

CAMPAIN Update

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

September/October 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.



SSC Implementation in Venezuela

During the Venezuelan Critical Care Annual Congress held the first week of July, Dr. Pablo A. Pérez d'Empaire of the Hospital de Clinicas Caracas presented the hospital's experiences related to implementation of the Surviving Sepsis Campaign as a model for critical care professionals who were attending the meeting from cities and towns throughout the country. With the support of the Venezuelan Society of Critical Care, the Sepsis Chapter of the Society was formed then.

The presentation by the Caracas hospital represented the results from 73 charts following the first year of the Campaign's introduction in Venezuela. Bundle compliance at the 1-year mark was 33% for the 6-hour bundle and 64% for the 24-hour bundle. At this stage, the group is working on Plan-Do-Study-Act improvement cycles to increase bundle compliance.

Attendees received Spanish

versions of wall charts and pocket cards of the guidelines as well as tools for use as they begin Campaign implementation in their hospitals.

Hospital representatives will present their experience at the International Sepsis Forum's Sepsis 2008 in Granada, Spain in November 2008.

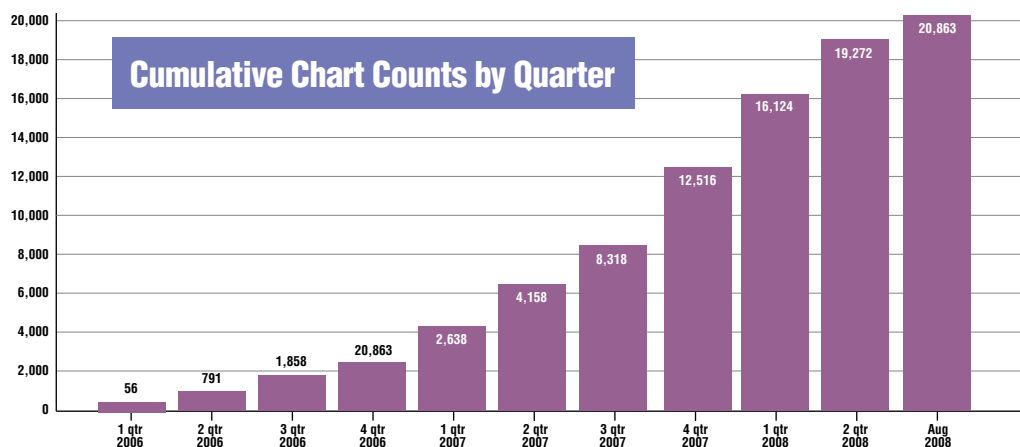
At a workshop on July 19, members of the Sepsis Chapter faculty discussed various topics related to sepsis management including early goal-directed therapy, antibiotics, steroids, rhAPC, and protective mechanical ventilation prior to focusing on Campaign implementation and improvement models. Participants from 15 hospitals in the country received tools and materials that had been translated into Spanish for use in their home facilities.

Despite obstacles, much hard work has resulted in meeting initial goals. The Campaign is now on the minds of many critical care team members including nurses and representatives from other medical specialties. The Sepsis Chapter plans to hold a follow-up meeting in 6 months to evaluate progress and assess PDSA cycles.

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In This Issue

- 2** Leadership Perspective: The Next Frontier
- 2** SSC response to WSJ articles
- 3** In the Literature
- 3** Calendar
- 4** Simulators in sepsis education

The Next Frontier in Sepsis Care

By Maurene A. Harvey, RN, MPH, FCCM



What if the public knew as much about the prevention and recognition of sepsis as they do about MIs?

As the Surviving Sepsis Campaign analyzes data to show the value of the 3 phases of the Campaign—education about severe sepsis and septic shock, development and publication of evidence-based guidelines, and data collection from those practitioners implementing the guidelines with the sepsis bundles, improvement in the care of septic patients will continue. Ongoing research will result in an improving understanding of the pathology and treatment of severe sepsis and septic shock. Implementation tools will continue to be created and honed. Prevention measures will become more effective and widespread. Evidence-based prevention and treatment strategies will become the standard of care throughout healthcare facilities internationally.

A largely unexplored frontier in sepsis is consumer and community education. It is estimated that in the United States about one-third of septic patients develop sepsis at home. Not enough attention has been given to teaching home patients simple but important strategies to prevent pneumonia or infections of wounds and catheters. Little emphasis has been given to teaching the public to recognize the early signs of sepsis and how important it is to seek immediate medical attention.

Because of the high incidence and cost of sepsis, efforts should also be aimed at raising awareness among payers and government agencies of the importance of prevention, early detection, and proper emergency management of septic patients. If everyone knew how to prevent, recognize, and treat sepsis, the costs in human suffering, lives lost, and dollars spent could decrease dramatically. What if the public knew the signs of sepsis as they do those of an MI? What if

they called 911 for sepsis as they do for an MI?

The primary focus of critical care is the management of critical illness, wherever it occurs. We can be proud of the great strides made in the field of sepsis. The improvement in recognition, patient care, and outcomes has been dramatic. However, trauma teams work to reduce trauma, burn teams work to reduce burns, and the cardiology community works to prevent MIs. Critical care teams have a responsibility to collaborate with other stakeholders in the community at large to reduce the incidence and, thus, mortality rates, for sepsis.

I believe that despite the increasing age, severity, and complexity of our patients, the incidence of sepsis can be decreased over the next decade. It will take a new campaign. It will take passion, manpower, and funds.

Please share your ideas and stories about how to increase public involvement and awareness. Tell us about your successes, roadblocks, and lessons learned. Who are you partnering with? Are you measuring your outcomes? Do you have suggestions for sources of support or funding for a public awareness campaign? Share your information with the Surviving Sepsis Campaign community at sepsisgroups@lists.sepsisgroups.org

The task is daunting but the potential results would be dazzling. Although great progress has been made, there is always more to be done. Could it be that the next great strides in sepsis will be related to improved public awareness?

Maurene A. Harvey, RN, MPH, FCCM
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SSC response to WSJ articles on early goal-directed therapy and glucose control

Recent articles in *The Wall Street Journal* (WSJ) on early goal-directed therapy (EGDT) and tight glucose control commented on the Surviving Sepsis Campaign's (SSC) incorporating these approaches in patient care based on single-institution studies.^{1,2} The article on glucose control referred to the trials supporting tight glycemic control and the meta-analysis published in *JAMA* showing no survival benefit and increased hypoglycemia with tight glycemic control.³ One article mentioned the manufacturer of a type of catheter that can be used for EGDT as one of the industries providing unrestricted funding for SSC. Concerns about potential conflict of interest that was not disclosed by Dr. Rivers in the 2001 *New England Journal of Medicine* (NEJM) article were also raised. To answer questions that may arise from the WSJ articles, the leadership of the SSC would like to offer the

following comments.

The recommendations for EGDT and glucose control were created by the 47 members of the original guidelines committee and approved by 11 organizations for the 2004 edition of the Surviving Sepsis Campaign Guidelines for the Management of Severe Sepsis and Septic Shock. The recommendations were in line with the Sackett evidence-based medicine grading system used for the 2004 publication and fully vetted by the GRADE evidence-based medicine group's collaboration for the 2008 guidelines' revision recommendation. The 2008 version was approved by the 56 member committee and 16 international organizations.

All industry funding for the SSC has been disclosed since the inception of the Campaign and is included in the

(continued on page 4)

The summary below may provide additional resources for successful SSC implementation.

Zubrow MT, Sweeney TA, Fulda GJ, et al. **Improving care of the sepsis patient.** *Jt Comm J Qual Patient Saf.* 2008; 34(4):187-91.

Surviving Sepsis Campaign guidelines were implemented in a 1,100-bed tertiary care health care system located in the mid-Atlantic region of the US. They established a "sepsis alert program" and assessed the effectiveness monthly with performance improvement meetings. A chosen interdisciplinary sepsis team identified three major areas of sepsis care: 1) recognition of the sepsis patient, 2) resuscitation priorities, and 3) intensive care management. The implementation of a "sepsis alert program" required the development of an intensive educational program that focused on early identification of patients with SIRS and targeted the health care providers in the EDs and ICUs. This program was described to all incoming residents and ED nurses. The interdisciplinary sepsis team created a "sepsis alert packet," which includes a treatment algorithm, a first-dose "sepsis alert kit" for antibiotics, an antibiotic selection chart, a broad versus narrow antibiotic spectrum poster, and an educational poster. To provide the same care to hospitalized inpatients with severe sepsis, the

Rapid Response Team (RRT) was integrated into the program. As more outcome data were available, these issues gained more importance to reach the goals: 1) educating health care providers on an ongoing basis, 2) tracking the protocol's compliance, 3) tracking the protocol's effectiveness.

The annual mortality rate for their sepsis population was more than 60% when they instituted the program. At the end of year 3, a 49.4% decrease in mortality rates ($P < .0001$), a 34.0% decrease in average length of hospital stay ($P < .0002$), and a 188.2% increase in the proportion of patients discharged to home have been obtained. Additionally, sepsis-related organ dysfunction declined by 62.9% ($P < .001$) for acute respiratory distress syndrome (ARDS) and 22.8% ($P < .10$) for acute renal failure. After implementation, mortality further declined from 36.1% in 2005 to 29.5% in 2006 and to 24.6% in 2007 as feedback was provided to clinical staff and the protocol was refined (see Figure). As a conclusion, it has been suggested that with the implementation of a sepsis program, continuous education of health care providers who do not traditionally work in an intensive care environment may provide best practice and decrease mortality rates not only in ICUs but throughout the hospital.

CALENDAR

2008

September 13
Venezuela Sepsis Chapter Workshop
Centro de Especialidades Anzoategui
Puerto La Cruz, Venezuela
8:30 am - 4:00 pm

September 21-24
ESICM Annual Meeting
Monday, September 22
SSC Update
8:30-9:30
Lisbon Room
Wednesday, September 24
Controversies in Sepsis (sponsored by International Sepsis Forum)
12:10-14:00
Room tbd
Wednesday, September 24
SSC Data Preview
tbd
Lisbon, Portugal

November 19-21
International Sepsis Forum:
Sepsis 2008
Granada, Spain

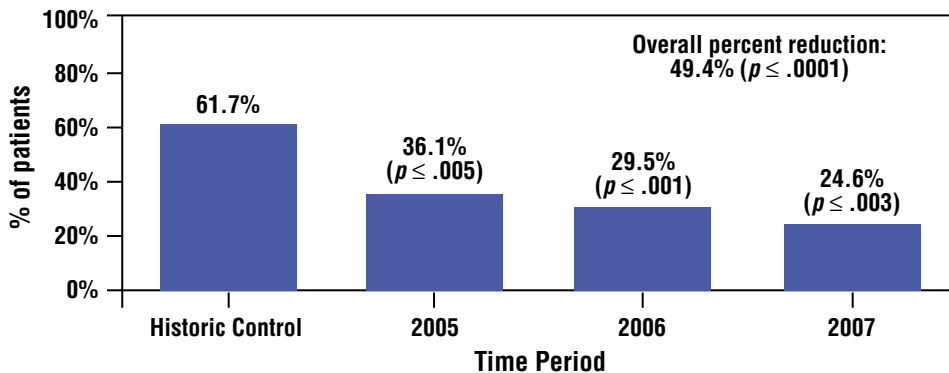
2009

January 31-February 4
SCCM 38th Critical Care Congress
Sunday, February 1
Reducing Mortality in Sepsis: The Surviving Sepsis Campaign
10:20 am - 12:20 pm
Wednesday, February 4
International Sepsis Forum
Debate: Controversies in Sepsis
9:30-11:30 am
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.

In-Hospital Mortality Rate, 2005-2007

The in-hospital mortality rate for patients with severe sepsis has been reduced by 49.4% for 2005-2007 as compared with historic controls. Reprinted with permission.



Using Simulation to Teach Sepsis Bundles

Residents are often the first caregivers when patients are treated for severe sepsis or septic shock at Cooper University Hospital in Camden, NJ. "Because patients with severe sepsis do not receive all components of the resuscitation bundle within 6 hours, per the Surviving Sepsis Campaign guidelines, they have a 2-fold increase in hospital mortality. It is imperative that we are able to assess our residents' clinical skills in a standardized, consistent manner," said Antoinette Spevetz, MD, FCCM, Associate Director, Internal Medicine Residency Program, and Associate Professor of Medicine, Robert Wood Johnson Medical School, at Cooper University Hospital.

"Traditional medical education based on linear communication is less effective for adult learning than actual hands-on experience, so we created a scenario simulating inpatient sepsis in our training program," continued Spevetz.

In its initial effort, the program evaluated a group of 19 first-year and 11 second-year residents in a scenario of inpatient sepsis using high-fidelity medical simulation. The specific objectives of the exercise included the speed and appropriateness of diagnosing sepsis, fluid resuscitation, and completion of all steps of the resuscitation bundle. All participants attended a lecture on sepsis diagnosis, application of the sepsis resuscitation bundle, and had rotated in the ICU. Each carried a card listing the bundle components, and was individually introduced to the simulator prior to the standardized testing session. The residents were given a description of the patient when they entered the room and were required to diagnose sepsis and perform the steps of the resuscitation bundle. Scenario tasks were scored as successfully completed or missed. The subjects received up to 3 prompts to help them complete the scenario.

The first-year residents' "patients'" mean blood pressure at first check was 87/46 mmHg and decreased to 76/37 mmHg at first fluid bolus. One resident failed to administer fluid, 26% failed to administer antibiotics, 26% did not obtain a lactate level, 1 did not obtain blood cultures, and 11% failed to apply oxygen to the patient. In 5 of the first-year residents' encounters, the mannequin expired.

The second-year residents demonstrated similar results: mean blood pressure at first check was 83/43 with a significant decrease to 73/36 at first fluid bolus. The number of resuscitation bundle steps omitted was not different. 36% failed to obtain a lactate level, and 1 subject administered antibiotics before obtaining blood cultures. Mannequin death in both groups was a result of failure to provide fluid resuscitation and severe hypotension before treatment.

"The resuscitation bundle steps were not performed completely in both resident groups," observed Spevetz. "Important steps were omitted or were carried out when the patient could no longer be resuscitated. We saw that both groups had difficulty with appropriate fluid resuscitation—a primary goal of the exercise. We believe that traditional

educational methods may be inadequate for training house staff to recognize and treat critically ill septic patients. Because experiential learning is more effective—in fact, residents told us they preferred this mode of learning to traditional classroom style and that they would never forget the lessons learned—we will continue to use simulation to teach our residents the elements of the Surviving Sepsis Campaign."

For further information about using simulators to teach sepsis bundles, contact Dr Spevetz at spevetz-antoinette@cooperhealth.edu

SSC response to WSJ articles *(continued from page 2)*

publications of the guidelines. SSC was not aware of any potential conflict of interest related to the research published in NEJM. NEJM was quoted in the WSJ article as stating that the disclosure in 2001 by Dr. Rivers was in line with NEJM policy. Pending availability of any further information, the SSC leadership believes that the Rivers' study, now supported by a number of additional peer-reviewed studies that demonstrate decreased mortality referenced to historical controls, should remain an important component of the 6-hour SSC resuscitation bundle. Large randomized controlled trials are in progress (NIH and ANZICS) and could lead to refinement or change of some of the 6-hour bundle elements.

The SSC guidelines recommendation for glucose control was not based on a single trial and was based on general ICU populations. The Dartmouth meta-analysis as it relates to moderately tight glucose control (80-150 mg/dL) included predominantly studies with ICU patients not applicable to a severe sepsis population (head trauma, stroke, MI). The value of tight glucose control is currently being evaluated in a 16,000-patient study in Australia and New Zealand. Not mentioned in the WSJ article was the reported decrease in septicemia in the tight glycemic control group.

The Campaign has stated from the initiation of Phase 3, the data collection and performance improvement phase, that the tenets of the Campaign are to: (1) facilitate adoption of methodologically sound studies, (2) encourage large-scale randomized controlled trials that attempt to confirm existing studies, and (3) change indicators if subsequent studies do not confirm current recommendations. In the interim, the Campaign will press on based on currently available information to include early goal-directed therapy and what was coined this week in the *JAMA* article as "moderately tight" glycemic control.

References

1. Burton T. New therapy for sepsis infections raises hope but many questions. *The Wall Street Journal*. August 14, 2008: A1
2. Burton T. Study criticizes glucose therapy popular in ICUs. *The Wall Street Journal*. August 27, 2008:D1
3. Wiener RS, Wiener DC, Larson RJ: Benefits and risks of tight glucose control in critically ill adults: a meta-analysis. *JAMA* 2008; 300(8): 933-944