

HEALTHCARE ASSOCIATION OF NEW YORK STATE
HOSPITAL SEPSIS CARE
RESOURCE GUIDE



**COMMITTED TO IMPROVING
SEPSIS CARE AND OUTCOMES**

Healthcare Association of New York State

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Committed to Improving Sepsis Care and Outcomes

The Healthcare Association of New York State (HANYS) is committed to working with members to improve hospital sepsis care and associated patient outcomes. In 2013, HANYS launched a Statewide Sepsis Learning Network to build upon previous efforts to raise awareness of the growing incidence of sepsis in New York, the devastating impact on patients' lives, and the availability of evidence-based best practices to improve patient care.

This *Hospital Sepsis Care Resource Guide* was developed by the HANYS Sepsis Advisory Committee and clinical experts from the Surviving Sepsis Campaign; it draws upon the successful strategies of these medical professionals, as well as hospitals and professional associations from across the country and around the world that have improved sepsis care and outcomes. We thank these health care leaders for lending their expertise and tools.

This *Guide* is intended to serve as a resource for HANYS' members. We hope that members will adapt the resources contained in this *Guide* to expand and refine their own campaigns to continuously improve sepsis care. The *Guide* will also help hospitals comply with the New York State Department of Health (DOH) Hospital Sepsis Protocol regulations. For easy reference, regulatory requirements are highlighted in gray in the pages that follow.

Hospitals should also consider how to adjust identification and treatment strategies for other special populations, including maternity patients, cancer patients, HIV/AIDS patients, and others with compromised immune systems

Sincerely,



Kathleen Ciccone, R.N., M.B.A.
Executive Director
HANYS Quality Institute

New York State Regulations and Guidance

In April 2013, New York State's Public Health and Health Planning Council (PHHPC) approved regulations outlining Hospital Sepsis Protocols.

The regulations:

1. Require hospitals to use evidence-based protocols for the early recognition and treatment of patients with severe sepsis and septic shock;
2. Specify six specific components that must be included in hospital sepsis protocols for adults and children; and
3. Outline the framework for data collection for the purposes of internal quality improvement and hospital reporting to DOH. Using data submitted by hospitals, DOH will develop risk-adjusted severe sepsis and septic shock mortality rates in consultation with appropriate national, hospital, and expert stakeholders. DOH intends to make this information available to the public.

In June 2013, DOH released a [formal guidance document](#) that provides additional detail about the Hospital Sepsis Protocol regulatory requirements.

In July 2013, DOH released a [Protocol Submission Guide](#), which hospitals must use to submit their Hospital Sepsis Protocol for review and approval.

Resources:

[Sepsis Hospital Protocol Submission Guide](#)

Source: HANYS

Other Resources:

[Surviving Sepsis Campaign Chart Review Data Collection Tool](#)

Source: Surviving Sepsis Campaign

National Quality Forum Sepsis Bundles

DOH's guidance explains that hospital sepsis protocols must be consistent with the National Quality Forum-approved severe sepsis measure ([NQF #0500](#)) with the following exceptions:

1. Components that assume use of central venous pressure and central venous oxygen saturation shall not be reported if not relevant due to use of "non-invasive" (no central venous access) protocol;
2. Multiple definitions of "time zero" shall be used for purposes of quality improvement and to recognize differences between characteristics of care delivered in the emergency department compared to hospital inpatient units. These definitions will include: (a) earliest time recorded (time of arrival); (b) time of triage; (c) time at which signs, symptoms, and laboratory findings are first consistent with definitions of severe sepsis or septic shock (time of meeting definitional criteria); and (d) time at which the severe sepsis or septic shock protocol was initiated.

NQF #0500 requires:

To be completed within three hours:

- Measure lactate level;
- Obtain blood cultures prior to administration of antibiotics;
- Administer broad spectrum antibiotics; and
- Administer 30 ml/kg crystalloid for hypotension or lactate ≥ 4 mmol/L.

To be completed within six hours:

- Apply vasopressors (for hypotension that does not respond to initial fluid resuscitation) to maintain a mean arterial pressure (MAP) ≥ 65 mm Hg;
- In the event of persistent arterial hypotension despite volume resuscitation (septic shock) or initial lactate ≥ 4 mmol/L (36 mg/dL):
- Measure central venous pressure (CVP);*
- Measure central venous oxygen saturation (ScvO₂);* and
- Remeasure lactate if initial lactate was elevated.*

*Targets for quantitative resuscitation included in the guidelines are CVP of ≥ 8 mm Hg; ScvO₂ of $\geq 70\%$, and normalization of lactate.

Resources:

Protocols, Algorithms, and Order Sets

[Surviving Sepsis Campaign Bundle Cards](#)

Source: Surviving Sepsis Campaign

Other Resources:

[NQF Endorsement of #0500](#)

Source: National Quality Forum

[Surviving Sepsis Campaign Implementation Kit](#)

Source: Surviving Sepsis Campaign

Adult Sepsis Care

As required by New York State regulations, hospitals must implement sepsis care protocols for all patients in the hospital (with specific exclusions permitted) and include use of explicit algorithms and/or alert systems to assist in the early identification of patients with severe sepsis and septic shock. Protocols must include an approach to stratify patients into sepsis, severe sepsis, and septic shock based on a constellation of appropriate clinical and laboratory findings. Protocols directed at treatment should address both emergency room (ER) and inpatient presentations of severe sepsis and septic shock.

HANYS compiled the following resources to assist hospitals in their implementation of adult sepsis care protocols.

Resources:

Professional Guidance

[Guidance for Managing Severe Sepsis and Septic Shock from the Surviving Sepsis Campaign](#)

Source: Society of Critical Care Medicine

Protocols, Algorithms, and Order Sets

[Adult Sepsis Order Set \(first six hours\)](#)

Source: UCLA Health System

[Identification of Infection and Antibiotic Order](#)

Source: Medical Center Hospital, Odessa, Texas

[Sepsis STAT Resuscitation Protocol](#)

Source: Medical Center Hospital, Odessa, Texas

[Severe Sepsis Screening Tool](#)

Source: Medical Center Hospital, Odessa, Texas

Pediatric Sepsis Care

As required by New York State regulations, hospitals must implement sepsis care protocols for pediatric patients in the ER and inpatient units. According to the DOH guidance document, protocols for children may exclude newborns and infants in the neonatal intensive care unit. In addition to including many of the elements of the adult sepsis care protocol, for infants and children, DOH requires that protocols include age-specific values for clinical and laboratory measurements pertinent to recognition of severe sepsis and septic shock. Protocols should address early intravenous (IV) or intraosseous (IO) access and be consistent with American College of Critical Care Medicine guidelines in terms of fluid resuscitation amounts, antibiotic administration, physiologic goals to be reached within 60 minutes of initial resuscitation, and use of cardiovascular drug therapy support in fluid refractory septic shock. Protocols must also include criteria for ongoing treatment and transfer for those infants and children who may require a more intensive level of care than can be provided at the initial facility.

A separate protocol for pediatric patients is important; symptoms of infection and treatment best practices are different from those commonly used for adult sepsis patients.

HANYS compiled the following resources to assist hospitals in their implementation of pediatric sepsis care protocols.

Resources:

Professional Guidance

[Guidance from the American College of Critical Care Medicine](#)

Source: Journal of Critical Care Medicine

[Special Considerations in Pediatrics](#)

Source: Surviving Sepsis Campaign

Protocols, Algorithms, and Order Sets

[Pediatric Advanced Life Support \(PALS\) Algorithm](#)

Source: Pediatric Emergency Care

[Pediatric ICU Screening Tool](#)

Stony Brook University Medical Center via the Surviving Sepsis Campaign

[Pediatric Order Set](#)

Stony Brook University Medical Center via the Surviving Sepsis Campaign

[Pediatric Recognition and Treatment Protocol](#)

Stony Brook University Medical Center via the Surviving Sepsis Campaign

[Pediatric Severe Sepsis Protocol Orders #1](#)

Source: Georgetown University Medical Center

[Pediatric Severe Sepsis Protocol Orders #2](#)

Source: Georgetown University Medical Center

[Sample Pediatric Severe Sepsis and Septic Shock Protocol](#)

Source: HANYS

[Pediatric Sepsis Care Protocol](#)

Source: Banner Health, multiple locations in Arizona, Colorado, Wyoming, Alaska, and Nebraska

[Clinical Pathway to Rule Out Sepsis for Children 0 - 3 Months of Age](#)

Source: Children's Hospital of Central California

[Clinical Pathway to Rule Out Sepsis for Children 3 -12 Months of Age](#)

Source: Children's Hospital of Central California

Emergency Department Resources

HANYS' members report that about 75% of patients with sepsis are admitted through the ED. Survival outcomes can be significantly improved with rapid, intensive care interventions administered by clinicians in the ED, but the nature of this care environment presents unique challenges, including a high volume of patients, potential patient flow issues, and a high level of stress for clinical and administrative staff.

In recognition of the unique nature of the ED, HANYS compiled the following resources to help hospitals implement sepsis care protocols.

Resources:

Professional Guidance

[The Surviving Sepsis Campaign Guidelines 2012 for Emergency Physicians](#)

Source: American College of Emergency Physicians

[Severe Sepsis and Septic Shock: Review of the Literature and Emergency Department Management Guidelines](#)

Source: Annals of Emergency Medicine

[Emergency Department Treatment Guidance for Children](#)

Source: Pediatrics

Protocols, Algorithms, and Order Sets

[Emergency Department/ICU Protocol](#)

Source: John Dempsey Hospital Department of Nursing, University of Connecticut Health Center

[Emergency Department Sepsis Screening Tool](#)

Source: Munson Healthcare, Traverse City, Michigan

[Sepsis Admit Order Professional Guidance from the SCCM](#)

Source: Palm Drive Hospital, California

Presentations

[Early Recognition of Sepsis in the Emergency Department](#)

Source: San Diego State University School of Nursing

Inpatient Resources

Much of the scientific literature has focused on the implementation of sepsis protocols in EDs and intensive care units (ICUs). However, patients may also develop severe sepsis and septic shock while receiving treatment as an inpatient on a medical or surgical unit. HANYS compiled the following resources to assist hospitals in their efforts to implement sepsis care protocols in the inpatient setting. Hospitals should also consult the resources provided elsewhere in this document, as they may be adapted for use with the inpatient population.

Resources:

Professional Guidance

[Early Recognition and Treatment of Sepsis in the Medical-Surgical Setting](#)

Source: Med Surg Nursing

[Sepsis Alert Program Shows Evidence of Success on Inpatient Units](#)

Source: Agency for Healthcare Research and Quality

Protocols, Algorithms, and Order Sets

[ICU Severe Sepsis Screening Tool](#)

Source: St. Joseph Mercy Health System, Ann Arbor, Michigan, via the Surviving Sepsis Campaign

[Patient Units Severe Sepsis Screening Tool](#)

Source: St. Joseph Mercy Health System, Ann Arbor, Michigan, via the Surviving Sepsis Campaign

[Sepsis Protocol Pocket Card](#)

Source: St. Joseph Mercy Health System, Ann Arbor, Michigan, via the Surviving Sepsis Campaign

Presentations

[Process Management for Creating a Successful Hospital Wide Sepsis Initiative](#)

Source: HANYS

[Timely Recognition of Sepsis on the Floors](#)

Source: Surviving Sepsis Campaign

Other Resources

[Surviving Sepsis: You Make the Difference, an Article for Medical-Surgical Nurses](#)

Source: Academy of Medical-Surgical Nurses Official Newsletter

[ICU Admittance by a Rapid Response Team versus Conventional Admittance, Characteristics, and Outcome](#)

Source: Critical Care Medicine

In recognition of hospital resource limitations, DOH is requiring that Hospital Sepsis Protocols include criteria for ongoing treatment and transfer of those adults and children who may require a more intensive level of care than can be provided at the initial facility.

Patient Transfer Policies

HANYS compiled the following resources to help hospitals develop and implement transfer policies for septic patients.

Resources:

Professional Guidance

[Appropriate Interhospital Patient Transfer Guidance](#)

Source: American College of Emergency Physicians

[Study of Rural Hospital Pediatric Transfers](#)

Source: Rural Health Research & Policy Centers

Policies and Procedures

[Sample Interhospital Patient Transfer Policy](#)

Source: Livingston County, Michigan

Presentations

[Prehospital Care and Sepsis](#)

Source: DOH Sepsis Symposium

Other Resources

[Emergency Medical Services Agency Information by County](#)

Source: DOH

Staff Training Resources

As part of the Hospital Sepsis Protocol regulatory requirements, a hospital must inform DOH, in a document separate from treatment protocols, about the manner and frequency with which the hospital will provide initial and ongoing training to all staff responsible for implementation of sepsis protocols in the emergency room and on inpatient floors. Such training should include appropriate medical (including physicians in training when present), nursing, pharmacy, and laboratory staff.

HANYS compiled the following resources, which may be useful to hospitals as they develop staff education programs on sepsis.

Resources:

Presentations

[Sepsis Training for Non-Clinical Staff](#)

Source: Surviving Sepsis Campaign

[Sepsis Teamwork Presentation](#)

Source: Surviving Sepsis Campaign

[Sepsis Survivor Tells His Story](#)

Source: Surviving Sepsis Campaign

Other Resources

[Septris: A Free Sepsis Training App for Apple and Android Devices](#)

Source: Stanford School of Medicine

[Sepsis Training Video: Managing Sepsis in ICU](#)

Source: Indiana University, Department of Internal Medicine

Data Collection

The regulations outline the framework for the data collection process for the purposes of internal quality improvement and hospital reporting to DOH. Using data submitted by hospitals, DOH will develop risk-adjusted severe sepsis and septic shock mortality rates in consultation with appropriate national, hospital, and expert stakeholders. DOH intends to make this information available to the public.

The DOH sepsis regulation guidance requires that hospitals describe how they make information technology resources available to assist in the implementation of protocols and data collection.

HANYS urges hospitals to work with their vendors to identify strategies for collecting data to measure adherence to the hospital's protocol, and data that will be reported to DOH to help develop risk-adjusted mortality rates.

Resources:

Article

[Understand How ICD-10 Expands Sepsis Coding](#)

Source: AAPC

Other Resources

[NYSDOH Frequently Asked Questions - Data Collection and Reporting Requirements for Severe Sepsis](#)

[DOH Sepsis Data Dictionary Version 1.2](#)

[HANYS Severe Sepsis and Septic Shock Data Collection Tool \(WORD Version\)](#)

Source: Stanford School of Medicine

[HANYS Severe Sepsis and Septic Shock Data Collection Tool \(EXCEL Version\)](#)

Source: Indiana University, Department of Internal Medicine

Special Populations

While New York State does not require a separate Hospital Sepsis Protocol for elderly patients, hospitals should consider how to best serve this population, as the frail elderly are among the most vulnerable populations with regard to sepsis infection, morbidity, and mortality.

According to the U.S. Centers for Disease Control and Prevention (CDC):

- The rate of hospitalizations for sepsis was much higher for those ages 65 and over (122.2 per 10,000 population) than for those under age 65 (9.5 per 10,000 population).
- The sepsis hospitalization rate for those ages 85 and over was about 30 times the rate for those under age 65, and was more than four times higher than for the 65-74 age group.
- Mortality among those greater than 85 years old is 38.4%, compared to 28.6% in the general population.

Hospitals should also consider how to adjust identification and treatment strategies for other special populations, including maternity patients, cancer patients, HIV/AIDS patients, and others with compromised immune systems.

Resources:

Professional Guidance

[Severe Sepsis and Septic Shock Among the Elderly](#)

Source: World Journal of Critical Care Medicine

Protocols, Algorithms, and Order Sets

[Maternal Sepsis Screening Tool](#)

[Treatment of Sepsis in the Elderly](#)

Source: The Association of Physicians of India

Other Resources

[Q&A on Sepsis Care for the Elderly](#)

Source: Hospital and Aged Care, Australia

Engaging Patients and Families

Successful quality improvement campaigns require a holistic approach to improving clinical processes and managing patient outcomes. Engaging patients and families in their care is critical. Doing so has the potential to:

- Enhance the patient's experience of care while at the hospital;
- Help clinicians remain focused on patient-centered care;
- Increase the likelihood that a patient will return to the hospital after discharge if his or her condition deteriorates.

HANYS compiled the following resources to assist hospitals in their effort to engage patients and families in sepsis care.

Resources:

Professional Guidance

[Eight Recommendations for Policies for Communicating Abnormal Test Results](#)

Source: *The Joint Commission Journal on Quality and Patient Safety*

Presentations

[Public Awareness and Perception of Sepsis](#)

Source: Surviving Sepsis Campaign

Other Resources

[Patient and Family Education Documentation Form](#)

Source: Children's Hospital of Central California

[Sepsis Education Information for Patients and Families](#)

Source: Children's Hospital of Central California

[Sepsis Questions and Answers Brochure for Families](#)

Source: Tacoma General Hospital

[Sepsis Handout for Parents](#)

Source: Phoenix Children's Hospital

[Sepsis in Newborns—A Fact Sheet for Patients and Families](#)

Source: Intermountain Health Care

Engaging Hospital Leadership

Successful quality improvement campaigns require a comprehensive approach to improving clinical processes and managing patient outcomes. Engaging hospital leadership is critical. Doing so has the potential to:

- increase financial and other resources for managing sepsis patients;
- build hospital morale and improve motivation of clinical staff; and
- result in a long-term change in hospital culture.

HANYS compiled the following resources to assist hospitals in their effort to engage hospital leadership.

Resources:

Professional Guidance

[Getting the Board on Board: Engaging Hospital Boards in Quality and Patient Safety](#)

Source: *The Joint Commission Journal on Quality and Patient Safety*

[A CEO Checklist for High-Value Health Care](#)

Source: Institute of Medicine

Presentations

[Administrative Buy-In](#)

Source: Surviving Sepsis Campaign

[Identifying, Managing, and Stopping Sepsis](#)

Source: Nebraska Healthcare Quality Forum

Other Resources

[Eyes on Sepsis: How a Focused Approach Improved Patient Care and the Bottom Line](#)

Source: North Shore-Long Island Jewish Health System

[Sepsis Project Implementation Plan](#)

Source: Clinical Excellence Commission, Sydney, Australia

Sepsis Vendors

To provide members with information about the most up-to-date technology used in providing sepsis care, HANYS hosted a number of Webconferences with sepsis vendors in 2012 and 2013.

HANYS does not endorse these vendors, but encourages hospitals to consider these and other companies that offer new technologies for managing sepsis care.

Resources:

Presentations

[The Joint Commission](#)

Web Site Links

[The Joint Commission Center for Transforming Health Care](#)

[B-Line Medical](#)

[Edwards Lifesciences](#)

[Institute for Healthcare Improvement \(IHI\)](#)

[SimSuite](#)

Scientific Literature

There is a wealth of scientific literature related to hospital sepsis care. Hospitals may find the following articles helpful in their efforts to improve sepsis care and outcomes.

Resources:

[Early Goal-Directed Therapy in the Treatment of Severe Sepsis and Septic Shock](#)

Source: New England Journal of Medicine, 2001

[Epidemiology of Severe Sepsis in the United States: Analysis of Incidence, Outcome, and Associated Costs of Care](#)

Source: Critical Care Medicine, 2001

[The Epidemiology of Severe Sepsis in Children in the United States](#)

Source: American Journal of Respiratory Critical Care Medicine, 2003

[Surviving Sepsis Campaign: International Guidelines for Management of Severe Sepsis and Septic Shock: 2012](#)

Source: Critical Care Medicine, 2013

[Benchmarking the Incidence and Mortality of Severe Sepsis in the United States](#)

Source: Critical Care Medicine

[Severe Sepsis Cohorts Derived From Claims-Based Strategies Appear to be Biased Toward a More Severely Ill Patient Population](#)

Source: Critical Care Medicine