

The program will begin at 3:30 p.m. Please submit your questions and/or comments in the Q&A box to the right to “HOST.”

Implementation of Surviving Sepsis Campaign Guidelines in the Emergency Department



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He is currently the Clinical Associate Professor for the Department of Emergency Medicine at Warren Alpert Medical School, Brown University. He is also the Director of Quality and Safety for University Emergency Medicine Foundation, an EM group of 80 physicians, where he has led the *Surviving Sepsis* efforts.

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Infrastructure

- Hospital / Departmental Agreement
- Physician and Nurse Champion
- Interdepartmental Agreements
- Education
- Set Goals
- Monitoring and Feedback
- Case Based Education
- Culture Change

Hospital / Department Agreements

- Hospital Administration has to decide this a priority
- Administrative resources
 - RN data abstractor
 - MD available for chart review

ED & ICU : MD & RN Champions

- Engage a larger interdisciplinary group
 - Pharmacy
 - Respiratory
 - Lab
- Lay the ground work in terms of
 - Order sets
 - Protocols
 - Reminder cards
- Serve as resources / educators.

Interdepartmental Agreements

- ED & ICU must reach consensus
 - Good idea
 - Define Roles (who places the line)
 - Expedite or Define Disposition to ICU
 - Complete partial vs entire Resus Bundle in ED
 - Accept that there will be False positives
 - Anticipate and respond to naysaying MDs/RNs
 - Focus on the benefit to the patient

Education

- Combined RN – MD communication helps send a consistent message
- Define and Post
 - SIRS
 - Severe Sepsis & Septic Shock
 - Organ dysfunction Criteria
- Make sure people understand
 - We are not giving out abx at the door
 - Think about infection as a possibility when you see 2 SIRS
 - The importance of rapid w/u and timely management
- Cite the literature to build your case
- Use actual cases as examples

Making the Case

Time to antibiotics: inversely proportional to survival in septic shock.

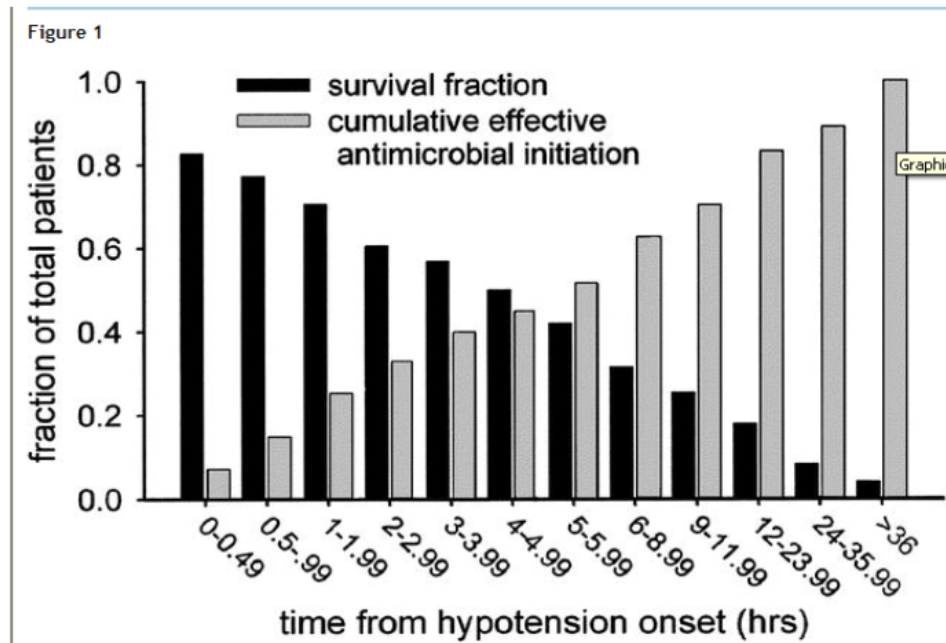


Figure 1. Cumulative effective antimicrobial initiation following onset of septic shock-associated hypotension and associated survival. The x-axis represents time (hrs) following first documentation of septic shock-associated hypotension. Black bars represent the fraction of patients surviving to hospital discharge for effective therapy initiated within the given time interval. The gray bars represent the cumulative fraction of patients having received effective antimicrobials at any given time point.

From: Kumar: Crit Care Med, Volume 34(6), June 2006, 1589-1596

Survival decreases by 7.4 % with every hour delay in Abx admin for the first 6 hours

Making the Case

Impact of time to antibiotics on survival in patients with severe sepsis or septic shock in whom early goal-directed therapy was initiated in the emergency department

[Critical Care Medicine](#) - Volume 38, Issue 4 (April 2010) - Copyright © 2010 Lippincott Williams & Wilkins - [About This Journal](#)

- Triage Time to Appropriate Abx < 1 hr
 - Mortality 19.5 vs 32.2%
- Clinical Time Zero to Appropriate Abx < 1 hr
 - Mortality 25 vs 38.5%

Encourage Early abx Ordering and Early Abx Administration

Goals

- The Institute for Healthcare Improvement (IHI) advocates making a time-sensitive goal and sharing the goal
- ~~“We will improve the care delivered to septic patients”~~
- “We will deliver antibiotics to patients with severe sepsis and septic shock in < 3 hrs from arrival 70% of the time by the end of this fiscal year”

Monitoring & Feedback

- Collect the data and share it
 - Public posting
 - Recognize success publicly
- Chart Review
 - Share critique with both Nurse and Physician
 - Provide Feedback to clinicians as soon as possible.

ED Feedback

To: ED Physicians, Nurses, and RIs

From: David Portelli, MD Director of Quality & Safety

Re: Care of Patients with Severe Sepsis and Septic Shock

RIH & TMH are participating in a Statewide collaborative that is tracking the care of patients with *Severe Sepsis* and *Septic Shock*. While we have been practicing Early Goal Directed Therapy (EGDT) for Sepsis for a number of years, this statewide campaign aims to focus our efforts on this life threatening disease process with the goal of further reducing mortality.

We are tracking Six elements in the "Resuscitation Bundle" they are:

1. Serum Lactate returned within 6 hrs*
2. Blood cultures performed before antibiotics administered
3. Antibiotics administered within 3 hrs*
4. Fluids and Vasopressors for hypotension or lactate >4
5. CVP ≥ 8 within 6 hrs for pts with *hypotension*** or *lactate* >4
6. ScVO₂ ≥ 70% within 6 hrs for pts with *hypotension*** or *lactate* >4

*Time zero (for Surviving Sepsis Database) = Time of septic patient's arrival in ED.

**SBP < 90 or MAP < 65 despite 20 ml/kg of IVF bolus over 30-60 min

Note: Pts with hypotension despite rapid fluid bolus, lactate > 4, or pts on pressors require a sepsis catheter/CVP & ScVO₂ measurement. Catheter placement for other cases of severe sepsis may aid in resuscitation and is at the discretion of the treating MD

Sepsis	Severe Sepsis	Septic Shock
Infection/Suspected Infection +	Infection/Suspected Infection +	Infection/Suspected Infection +
Inflammatory Response = 2 SIRS T > 101 or < 96.8 HR > 90 RR > 20 WBC > 12k or < 4k AMS Chills w/ rigors BG > 120 (in absence of Diabetes)	Inflammatory Response = 2 SIRS +	Inflammatory Response = 2 SIRS +
	New Organ Dysfunction MAP < 65 or SBP < 90 SBP ↓ of > 40 mmHg from baseline Creatinine > 2mg/dl, T. Bili > 2 mg/dl Platelets < 100K Lactate > 2 INR > 1.5 or PTT > 60 seconds Bilat. Pulmonary Infiltrate. with new or increased O ₂ requirement to maintain SpO ₂ > 90%	New Organ Dysfunction +
		Hypotension SBP < 90, MAP < 65 Not responsive to 20 ml/kg IVF

Attending _____ RN _____

I am providing you feedback to help you understand where there is room for improvement in your care of the patient with Severe Sepsis or Septic Shock.

Date _____ Triage Time: _____ Time Zero: _____

1. Serum Lactate within 6hrs: Y / N

2. Blood Cultures before ABX: Y / N

3. Antibiotics within 3 hrs: Y / N

Abx Ordered _____ Abx Admin _____ Order to admin _____
(GOAL < 30 min)

4. 20 ml/kg IVF for Hypotension or LA > 4. (& Vasopressors for hypotension not responsive to 20 ml/kg IVF) _____

5. CVP ≥ 8 within 6hrs for hypotension or LA >4 _____

- N/A as pt did not have hypotension or elevated LA
- Pt refused

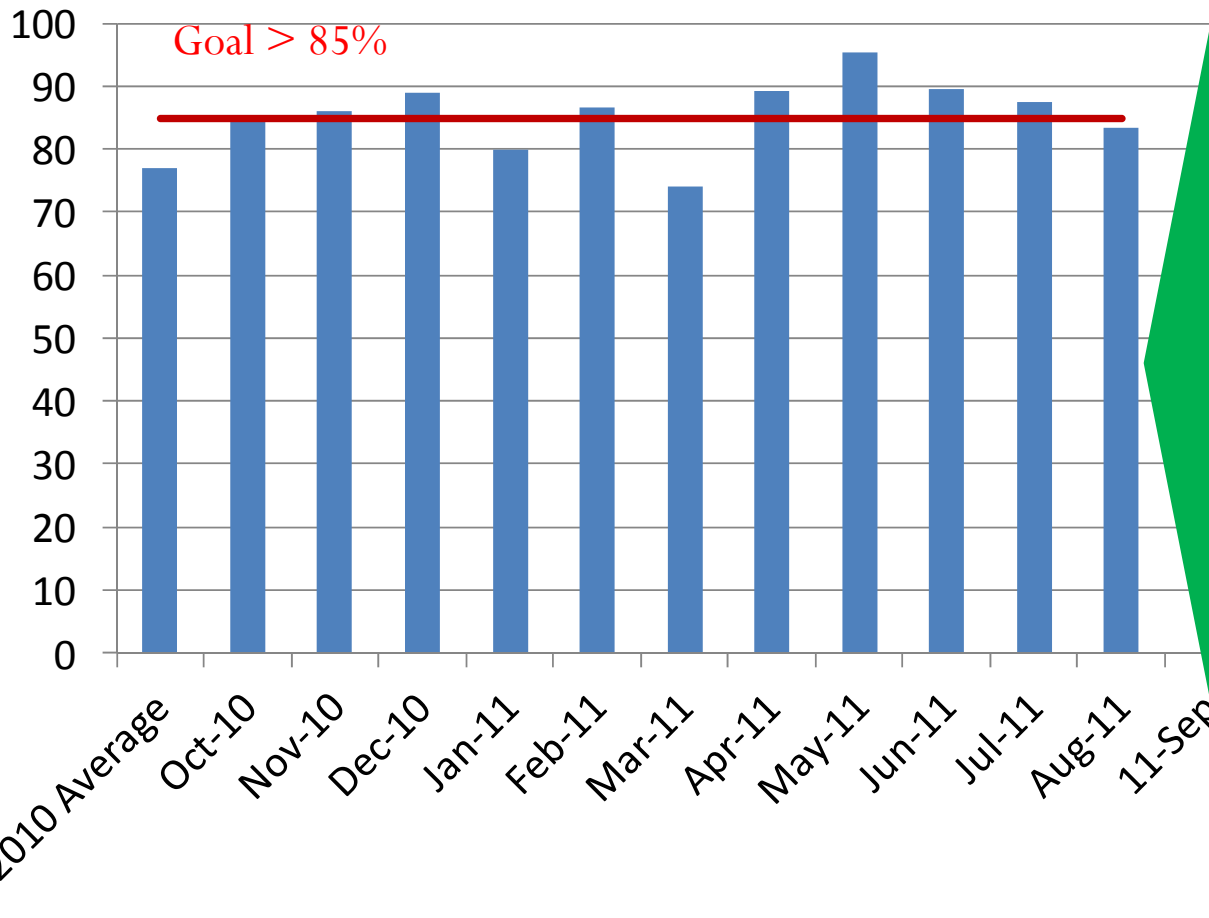
6. ScVO₂ ≥ 70% within 6hrs for hypotension or LA >4 _____

- N/A as pt did not have hypotension or elevated LA
- Pt refused

_____/_____/_____ requisite bundle elements achieved.

This information is for your benefit. If you would like to share any comments or thoughts, use the reverse side of this page and return to David Portelli, MD (via interoffice mail to me at Claverick) with this copy of the patients ED chart. Thank you for your time.

TMH FY 2011: Abx < 3 hrs



August Abx Champions

RNs

Gotta

Fielder

Kayata

McAustin

Batastini

Dilworth

Integlia

Robles

Burke

Black

Monteiro

Harvey

Trout

Hebert

Fernandes

Cascione

Sampson

Clement

Toure

Furtado

MDs

Choo

Liebmann

Lafleur

Warren

Portelli

Bouslough

Babu

Nathanson

Porter

Kamat

Sullivan

Raukar

Lauro

Kaplan

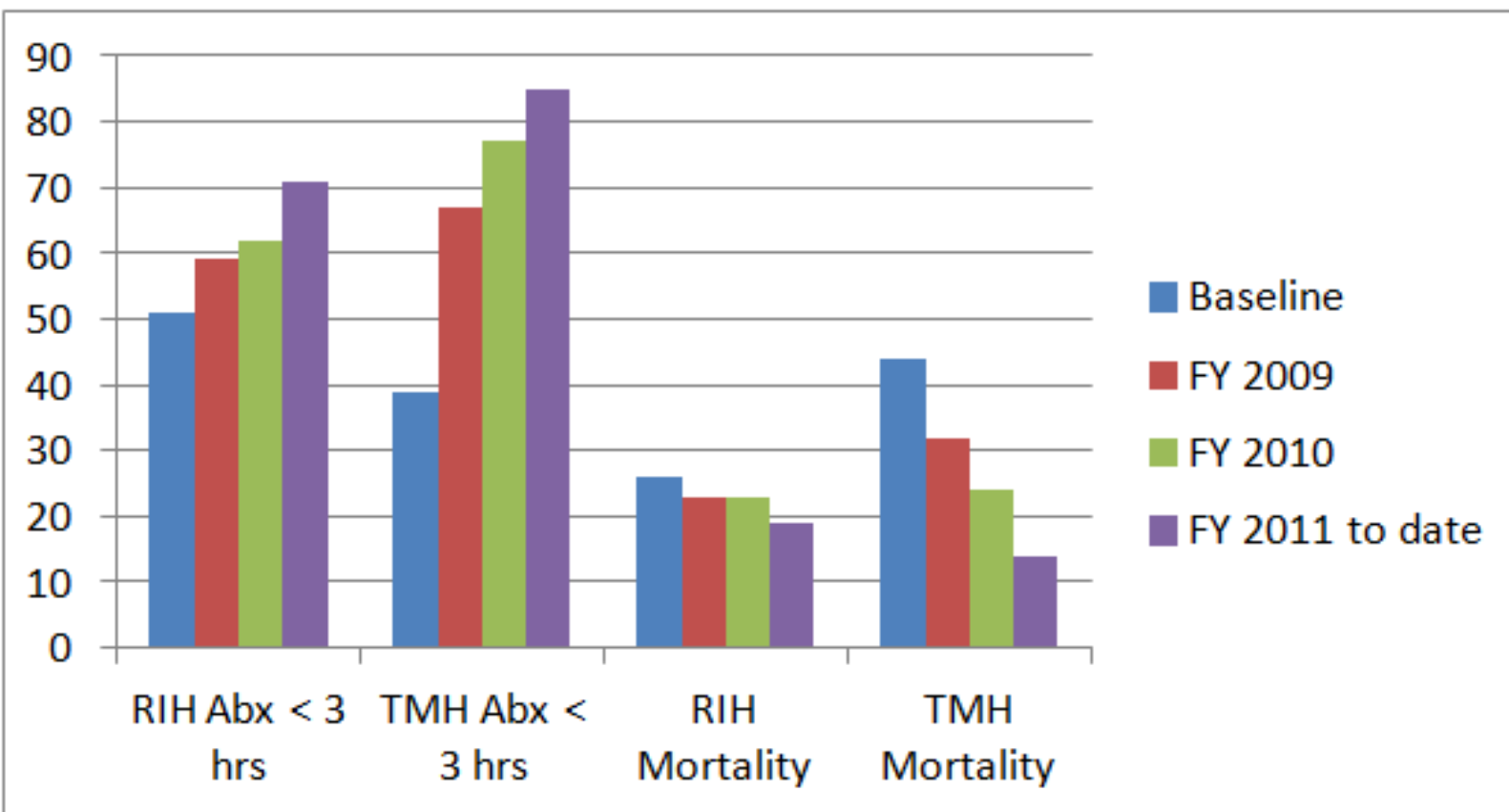
Savitt

Bubly

Surviving Sepsis Campaign: Abx Administration < 3 hrs from ED Arrival for patients with Severe Sepsis and Septic Shock

The Big Picture

Trends in Timely Antibiotic Administration and Mortality at RIH & TMH



Case Based Review

- Review Failures to highlight opportunities to improve
- Share these cases at MD / RN staff meetings
- Creates opportunity to review, answer questions and re-educate

3.) 54 y/o F COPD & HTN

- SOB & Cough
- 142/98 **112 27** 98 100%
- WBC **16.9** w/ 2% bands, Lactate **3.7**
- 1:30 CXR Bibasilar ASD= CAP
- Abx Ordered 1:58 – Admin 3:05

Failure of timely Admin. ? IV access issues. Better MD-RN Communication

4.) 83 y/o F HTN, DM, AFib

- Fatigue, BS 356
- 149/78 **94** 20 99.9 90% RA
- CXR neg
- 2:07 = WBC **14.4** 91N 3 bands, Lactate **2.3**
- 3:03 = UA 22 WBC – cloudy urine
- Abx ordered 3:12 Admin 4:23 (TTA 1:11)
- Admit with UTI

Soft case. HR and WBC are 2 SIRS and Lactate > 2 is organ dysfunction.

UA ordered up front. Straight-catheterized at 2:24 and resulted at 3:03.

Straight Cath the elderly early

Culture Change

- Continuous Messaging
- RN/MD Huddles
- Positive Feedback
- Teamwork
- Focus on the benefit to the patient

Hurdles

Hurdles: Rapid Work up

- Prioritize pts with SIRS criteria from triage
- Nursing protocols
- Empower RN to send lactate if pt has 2 SIRS and possible infection
- Lactate turnaround – faster in BG lab
- Straight Cath the elderly.

Hurdles: Naysaying MDs/RNs

- Cite the literature
- Focus on the pt
- Concede that all SIRS is not infection
- There will be false positives
- Don't let false positives cases undermine the effort
- “This pt looks fine, I'm not putting a line in.”

Hurdle: Antibiotic Stewardship

- Don't let a prolonged search for source delay the inevitable administration of abx
- An 80 y/o with a fever is going to get abx and get admitted every day of the week and twice on Sunday
- Brief search for source – labs, urine, CXR then decide on the likely source and the appropriate Abx
- Stop prescribing Abx to bronchitis pts.

The Bundle: Harder than it looks

- You have 3 hrs *from arrival* to determine pt has an infection, find the likely source and begin appropriate therapy
- A delay at triage, lab or x-ray can easily sink you
- Once you have identified the pt as severe sepsis or septic shock consider bringing more resources to the pt to complete the bundle : Sepsis Team.

Hurdles: The Line

- Placing the central line is a lot of work in a community ED or even a busy Academic ED
- Must broker an Agreement with the ICU
- Decide who puts in the line and where it is put in
- Don't let an argument about the line get in the way of the other bundle elements: Identification, Early abx & IVF
- Standard Central line vs. one with continuous ScVO₂
- Train nurses to set up CVP and monitor ScVO₂ or send blood gas from the central line
- Make sure RNs are not delaying Abx or IVF until after the line is placed
- No credit for placing the line: Document CVP & ScVO₂ and use this information to drive therapy.

Infrastructure

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Questions