enrolled from the emergency departments of 10 academic medical centers. Among the 9 biomarkers tested, the optimal 3-marker panel to predict severe sepsis, septic shock, and in-

hospital mortality was IL-1 receptor antagonist, protein C, and neutrophil gelatinase-associated lipocalin, which are the key components of sepsis pathophysiology including inflammation, activation of coagulation, and renal/organ dysfunction, respectively. This multi-marker approach may offer an advantage for identifying patients likely to develop severe sepsis and earlier implementation of sepsis bundles.

CALENDAR

2009

January 31-February 4

SCCM 38th Critical Care Congress

February 1

10:15am-12:15pm

Reducing Mortality in Sepsis:
The Surviving Sepsis Campaign

February 2

10:00-10:20 am

Latebreaker: Results of the
Surviving Sepsis Campaign

Nashville, Tennessee, USA

March 24-27

29th International Symposium of
Intensive Care and Emergency
Medicine
Brussels, Belgium

May 3-5

8th Annual International Sepsis
Forum Colloquium
Divergences and Convergences of
the Septic Phenotype
St. Charles, Illinois, USA

June 4-6

8th Joint SCCM-ESICM Summer
Conference in Intensive Care
Medicine
ICU Infection in an Era of Multi-
Resistance
Palmer House Hilton
Chicago, Illinois, USA

October 11-14

ESICM 22nd Annual Congress
Vienna, Austria

November 11-14

Sepsis 2009
Amsterdam, The Netherlands

Maximizing the Chart Review Database Locally

The Surviving Sepsis Campaign Chart Review Electronic Database is a valuable tool that facilitates consistent data collection for the severe sepsis patient population. As users create charts, tables, and graphs through built-in tools, the database allows an individual institution to track its performance on specific indicators. While benchmarking against other participants in the Campaign will be available later in 2009 (check the Surviving Sepsis Campaign Web site for availability at <http://www.survivingsepsis.org>), hospitals can track their own progress now.

For many hospitals their database is growing while performance indicators continue to be measured and improve at various levels. The built-in reports are a valuable resource when reviewing data for all patients in the database; however, examining the details for a specific patient or patient group may require the user to view the data in a more defined method. For instance, if the hospital's quality committee is interested in improving the antibiotic delivery time in the emergency department and requests elapsed time to antibiotics data for patients originating in

the ED, the built-in reports are unable to deliver this detailed information. What if the user wants to know the breakdown of only database patients with septic shock or the outcomes of patients with septic shock and pneumonia? All subgroups of data entered in the database are retrievable at the individual site level and accessing these data is feasible for specific subpopulation analyses.

The instructions to respond to these local data queries and the associated screen shots are available on the Surviving Sepsis Campaign Web site at <http://www.survivingsepsis.org>. Being able to export data and import them into an Excel spreadsheet will allow users to sort detailed data. The creation of this table may facilitate importing into other software programs as well as linking to other hospital information systems. Viewing the details of the database not only allows users to see fine points of the data, but also ensures that erroneous data were not entered. Continued improvement at individual sites may result from review of data with these more precise methods as PDSA cycles are refined.

SWC³ Embraces the Challenge *(continued from page 1)*

- Freely discussing common barriers regarding care
- Identifying and addressing obstacles in implementing the sepsis bundles:
 - Timely sepsis, severe sepsis, and septic shock identification
 - Timely central venous access placement
 - Timely central venous pressure and central venous oxygen saturation measurements
 - Timely documentation of data in the electronic medical record
 - Timely data collection to assist with process improvement
- Standardizing data collection methods and reporting using the Surviving Sepsis Campaign database
- Fostering true collaboration among clinicians at acute care and regional hospitals using the Surviving Sepsis Campaign guidelines
- Developing regional benchmarks pertaining to sepsis identification and bundle implementation
- Creating educational programs for healthcare professionals, patients, and community to heighten the recognition of the signs and symptoms of sepsis
- Marketing the SSC goals and SWC³ accomplishments to affiliate organizations to increase buy-in and support to combat this deadly, costly disease

A key opportunity for this new collaborative is to help hospitals realize the severity of this deadly killer in our complicated healthcare system. Sepsis care needs to be a priority in quality and cost-containment arenas. Despite being in the early stages of this collaborative and

the challenges of sepsis competing with other federally-mandated quality improvement initiatives focused on at local, regional, and national levels, the SWC³ has been successful in:

- Increasing sepsis awareness in our local environments
- Increasing acceptance in hospitals and healthcare systems to start addressing sepsis as a crisis in critical care (eg, Six Sigma project, health system strategic performance quality initiative, SSC database participant)
- Meetings with the collaborative on a monthly basis by teleconference/on-site
- Communicating by using an active electronic network
- Participating in a regional annual sepsis conference
- Publishing a SWC³ newsletter and brochure
- Obtaining sepsis baseline data as a starting point
- Sharing data, successes, and challenges pertaining to sepsis identification and sepsis bundle implementation
- Beginning to identify sepsis resuscitation bundle strategies to improve the 6-hour bundle compliance

Despite the challenges with identification of septic patients and consistent implementation of the SSC bundles, the SWC³ battle rages on to improve the care of our septic patients. We will not stop until all of our critically ill patients, no matter where they are seen, have the ability to obtain the best, timely sepsis care. Together we will seek and destroy sepsis.

As SWC³ has demonstrated, peer coaching is vital to the success of improving patient care. Dr. Maxwell will continue that as he serves as an SCCM Paragon Critical Care Quality Implementation Program coach.