IMPROVING PEDIATRIC SEPSIS OUTCOMES

A multi-year collaborative for children’s hospitals to reduce sepsis mortality and morbidity across all levels of care.
EXECUTIVE SUMMARY

Time to Take Action
Join the sepsis initiative exclusively for children’s hospitals that will save thousands of lives and hundreds of millions of dollars in costs every year. Our opportunity for impact is enormous because the sepsis problem is enormous.

Sepsis is the leading cause of death in hospitalized children, killing almost 5,000 children annually in the U.S., more than cancer. Sepsis is expensive; costs to treat severe sepsis range from $65,000 to $85,000. It accounts for 16 percent of all pediatric health care spending—around $5 billion. As many as 80,000 children are hospitalized annually for sepsis and 65 percent of those children are treated in children’s hospitals.

Children’s Hospitals Respond
Whether your organization is getting started in the fight against sepsis, or has an in-house sepsis program in place, the Improving Pediatric Sepsis Outcomes (IPSO) collaborative will accelerate your progress to improved outcomes. Children’s hospitals large and small are benefiting and contributing.

Participating hospitals have access to bundles addressing diagnosis and treatment, the experience of children’s hospitals working at the leading edge to improve sepsis outcomes, and the largest pool of clinical pediatric sepsis data available.

Results You Can Expect
As participants in the IPSO collaborative, clinicians in your hospital will have the knowledge to:

- Prevent avoidable deaths from sepsis
- Prevent escalation to severe sepsis in vulnerable patients
- Identify all patients with sepsis risk
- Recognize sepsis and sepsis risk earlier
- Shorten ICU and hospital stays
- Improve sepsis resuscitation
- Prevent avoidable long-term disabilities
- Create effective sepsis response systems across the hospital

Commitment
Submit a letter of commitment to enroll in IPSO. Executive engagement and sponsorship are critical to achieving hospital-wide results. To achieve IPSO’s ambitious aims, plan to participate for three years and work across the hospital, rather than within one or two units.

Participation Criteria
The collaborative is open to any hospital that is a member of Children’s Hospital Association (CHA).

For enrollment details, contact:
Patty Kohn | patty.kohn@childrenshospitals.org | 913-981-4187
WHAT IS IPSO?

It’s the most ambitious initiative by children’s hospitals to combat this deadly condition. Clinicians across the health care continuum are broadening awareness and making a difference.

The IPSO collaborative builds on a substantial body of research, guidelines, national campaigns, collaboratives and local implementation efforts. More than 60 pediatric sepsis experts from more than 40 hospitals contributed the best evidence and practices to create an initiative that is innovative in scope and methods.

- In addition to improving diagnosis and treatment of severe sepsis, IPSO is breaking new ground by targeting the prevention of hospital-onset severe sepsis in any hospital setting. Preventing escalation to severe sepsis is key to preventing associated avoidable long-term health consequences, as well as reducing sepsis mortality rates.

- Integrating what has worked in specific subspecialties or settings, IPSO’s interventions cross subspecialty and care setting boundaries, from the Emergency Department (ED), to any inpatient unit, and ultimately to pre-hospital and ambulatory settings. To adapt to specific needs the core interventions are extended with components appropriate for the patient population, such as cancer patients.

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<th>PHASE ONE</th>
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- IPSO engages the front-line of patient care, hospital leaders, family advisors, pharmacy, labs and infection prevention to establish the coordinated and reliable care essential for timely diagnosis and treatment.

- Using a proven model distinguished by all-teach-all-learn collaboration combined with rigorous methodologies, standardized bundles, and rich data sets of process and outcome metrics, participating hospitals achieve improvements at lower cost, more efficiently, and faster than any single hospital can achieve working independently.

What IPSO participants are saying

“We are identifying sepsis patients one to eight hours sooner with our IPSO screening and trigger processes.”

“One nurse used to spend 20 hours a week reviewing sepsis charts in the ED alone. Now our IPSO data pulls our sepsis patient information in less than 30 minutes.”

“We recently cared for a child who was screened, treated and discharged in three days. A year before, that same child would have been intubated and in the ICU for three weeks.”
**BENEFITS OF PARTICIPATION**

Working closely with peers to drive improvement can change outcomes for all pediatric patients with sepsis. Through this unique collaborative, your hospital can access the expertise of more than 2,000 people working on IPSO teams and can learn about and test effective ways to:

- Improve patient outcomes and patient experience of care
- Improve faster and at a lower cost than working independently
- Solve small sample size/rare event problems
- Implement what works and reduce trial and error
- Reduce costs by sharing infrastructure; avoid design and development costs
- Physicians earn maintenance of certification credit, nurses earn continuing education credit
- Expand staff QI know-how and experience
- Access to three Pediatric Learning Solutions online sepsis modules

**ACTIVITIES, SERVICES AND MEASURES**

**IPSO Activities**

This collaborative is comprehensive, providing your team with multiple opportunities to improve surveillance, diagnosis and treatment.

**Mobilize.** During the mobilization phase, you will create partnerships with the front lines and family advisors to medical staff and hospital leadership, and beyond patient care settings with pharmacy, labs and infection prevention services. Build a core leadership team and unit teams, incorporate family advisors and develop an implementation plan. Use the IPSO Readiness Inventory to assess your existing practices and resources, so you can map out process changes, prepare to collect data and train teams.

**Implement.** Focus on the ED, PICU, general care, Hem Onc and BMT units initially. In IPSO’s next phase, the NICU and pre-hospital settings will also implement. Adopt the IPSO bundles addressing diagnosis and treatment, and work toward 90-day aims with small tests of change. The bundles include screening, monitoring and structured assessment; therapeutic interventions tailored for special patient populations, de-escalation, patient and family engagement, and optimizing performance.

**Measure.** Submit process and outcomes data to a shared database each month, and receive monthly analyses in charts and reports. Data submission methods are flexible to minimize data burden. Hospitals can extract from the electronic medical record, use a web-based data capture system, or export data from RedCap or similar form-based applications. Analyses and reports are available through IPSO’s secure web portal.

**Collaborate.** Accelerate improved outcomes through collaboration. Exchange what works, tools, questions and experiences with collaborating hospitals. Monthly webinars provide bundle training, data interpretation, shared learning and special interest topics. Workshops twice a year offer an intensive collaboration and learning experience. Access the IPSO online discussion group, professionally moderated and exclusively for participants.
IPSO Services
When your hospital invests in the IPSO collaborative, you gain access to a large number of resources that will support your efforts.

- Leadership from national experts
- Diagnosis and treatment bundles based on best evidence and practice
- Measures for outcomes and processes
- Flexible data submission via EMR export, local data collection form systems or web data entry
- Secure web portal for aggregate and custom reports
- Monthly data analysis
- Custom performance reports
- Monthly aggregate benchmarking
- Webinars
- Workshops
- Bundle training materials
- QI methodology training
- Repository of tools and resources, including trigger tools, evidence tables and bibliography
- Access to collaborative data assets for analysis, research and publication
- Online discussion group

Aims and Measures
The IPSO collaborative aims to reduce sepsis mortality and reduce hospital-onset severe sepsis. This effort will help you plan and implement process changes that ensure the best outcomes when dealing with sepsis in your hospital.

KEY DRIVERS OF IPSO WORK

![Diagram showing key drivers of IPSO work: Prevention, Recognition, Diagnosis, Rescuscitate, De-escalate]

IPSO OUTCOME MEASURES
- Mortality from severe sepsis
- Incidence of hospital-onset severe sepsis
- Hospital days per sepsis episode
- Days free of ICU, vent, vasoactive drugs

IPSO PROCESS MEASURES
- Sepsis screen
- Sepsis huddles
- Order set and time to initiation
- Time to first and third antibiotic; first and third bolus; pressor
FEES

Enrolled hospitals pay a fee based on number of staffed beds (including NICU) and have access to all program resources to support the work. Implementation is supported by member hospital dues, and by participation fees that are tiered based on hospital size, ranging from $10,000 to $45,000.

COLLABORATIVE LEADERSHIP

Experts from children’s hospitals worked closely with CHA to carefully evaluate and develop all aspects of the sepsis collaborative.

Co-Chairs
Richard Brilli, M.D., FAAP, MCCM *
Charles Macias, M.D., M.P.H. *
Matthew Niedner, M.D. *

National Expert Advisory Committee
More than 60 individuals have been working to initially design and continually improve the collaborative.

Ann & Robert H. Lurie Children’s Hospital of Chicago
Raina Paul M.D.*  |  Emergency Department

Boston Children’s Hospital
Leslie Lehmann, M.D.  |  Hematology/Oncology
Elliot Melendez, M.D.  |  Intensive Care Units
Greg Priebe, M.D.  |  Intensive Care Units

Children’s Healthcare of Atlanta
Jim Fortenberry, M.D.  |  Intensive Care Units

Children’s Hospital Colorado
Halden Scott, M.D.*  |  Emergency Department
Beth Wathen, RN*  |  Intensive Care Units

Children’s Hospital of Philadelphia
Fran Balamuth, M.D.*  |  Emergency Department

Childrens’ Hospital of Pittsburgh of UPMC
Joe Carcillo, M.D.  |  Intensive Care Units

Children’s Hospital of San Antonio
Ricardo Quinonez, M.D.  |  General Care

Children’s Hospital of Wisconsin
Wendi Redfern, RN  |  Intensive Care Units

Children’s Mercy Kansas City
Leslie Hueschen, M.D.*  |  Emergency Department

Children’s National Medical Center
Kathy Brown, M.D.  |  Emergency Department

Cincinnati Children’s Hospital Medical Center
Holly Depinet, M.D.*  |  Emergency Department
Erika Stalets, M.D.  |  Intensive Care Units

Cohen Children’s Medical Center
Joel Brochstein, M.D.  |  Hematology/Oncology
Pete Silver, M.D.*  |  Intensive Care Units
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<td>Rhiannon McDonnell, RN*</td>
<td>Hematology/Oncology</td>
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<td>Dory Collette, RN</td>
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<td>Mark Shen, M.D.</td>
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<td>Julie Gottfried, RN</td>
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<td>Ed Beaumont, M.D.</td>
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<td>Beth Huizinga, RN</td>
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<td>Allen Chen, M.D.</td>
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<td>Cassandra Bergero, RN</td>
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<td>Kerry Gold-Tsakonas, RN*</td>
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<td>Charlie Huskins, M.D.*</td>
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<td>Amy Potts, M.D.</td>
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<td>Erica Jones, RN</td>
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<td>Amanda Carr, RN</td>
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<td>Our Children's House at Baylor</td>
<td>Li Ern Chen, M.D.</td>
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<td>Deb Campbell, RN*</td>
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<td>Faisal Razzaz, M.D.*</td>
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*Steering committee member