



**Department
of Health**

Pediatric Emergency Preparedness Training Seminar: NY State Sepsis Initiative Update

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Disclosures

- Nothing to report

Objectives

- Inform about the background of NY State Sepsis initiative
- Describe elements of mandatory hospital reporting
- Visualize selected measures
- Highlight next steps
- Discuss the lessons learned from a statewide Sepsis initiative

NY State Sepsis Background

Background

- Sepsis was beginning to be recognized as an issue, fueled by:
 - National interest
 - Local interest (Stop sepsis campaign in New York City), IHI
 - Rory Staunton
- Led to NY State initiative in 2013 (“Rory’s Regulation”) required hospitals to develop clinical protocols for adults and children and submit to DOH for approval, that included:
 - evidence informed protocols for early recognition and treatment for sepsis, severe sepsis and septic shock
 - Ongoing clinical and non-clinical staff training protocols
 - Reporting data to DOH

Department Actions

- Created Sepsis Advisory Group
- Developed a data dictionary
- Data collected quarterly, 70 variables, including treatment, severity, comorbidities, and discharge including 3 hour and 6 hour bundles for adults (used NQF-500 as a guide)
- Convened a group of clinical advisors from different pediatric subspecialties (critical care, ER, academics) to develop an 1 hour bundle for pediatrics
- Data collection started Q2, 2014
- Hospitals have the ability to correct data
- Audit of data 2014 Q2 – 2016 Q1
- On adult side, increasingly alignment with CMS SEP-1

Case Identification

- Hospitals to identify cases from administrative data to own clinical databases (excluding newborns)
- Aligns with international criteria (Goldstein) using guideline recommendations from the Pediatric Advanced Life Support (PALS) program of the AHA:

Severe Sepsis	Septic Shock
<ol style="list-style-type: none"> 1. Proven or suspected infection; and, 2. Two or more pediatric SIRS criteria, one of which must be abnormal temperature or leukocyte count; and, 3. Organ dysfunction: <ul style="list-style-type: none"> • For the organ dysfunction criteria, pediatric organ dysfunction is noted by the presence of EITHER: Cardiovascular organ dysfunction OR Acute respiratory distress syndrome (ARDS) OR A combination of two other types of organ dysfunction (respiratory, neurologic, hematologic, renal, hepatic) 	<ol style="list-style-type: none"> 1. Sepsis AND 2. Cardiovascular organ dysfunction (despite at least 20ml/kg fluid administration)

The crystalloid fluid administration will be based on the pediatric patient's weight (in kg) and the 20ml/kg ratio.

Pediatric patients should be categorized as having septic shock if unable to differentiate between severe sepsis and septic shock.

At this time, refer to Tables 2 & 4: *Pediatr Crit Care Med.* 2005 Jan; 6(1):2-8. International pediatric sepsis consensus conference: Definitions for sepsis and organ dysfunction in pediatrics



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Pediatric measures and bundle

Own hospital specific protocol initiated? Yes/No

One hour measures:

- Blood Culture obtained in 1 hour before Antibiotic
- Antibiotics started in 1 hour
- Adequate Fluids completed in 1 hour

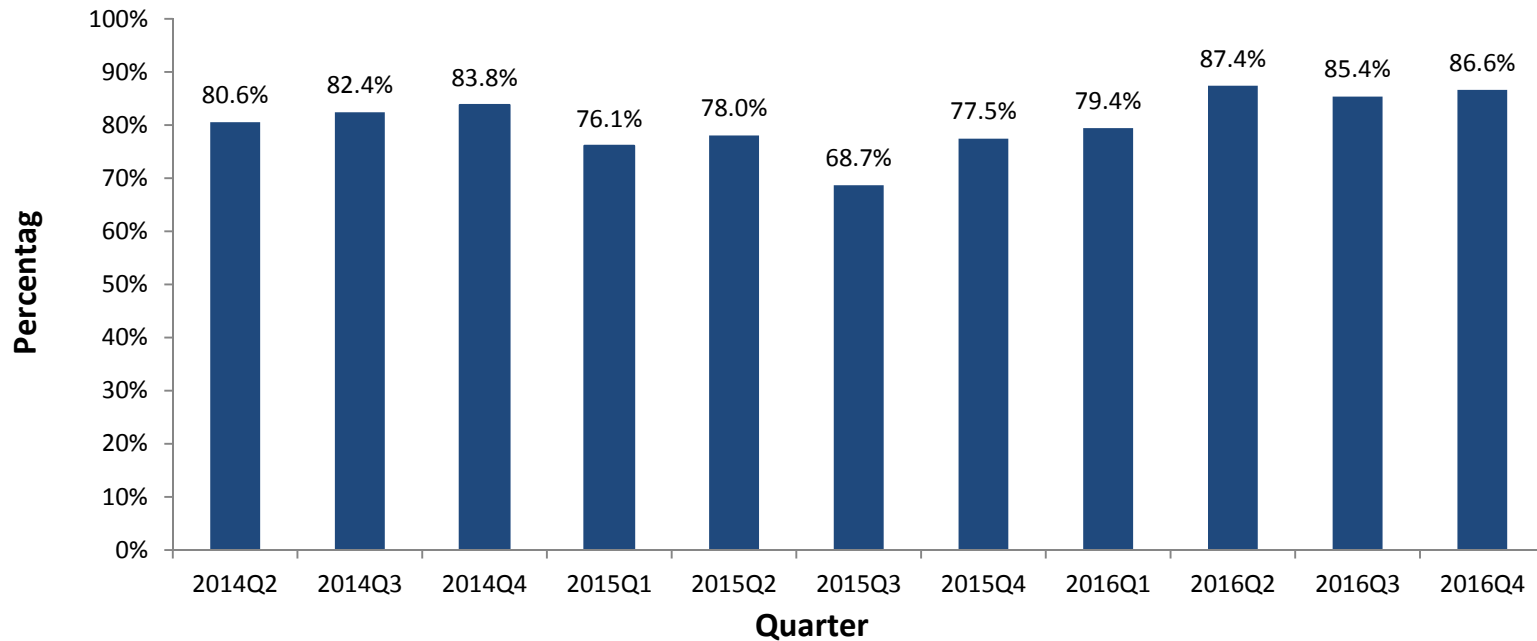
Pediatric 1 hour bundle:

Completed in 1 hour yes/no

Quarterly Data Reports from/to Hospitals

- Hospitals to DOH
 - Quarterly reported severe sepsis and septic shock cases, up to 2 months after closure of quarter
 - Including all transfer cases
- DOH to Hospitals
 - Quarterly performance report includes
 - Demographics
 - Protocol exclusions
 - Protocol implementation
 - Treatment variables
 - Treatment bundles (25th/75th percentile benchmark, all hospitals)
 - Time Zero, transfers

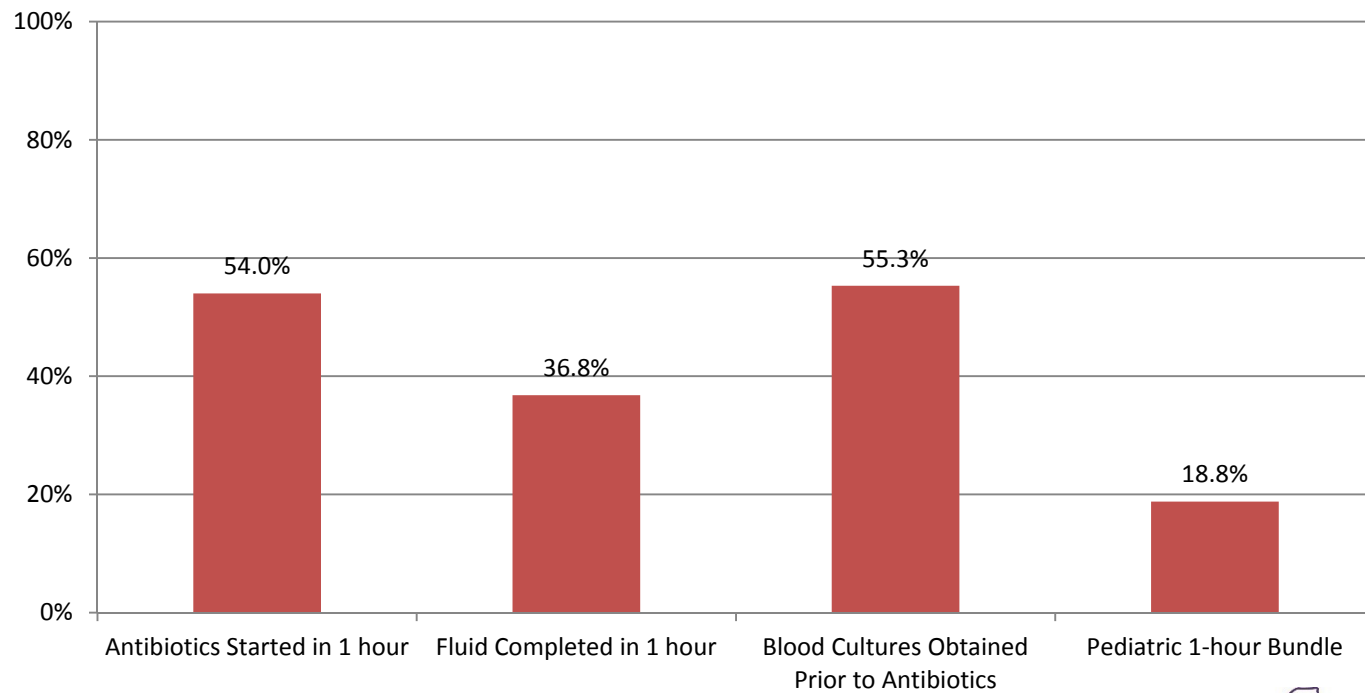
Pediatric Protocol Initiation: All Cases: 81%



Pediatric Protocol Initiation: Quarter Two, 2014 through Quarter Four, 2016*

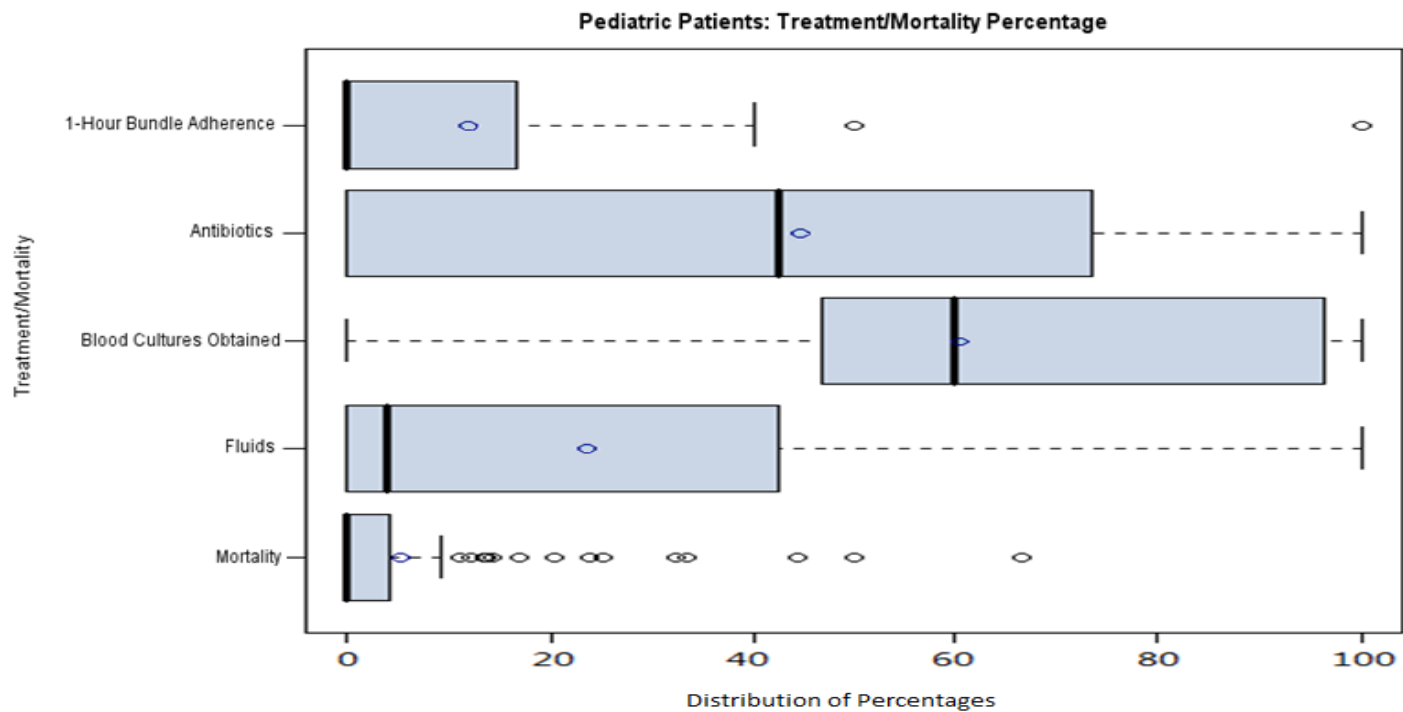
(*) excludes patients with clinical contraindications for protocol interventions or who died within one hour

Pediatric Measure/Bundle Completion- Q2/2014 –Q4/2016



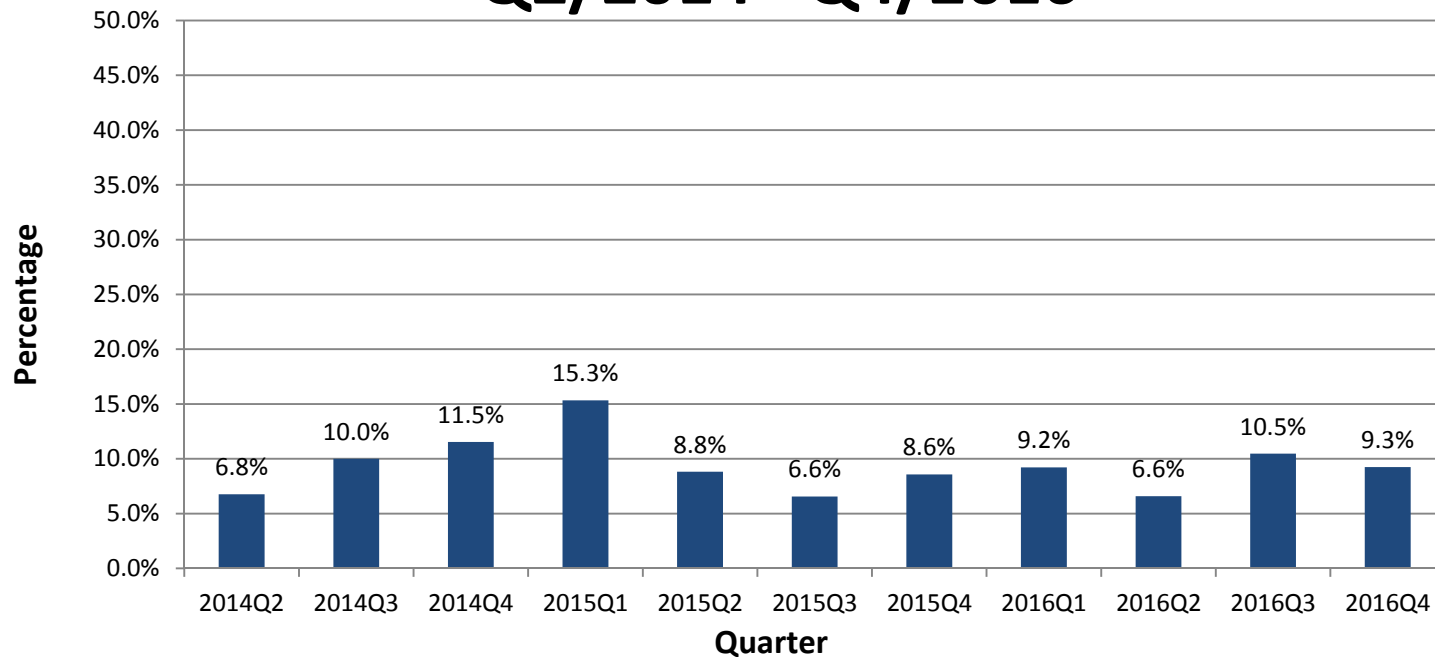
Performance Range – Pediatrics

Q2/2014 – Q4/2016



Pediatric In-Hospital Mortality

Q2/2014 – Q4/2016



Publicly Reported Pediatric Measures

- Public reporting on ER cases only

Percentage Receiving All Treatments Within One Hour

- Early treatment with fluids and antibiotics to children with severe sepsis is associated with improved survival.
- Evaluates the percentage of pediatric patients with sepsis that received
 - parenteral fluids
 - blood cultures
 - antibiotics

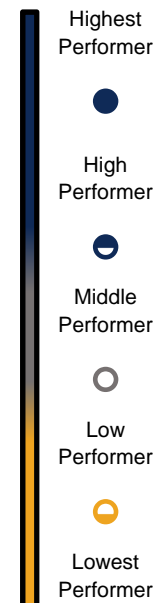
within one hour of their presentation in the emergency room.

- Patients with clinical exclusions and patients who have been transferred from or to another acute care hospital ARE EXCLUDED from this measure.

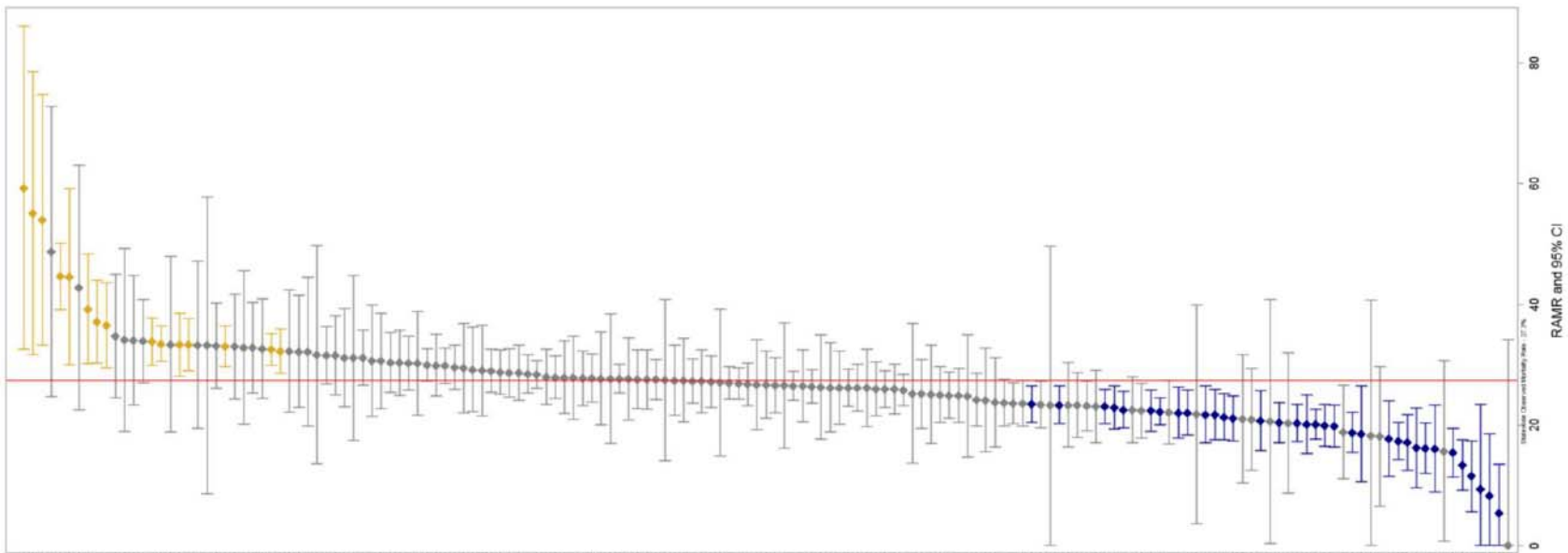
Pediatric Sepsis Performance Measures Summary Report by Hospital

Facility Name	Protocol Initiated (Pediatric)	1-Hour Bundle (Pediatric)
Albany Medical Center	●	S.S.
Women and Children's Hospital of Buffalo	●	S.S.
University Hospital	●	●
Strong Memorial Hospital	●	S.S.
Winthrop-University Hospital	●	S.S.
University Hospital SUNY Health Science Center	●	S.S.
Westchester Medical Center	●	●
Montefiore Medical Center – Henry and Lucy Moses Division	●	●
Bronx-Lebanon Hospital Center – Concourse Division	●	S.S.
Kings County Hospital Center	●	S.S.
Maimonides Medical Center	●	●
Mount Sinai Hospital	●	N.C.
New York Presbyterian Hospital – New York Weill Cornell Center	●	●
NYU Hospitals Center	●	S.S.
New York Presbyterian Hospital – Columbia Presbyterian Center	●	●
Long Island Jewish Schneiders Children's Hospital Division	●	●

Best



Adult Outcome measure: Risk Adjusted Mortality Rates per Hospital



This figure shows the RAMR and 95% confidence interval for each hospital in the sepsis public report. Blue represents high performers (lower than expected deaths). Gold represents low performers (higher than expected deaths).

Preliminary Results of Adult Analyses

After adjusting for patient factors, the odds of dying are...

- **21% less** for adult patients for whom a protocol was initiated at the hospital compared to patients for whom a protocol was not initiated.
- **27% less** for adult patients who receive all of the recommended treatments within three hours compared to patients who do not receive all of the recommended treatments.
- **26% less** for adult patients who receive all of the recommended treatments within six hours compared to patients who do not receive all of the recommended treatments

Next Steps

Next Steps:

- Analysis to evaluate relationship between protocol adherence measures, specific interventions, patient/care characteristics and outcomes
- Development of relevant outcome measures for children
- Research on broader national vs. state wide trends in sepsis mortality
- Cross walk between administrative and clinical data

Goals

- Increase the capacity of clinicians in NY State to recognize and treat sepsis
- Reduce adverse outcomes
- Decrease variation in sepsis mortality between hospitals

Questions/Comments?