STOP Sepsis Collaborative

A GNYHA / UHF Partnership in Quality

Mark J. Rosen, MD
Co-Chair, STOP Sepsis Collaborative
Division of Pulmonary, Critical Care and Sleep Medicine
North Shore – LIJ Health System
Professor of Medicine, Hofstra University
North Shore-LIJ School of Medicine

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STOP Sepsis Collaborative

- *STOP (Strengthening Treatment and Outcomes for Patients)* Sepsis Collaborative organized in 2010
- Quality improvement initiative that supports hospitals in the early recognition and treatment of severe sepsis and septic shock
  - Protocol-based approach
  - Emergency departments and ICU

Collaborative Model

- A systematic approach to health care quality improvement
- Organizations and providers introduce, test and measure practice innovations
- Share information to accelerate learning and widespread implementation of best practices.

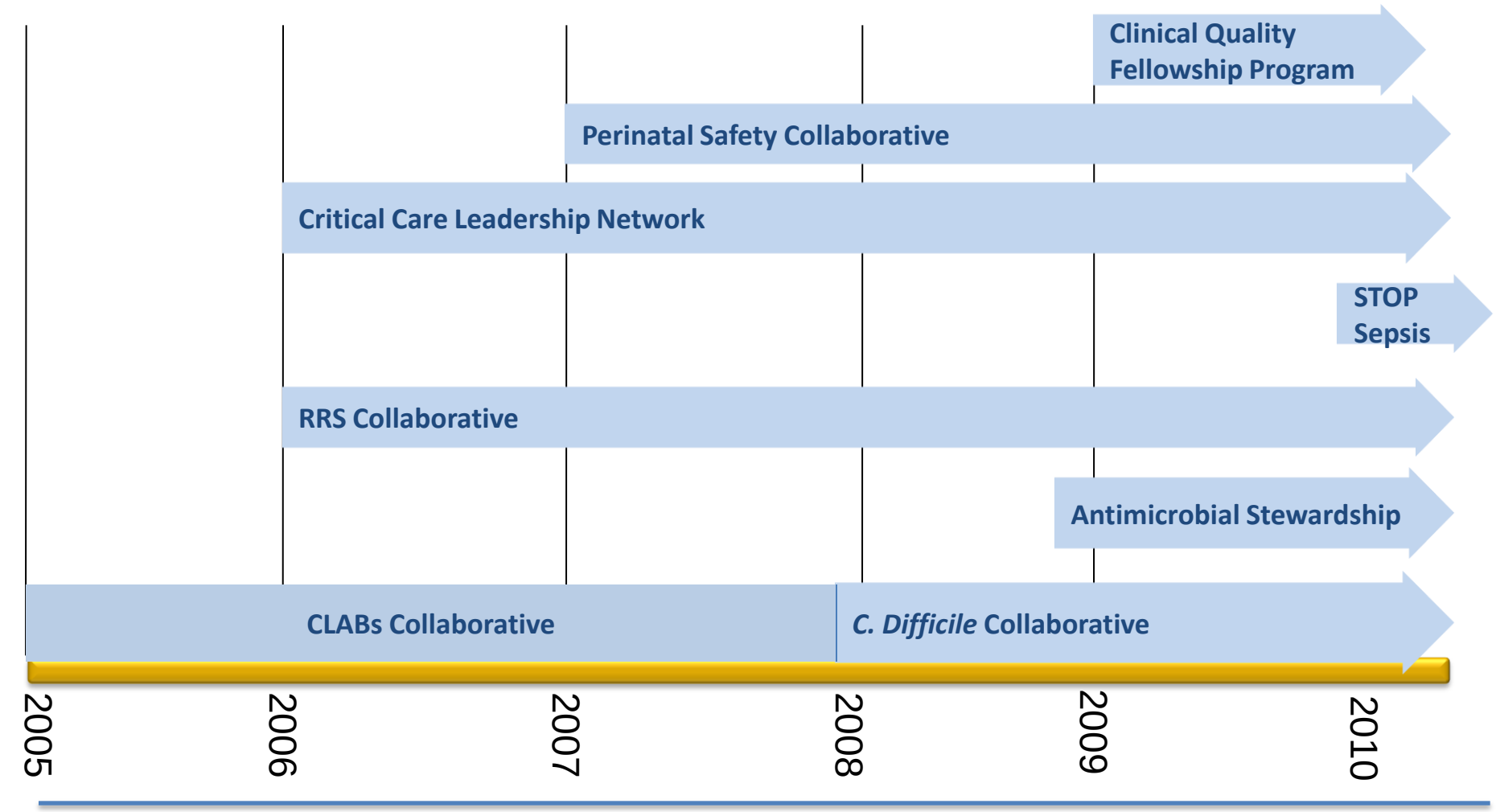
GNYHA/UHF Collaborative Components

- Leadership support
- Interdisciplinary teams
- Nurse and physician champions
- Expert physician consultants
- Ongoing education: live sessions, web-based
- Communication via web, teleconferences, e-mail
- Site visits
- Standardized data collection and reporting

GNYHA/UHF Quality Partnership

- Established in 2005
- Goals
  - Improve quality of patient-centered care
  - Create infrastructure to sustain and spread quality improvement and patient safety initiatives

GNYHA/UHF Joint Initiatives



GNYHA/UHF Critical Care Leadership Network (CCLN)

- Established 2006 to convene critical care leadership to prioritize efforts to improve critical care services and patient outcomes:
  - Identify and disseminate best practices
  - Promote team-based training
  - Develop data measurement strategies to identify areas for improvement
  - Design goal-based regional initiatives
  - Identify regulatory and policy issues and advocate for change.

GNYHA/UHF Critical Care Leadership Network 2006-2009

- 2 surveys of ICUs in Greater New York Region
- 3 “Critical Care Controversies” programs
- Annual ultrasound training for all 1st year CCM fellows
- Lots of meetings, robust discussion on starting collaborative
- In 2010, activist faction challenged the group: “Can we stop talking and do *something*?”

STOP Sepsis Collaborative
Rationale

- Early antibiotic administration and fluid resuscitation improves survival in patients with severe sepsis and septic shock.
- It's not that complicated
- It wasn't happening

STOP Sepsis Collaborative

Use of protocols for early identification and treatment of patients with severe sepsis and septic shock in the emergency department will improve process measures and reduce mortality.

STOP Sepsis Collaborative

- 57 hospitals in the region
  - 19,400 beds
  - >1 million annual discharges
- Provided education and tools to:
  - recognize patients with severe sepsis and septic shock in the Emergency Department
  - Implement resuscitation protocol

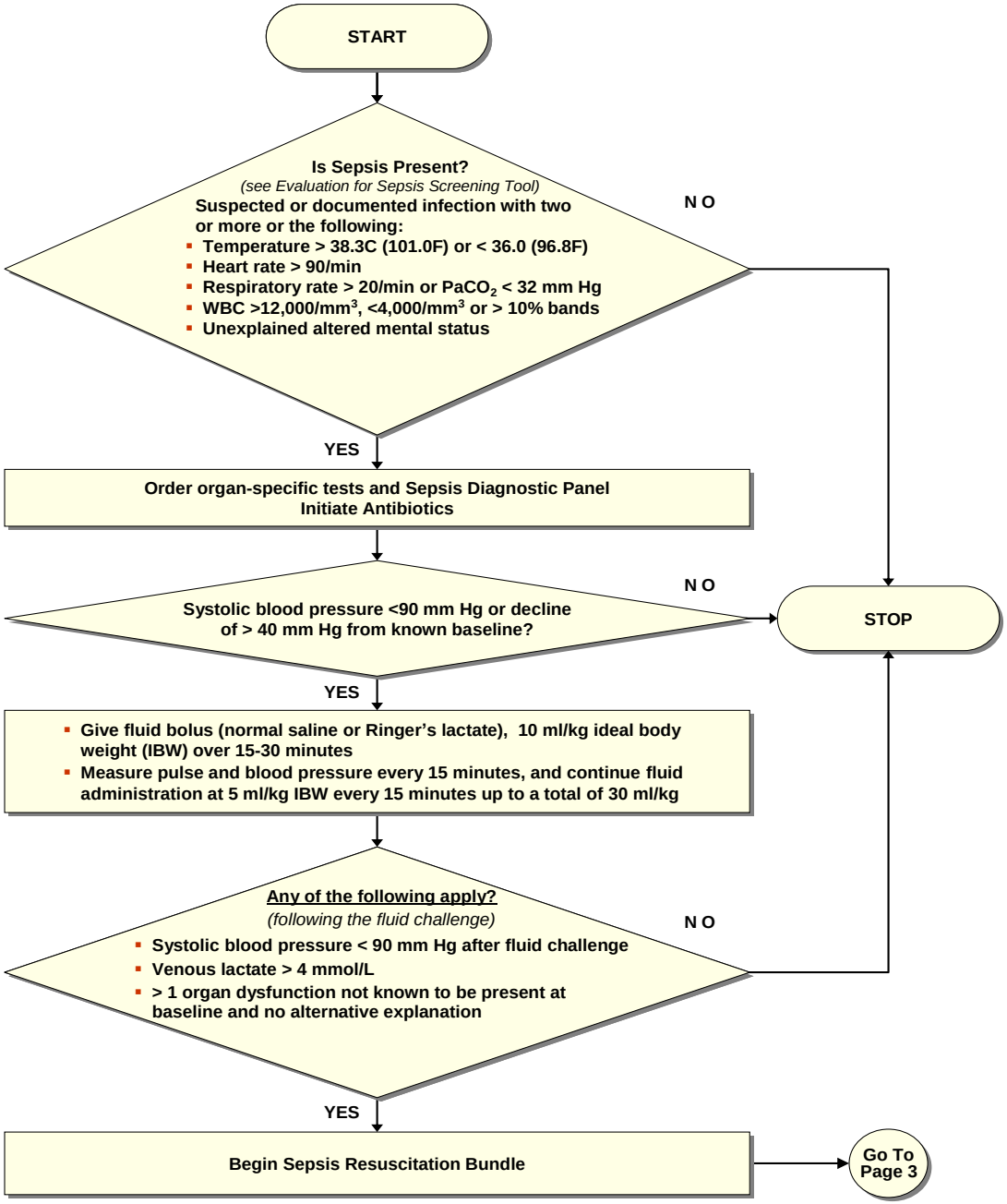
STOP Sepsis Collaborative Goals

- To reduce mortality in patients with severe sepsis and septic shock by developing and implementing a protocol-based approach to rapid identification and rapid treatment.
- To enhance communication and patient flow between the emergency department and other areas of the hospital, in particular, the intensive care units.

STOP Sepsis Collaborative: *The Team*

STOP Sepsis Collaborative Hospital Project Team
ED Physician Lead and Nurse Lead
ICU/Critical Care Physician Lead and Nurse Lead
Quality Department Representative
RRS Team Representative
Infectious Disease Representative
Information System Specialist

North Shore – LIJ Health System Sepsis Protocol



Severe Sepsis Resuscitation Protocol: Non-Invasive	
WHO	Septic Patient with Lactate ≥ 4 mmol/L or MAP < 65 after 2 liters crystalloid **AND** Goals of care are curative
INITIAL RESUSCITATION	• Administer 20-30 ml/kg isotonic **crystalloid bolus** over 20 minutes • Send **cultures** of all likely sources of infection • Think of **source control** (Infected catheter? Operative intervention for infection? Drainable pus?) • **Administer antibiotics** to cover all likely sources of infection
SpO2	If patient's O2 saturation is < 90% on high fiO_2 supplemental oxygen (non-rebreather mask), consider intubation and switching to invasive strategy.
FLUIDS	**Choose 1 Strategy** • **Dynamic IVC Ultrasound**-Keep giving 500-1000 ml boluses of isotonic crystalloid until there is < 30% change in IVC size with inspiration. • **Empiric Fluid Loading**-Patients with severe sepsis/septic shock may require at least 6 liters of fluid during their acute resuscitation (first 6 hours of care).
RE-CHECKING MAP	• If MAP is < 65 after adequate fluid loading: - Place a full sterile central line in the IJ or SC vein (femoral site only if neck line not feasible); - Start vasopressors; titrate to a MAP ≥65; - Consider switching to invasive protocol.
TISSUE OXYGENATION	• Send repeat lactate when above goals are accomplished (Send a 2nd lactate at **3-hour mark**, if not already sent) • If lactate has cleared by ≥ 10 % (or is not rising if original lactate was ≤ 2 mmol/L), **go to disposition** • If lactate is rising or has cleared by < 10%, **choose 1 option:** **If Hb < 7:** transfuse 1 unit of PRBC **or** **Additional Fluids:** if patient had empiric fluid loading, give an additional liter of crystalloid **or** **Inotropes:** especially if heart appears hypodynamic on echo. If calcium is low, replete that first. If not, administer dobutamine 5-20 mcg/kg/min. **or** **If Hb 7-10:** consider transfusion. Especially in elderly patients or patients with coronary artery disease • Send 3rd lactate, if it still has not cleared by ≥10%, continue with the above, trending lactates every 1-2 hours until these two goals are met or switch to invasive strategy (Send 3rd lactate at the **6-hour mark**, if not already sent)
DISPOSITION	• Patients should get ICU consultation. If not an ICU candidate, should go to appropriately monitored bed. • Periodically recheck patient for MAP ≥ 65, good mental status, and good urine output • Consider trending lactate every Q 2-4 hours. If it starts rising again, restart protocol

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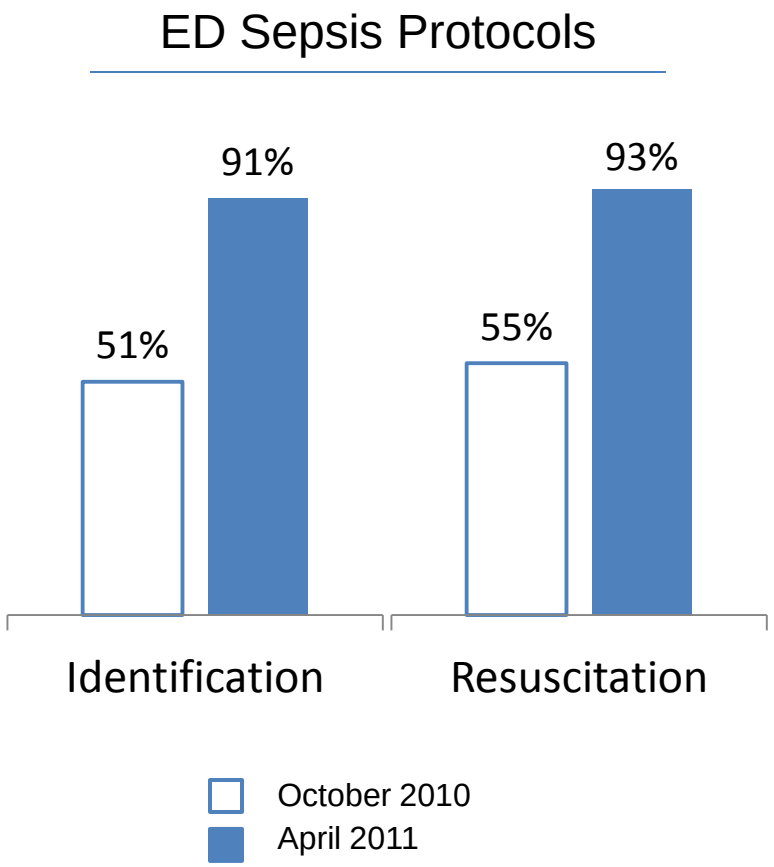
STOP Sepsis 6 Months
Implement Algorithm

Goal: within 6 months, 100% of participating hospitals implement a protocol or algorithm for identifying and resuscitating patients with sepsis starting in the ED and the ICUs



Sepsis Interventions

8,556 patients with Severe Sepsis reported through June 2012

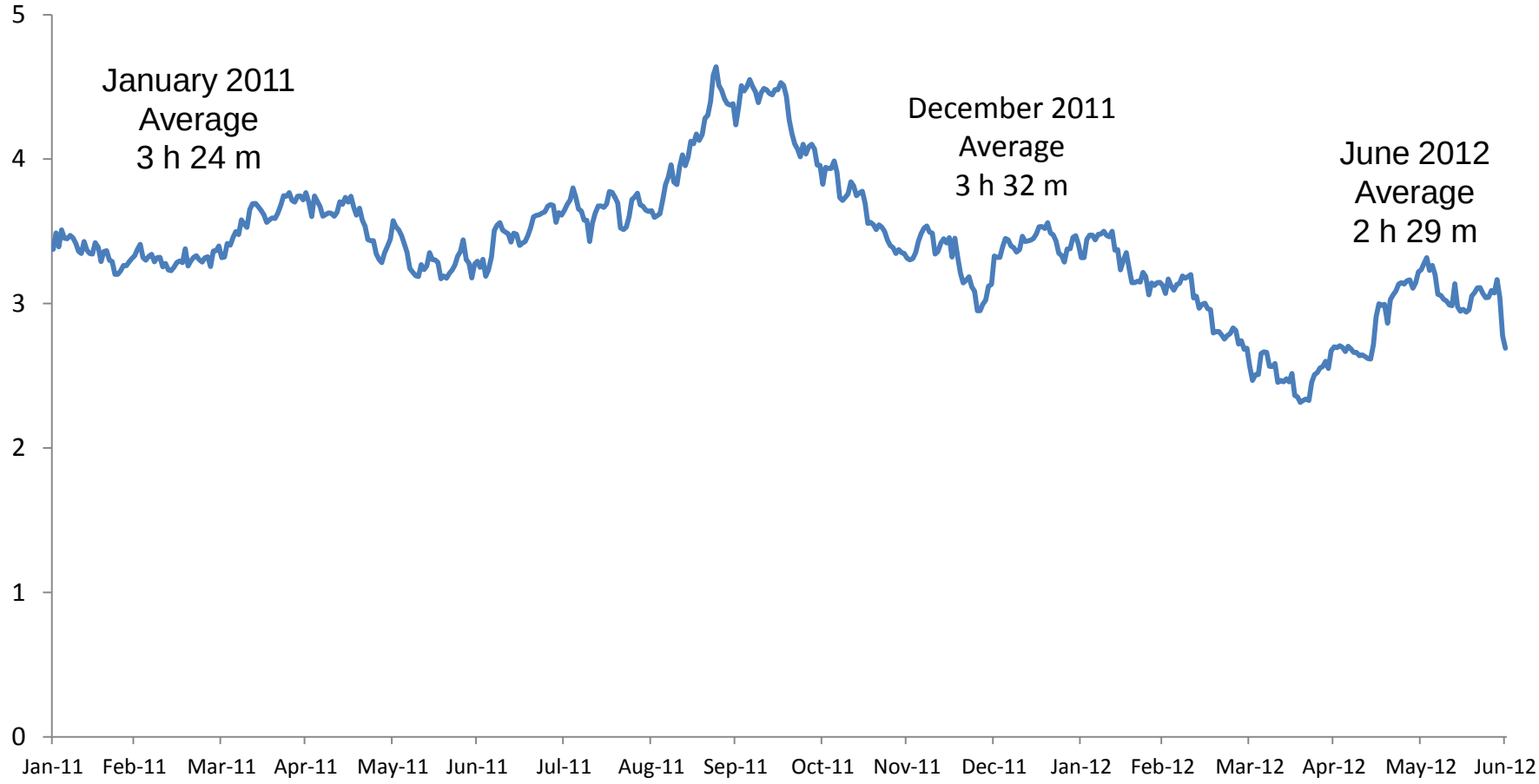
Protocol Use	#	%
Non-Invasive	5,583	65%
Invasive	2,342	27%
No Response	631	7%

Sepsis Interventions

8,556 patients with Severe Sepsis reported through June 2012

Means of Fluid Assessment	#	%
Empiric Fluid Loading	3,236	38%
Central Venous Pressure (CVP)	1,146	13%
IVC Ultrasound	147	2%
Other	301	4%
No Response	3,990	47%

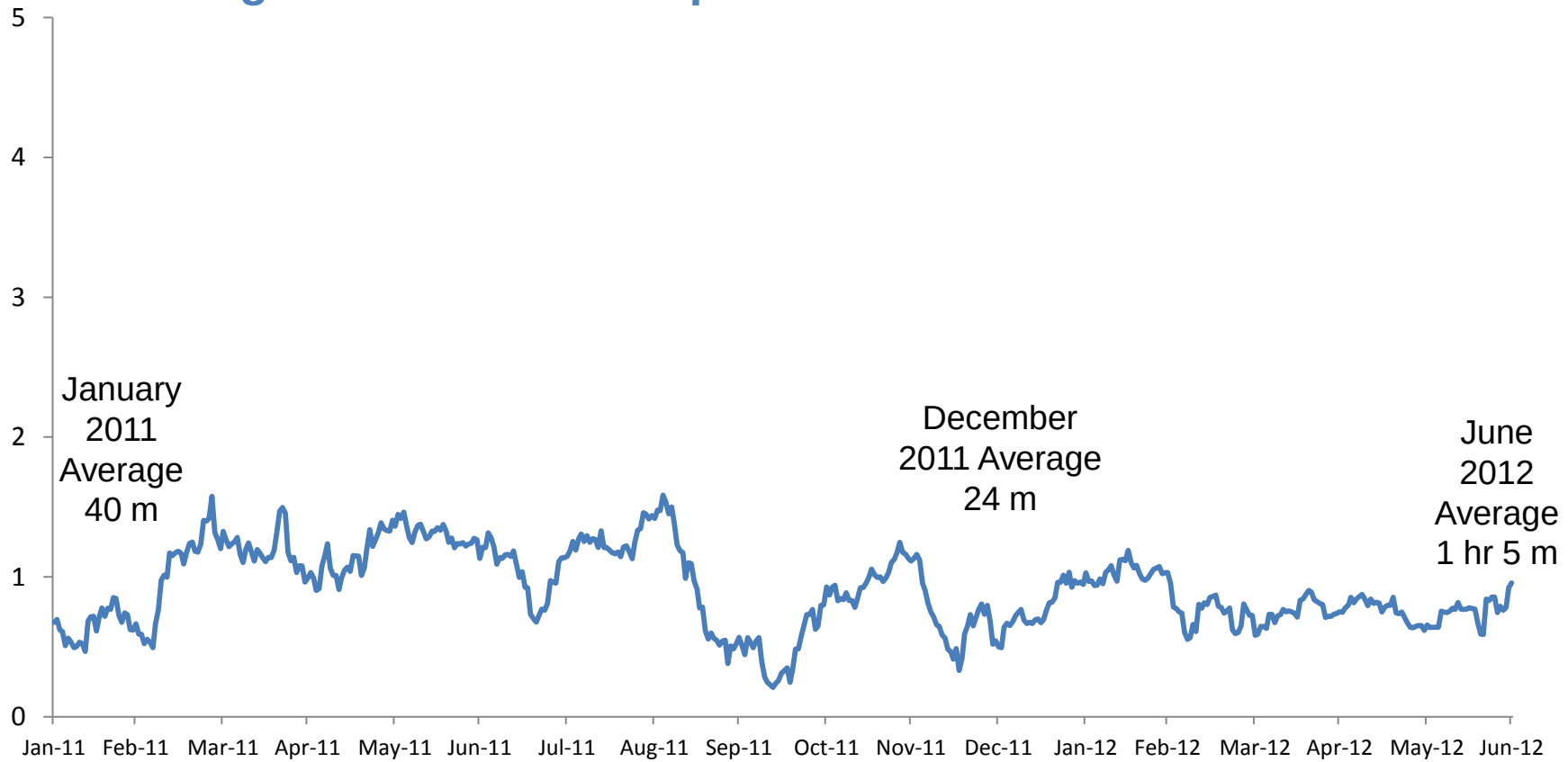
Time of Arrival to Recognition



* N = 6,280 excluding Outliers (210)

Recognition to Antibiotic Initiation Goal

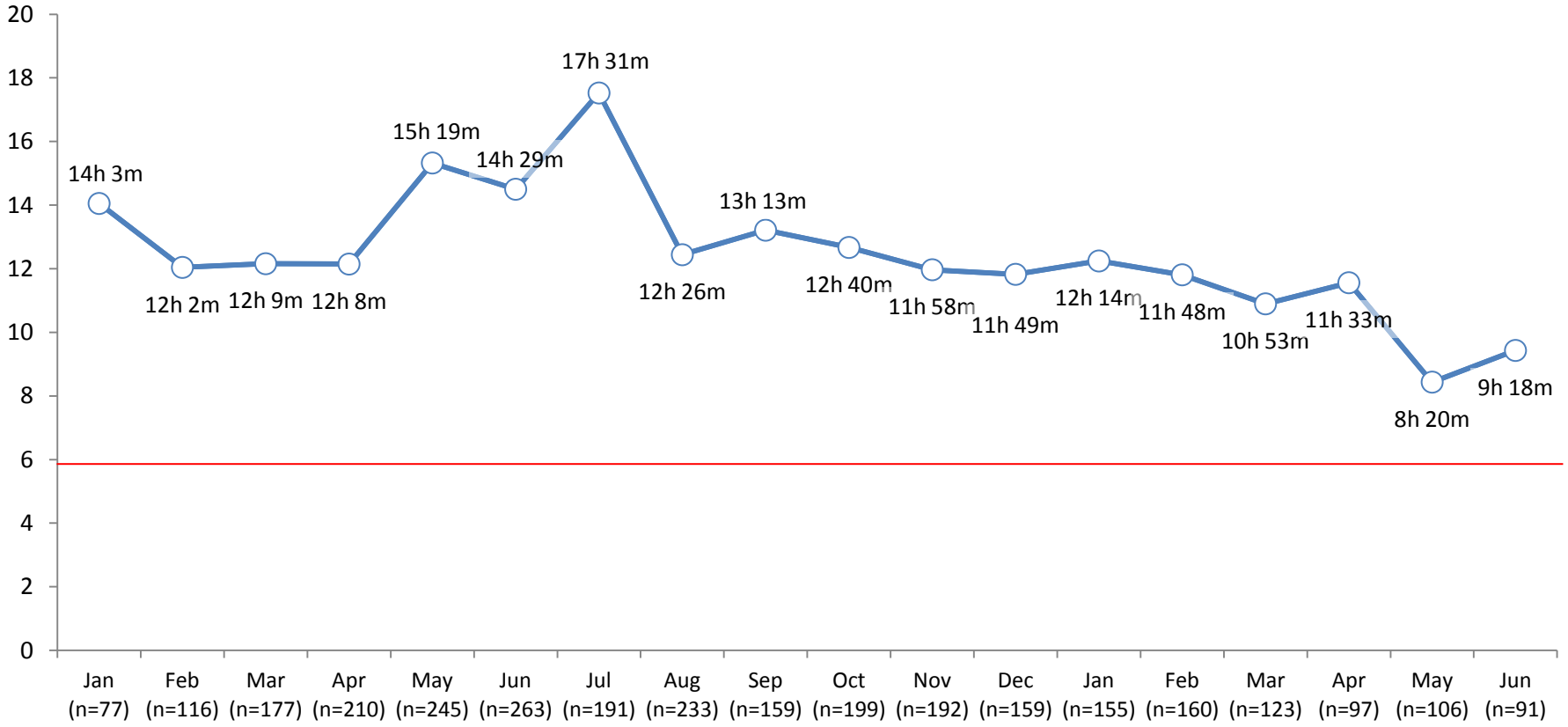
Goal: Reduce the time of antibiotic initiation to within one hour of recognition of severe sepsis in the ED within 6 months.



* N = 7,697 excluding Outliers (166)

Sepsis Interventions

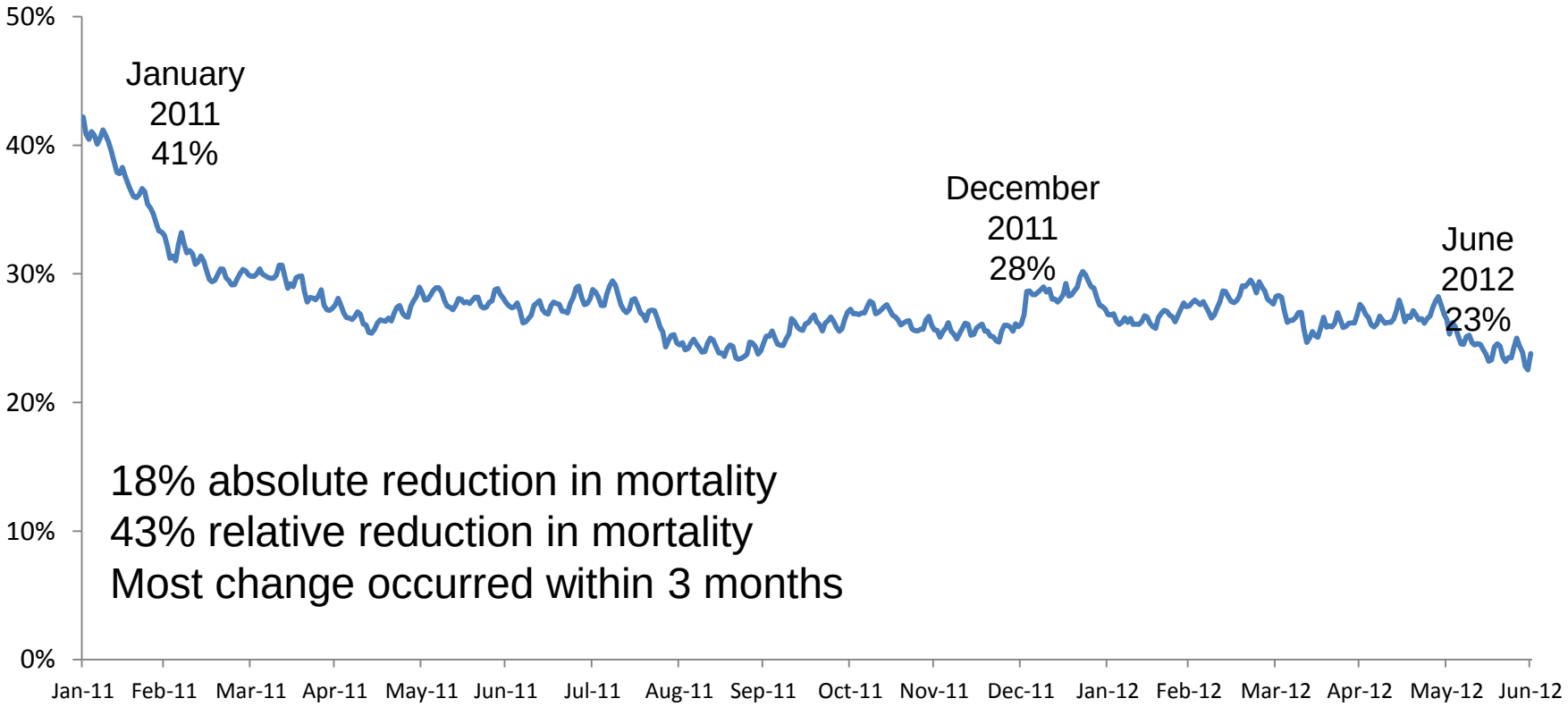
Goal: Limit time to meeting sepsis resuscitation goals to 6 hours or less within 6 months.



* Monthly averages including outliers

Achievement of Mortality Goal

Goal: Improve severe sepsis mortality rates by 10% in participating hospitals.



* N = 8,123

STOP Sepsis Collaborative

- Large Collaborative can be organized
- Practice changes can be implemented rapidly
- Changes associated with improvements in processes and outcomes
- Emergency Department and Critical Care clinicians can work together

STOP Sepsis Collaborative
Next Steps

- Sustain improvements
- Expand program to med-surg units
  - "Team Sepsis"
  - Integrate with Rapid Response Teams
- Pediatric STOP Sepsis Collaborative