



MASSACHUSETTS HOSPITAL ASSOCIATION

The leading voice of hospitals since 1936.

75th
Anniversary

Successful Processes for Detecting Sepsis and Initiating Protocols for Effective Management

M-LiNk Sepsis Learning Series
October 6, 2011

Mortality: Learning-in-Network

M-LiNk is peer-based learning opportunity for hospitals to:

1. Identify best practices correlated with a reduction in mortality;
2. Adopt system supports used in high-reliability organizations; and
3. Implement protocols to identify and differentially treat high-risk patients.

M-LiNk Approach

- Learning series with local/national expertise on interventions associated with best practice for reducing hospital mortality rates
- MHA portal with tools & resources in key content areas
- Virtual networking to foster inquiries, share resources, and promote learning across hospitals
- Individualized technical assistance to support implementation of selected interventions
- Communications via MHA's website and Issues Briefs to present case studies and highlight lessons learned

M-LiNk Portfolio of Offerings

- Focus on Structures & Processes
 - Spring-Summer 2011
- Outcome Drivers: Part 1 – Sepsis
 - Fall 2011
- Outcome Drivers: Part 2 - Other Drivers
 - Winter 2012

M-LiNK Portfolio

Focus on Outcomes Part I: SEPSIS

- Sep 8th: *Gain Full Value from Your Root Cause Analysis Investigations (Using Sepsis Case Study for Review)*
- Sep 21st: *Identification and Management of Severe Sepsis in the Emergency Department*
- **Oct 6th: *Successful Processes for Detecting Sepsis and Initiating Protocols for Effective Management***
- Oct 13th: *Sepsis bundles: Implementation Strategies*
- Nov 10th: *Implementing Systems and Clinical Processes for Managing Sepsis*

Successful Processes for Detecting Sepsis & Initiating Protocols for Effective Management

featuring

- Nathan I. Shapiro, MD, MPH, Vice Chairman of Research, Department of Emergency Medicine, Beth Israel Deaconess Medical Center
- Christina Breault BS, CPHQ, QI Specialist & Outcomes Analyst, & Janet Liddell MSN/MBA, RN, Quality Improvement Coordinator, Quality and Patient Safety Department, Saints Medical Center
- Erin M. Donovan, Director, Quality & Risk & Janyce Breton, RN, Nursing Informatics Specialist, Lowell General Hospital
- Geraldine McQuoid, RN, MA, MSN, Director of Hospital Education & Infection Control, Fairview Hospital



Beth Israel Deaconess Medical Center Reducing Sepsis Mortality

Nathan I. Shapiro, MD, MPH, Vice Chairman of
Research, Department of Emergency
Medicine,
Beth Israel Deaconess Medical Center

MHA MASSACHUSETTS HOSPITAL ASSOCIATION

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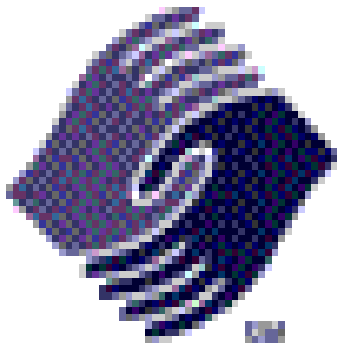
75th
Anniversary

Beth Israel Deaconess Medical Center

Improvements in Care:

One hospital's practical experience

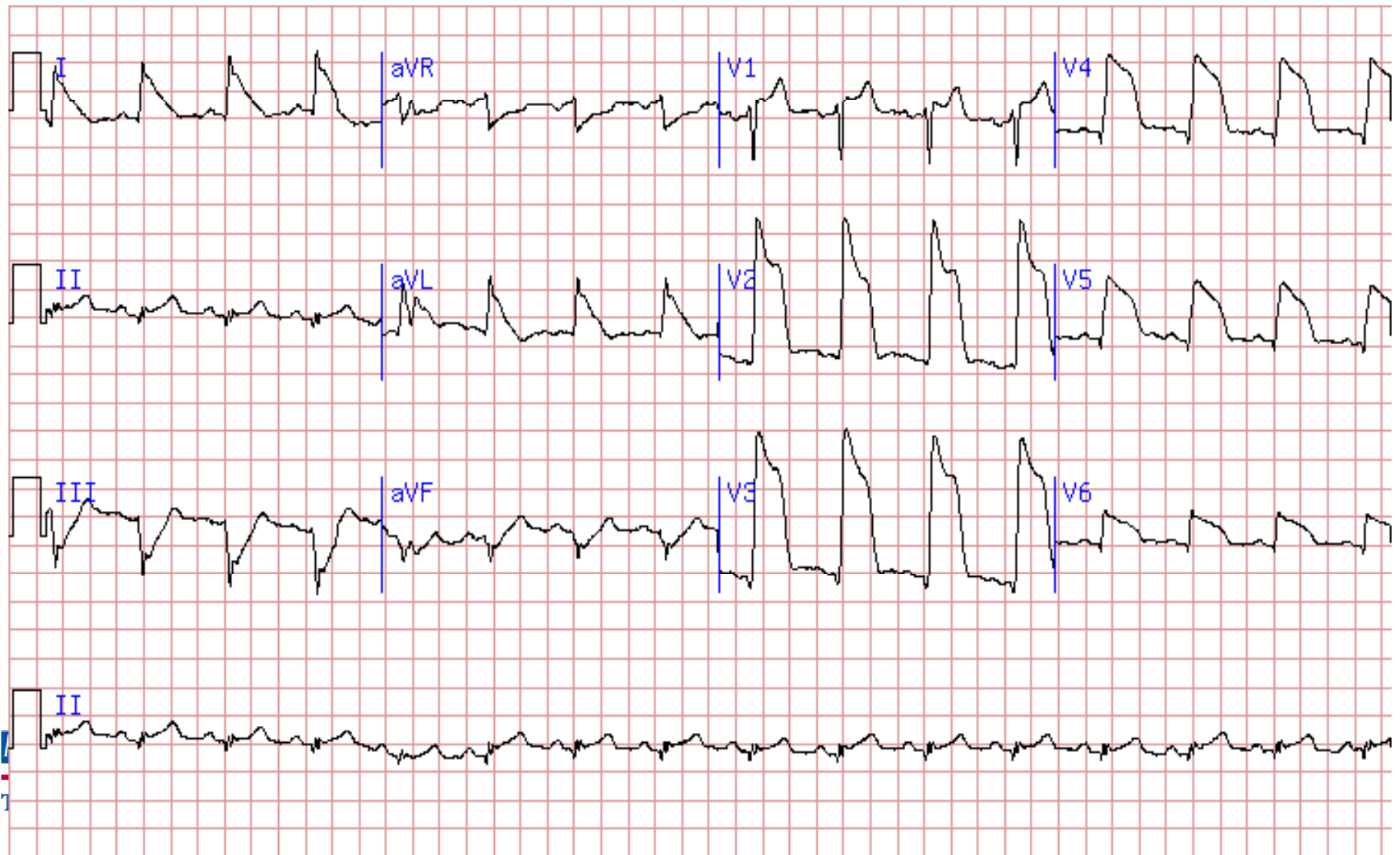
Nathan I. Shapiro, MD, MPH
Department of Emergency Medicine
Beth Israel Deaconess Medical Center
Harvard Medical School
Boston, MA



Disclosure: Speaker's bureau of Eli Lilly. Research funding: Abbot Lifesciences, Biosite.



70 year old female, crushing CP



50 year old female, rollover MVC



70 y/o female cough, fever,
tachychardic, BP 88/50



In Your Busy Emergency Department.....

- Patient #1: 70 y/o female, chest pain, ST elevation MI (10% mortality)
- Patient #2: 50 y/o female, MVC, hemodynamically stable (5% mortality)
- Patient #3: 70 year old female, cough, fever, tachycardic, obtunded, BP=88/50 (30% mortality)



SIRS/SEPSIS



severe sepsis



septic shock

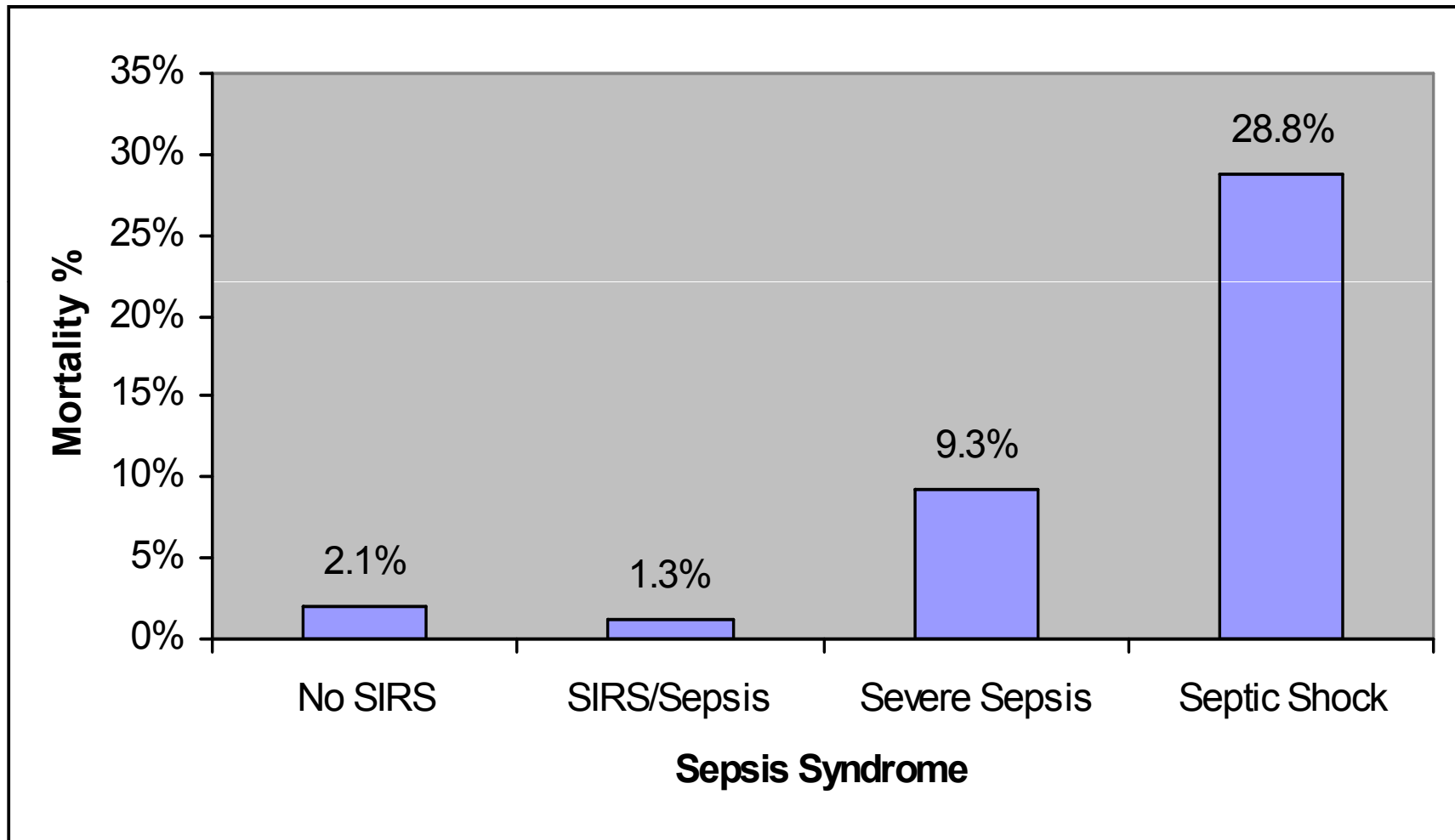


Multisystem Organ Dysfunction



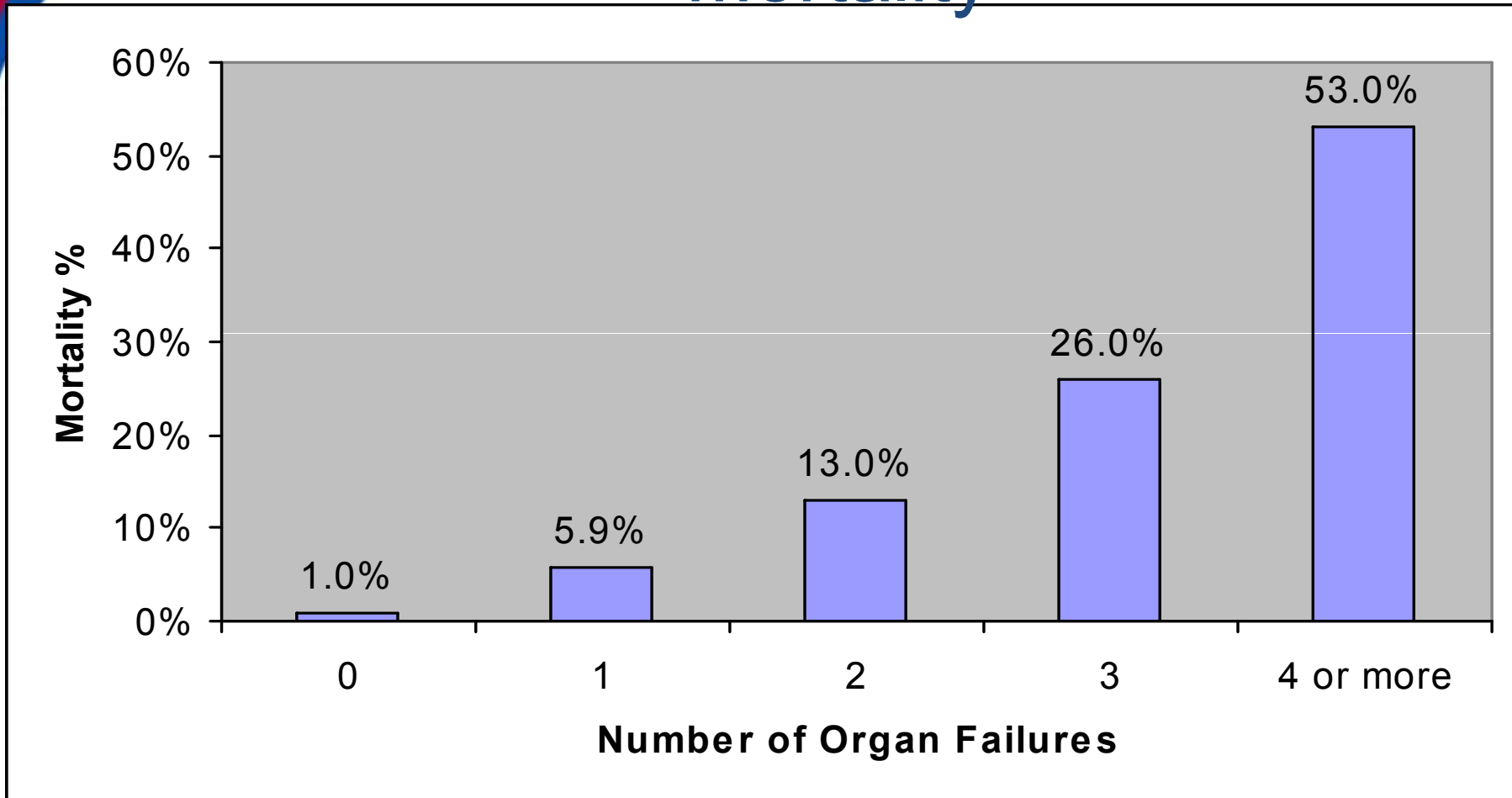
DEATH

28d In-hospital Mortality Rate



Shapiro et al. Annals of Emergency Medicine, 2006.

The Impact of Organ Failure on 28day Mortality



Shapiro et al. Annals of Emergency Medicine. 2006.



Therapy

“Over 13,000 patients have been enrolled in 23 multi-center, placebo-controlled, clinical trials.....results have been generally disappointing with some spectacular failures”

From “Clinical Trials for Severe Sepsis.
Past Failures and Future Hopes, 1999

Opal et al. Infectious Disease Clinics of North America. 1999:13:2.

Proven Therapies in Sepsis

- Activated Protein C (6% absolute mortality reduction)
 - Bernard et.al. NEJM. March 8, 2001:344:10:699-709
- Early Goal Directed Therapy (16%)
 - Rivers et al NEJM: 354 (19): November 8,2001
- Steroids in adrenal suppression (10%)
 - Annane et al. JAMA 288(7), August 21, 2002
- Intensive Insulin Therapy in ICU (3%)
 - Van Den Berghe et al. NEJM 345(19), NOV 8, 2001
- Early, Appropriate Antibiotics (10-40%)
 - Numerous (no randomized trials)

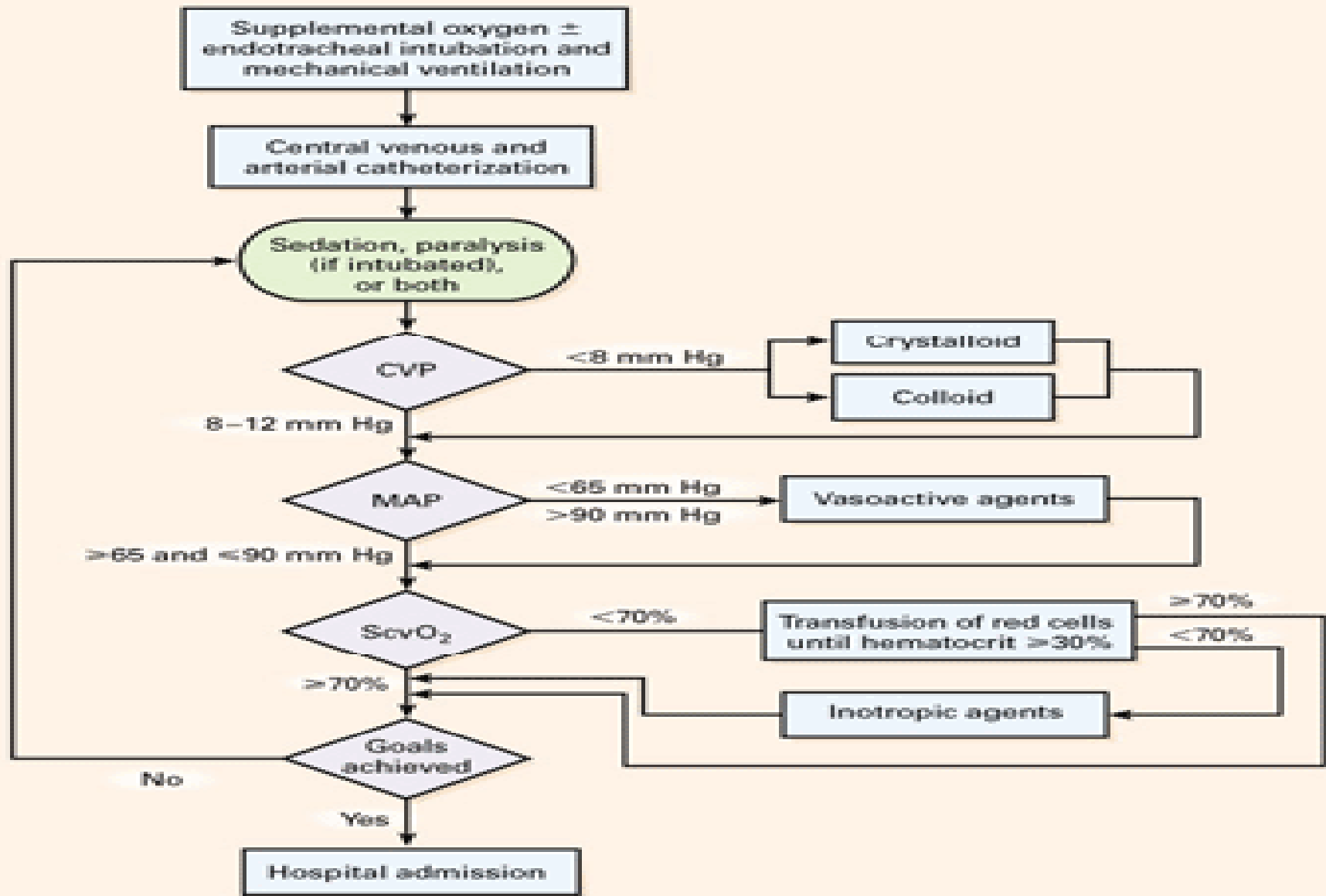
EARLY GOAL-DIRECTED THERAPY IN THE TREATMENT OF SEVERE SEPSIS AND SEPTIC SHOCK

EMANUEL RIVERS, M.D., M.P.H., BRYANT NGUYEN, M.D., SUZANNE HAVSTAD, M.A., JULIE RESSLER, B.S., ALEXANDRIA MUZZIN, B.S., BERNHARD KNOBLICH, M.D., EDWARD PETERSON, PH.D., AND MICHAEL TOMLANOVICH, M.D., FOR THE EARLY GOAL-DIRECTED THERAPY COLLABORATIVE GROUP*

VARIABLE	STANDARD THERAPY (N= 133)	EARLY GOAL-DIRECTED THERAPY (N= 130)	RELATIVE RISK (95% CI)	P VALUE
	no. (%)			
In-hospital mortality†				
All patients	59 (46.5)	38 (30.5)	0.58 (0.38–0.87)	0.009
Patients with severe sepsis	19 (30.0)	9 (14.9)	0.46 (0.21–1.03)	0.06
Patients with septic shock	40 (56.8)	29 (42.3)	0.60 (0.36–0.98)	0.04
Patients with sepsis syndrome	44 (45.4)	35 (35.1)	0.66 (0.42–1.04)	0.07
28-Day mortality†	61 (49.2)	40 (33.3)	0.58 (0.39–0.87)	0.01
60-Day mortality†	70 (56.9)	50 (44.3)	0.67 (0.46–0.96)	0.03

- Early, protocolized resuscitation to targeted physiologic endpoints
- Facilitates early, aggressive resuscitation

Rivers, Nguyen et al NEJM: 354 (19): November 8,2001





The MUST Protocol

Multiple Urgent Sepsis Therapies

Shapiro et al. "A Blueprint for a Sepsis Protocol." *Academic Emergency Medicine*: April 2005:12:4:352-359.

Shapiro et al. "The implementation and Outcomes of the Multiple Urgent Sepsis Therapies (MUST) protocol." *Crit Care Med*: 2006:4:1025-1032



“6 Step” Program

- 1) Admission
- 2) Collaboration
- 3) Organization
- 4) Education
- 5) Implementation
- 6) Evaluation

Step 1: Admission

- Admit you have a problem



Step 2: Form a Leadership Team

- Emergency Medicine
 - Physicians and Nurses
- Medical Intensive Care
 - Physicians and Nurses
- Surgical Intensive Care
 - Physicians and Nurses
- Others

Step 3: Organization

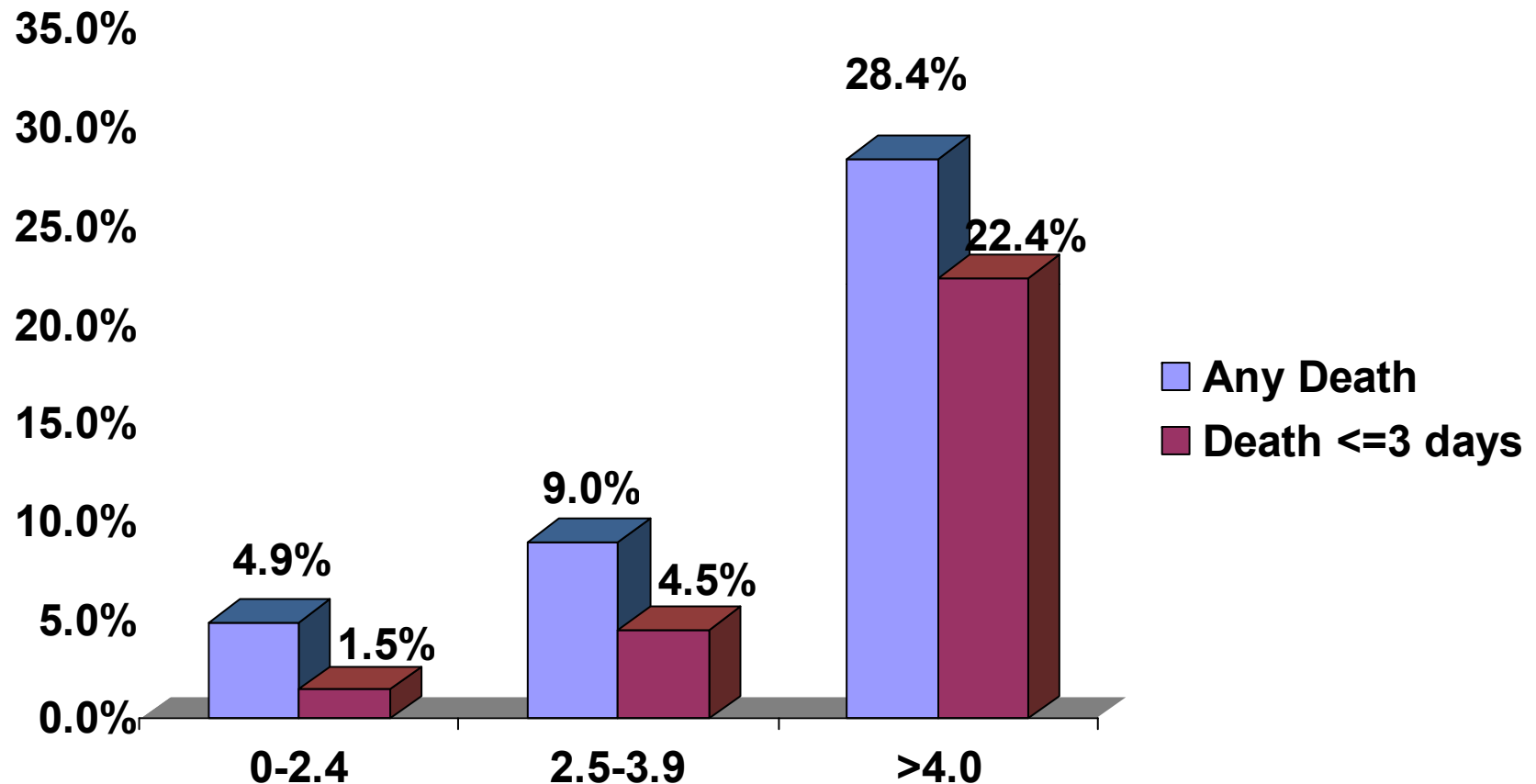
- Protocol handbook
- Protocol quick guide
- Bedside posters
- Nursing flow sheet

How do I identify patients?

Create Screening Points

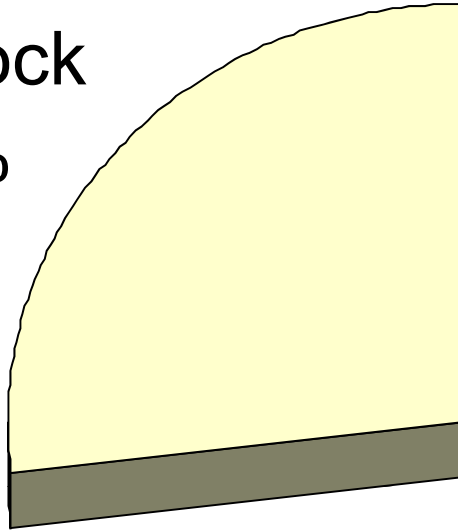
1. Initial encounter in the ED
(Blood culture = lactate)
2. Upon ICU admission
(Evaluation Sheet)

Is Lactate a Useful Screen?

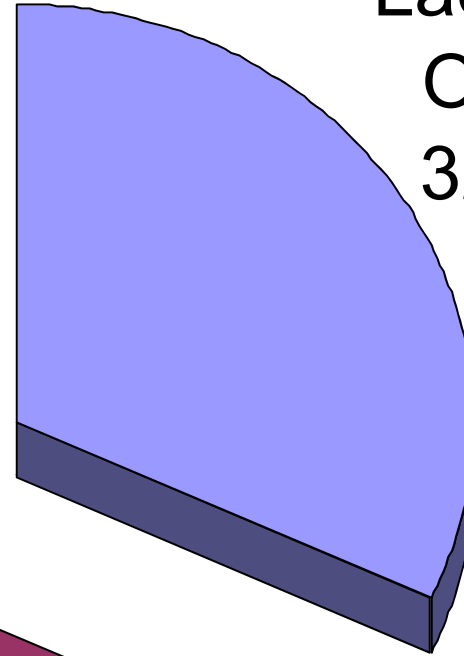


•1316 admitted ED patients, 109/1316 (8.3%) deaths

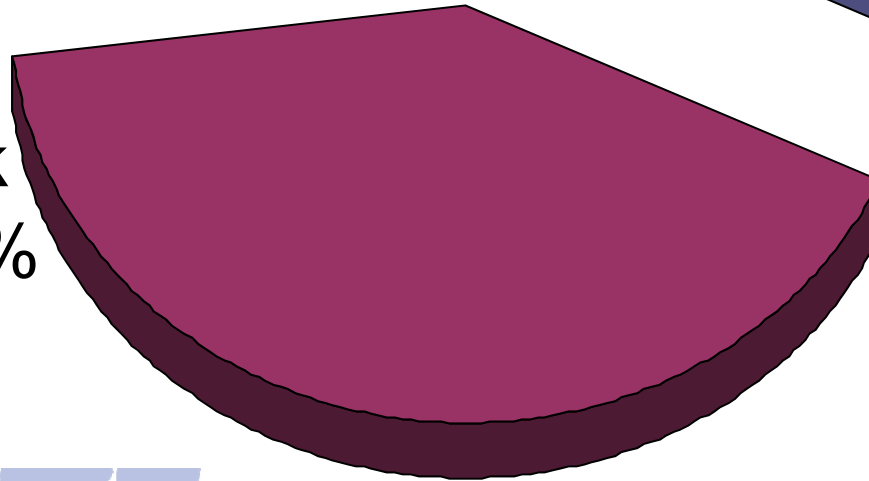
Shock
27%

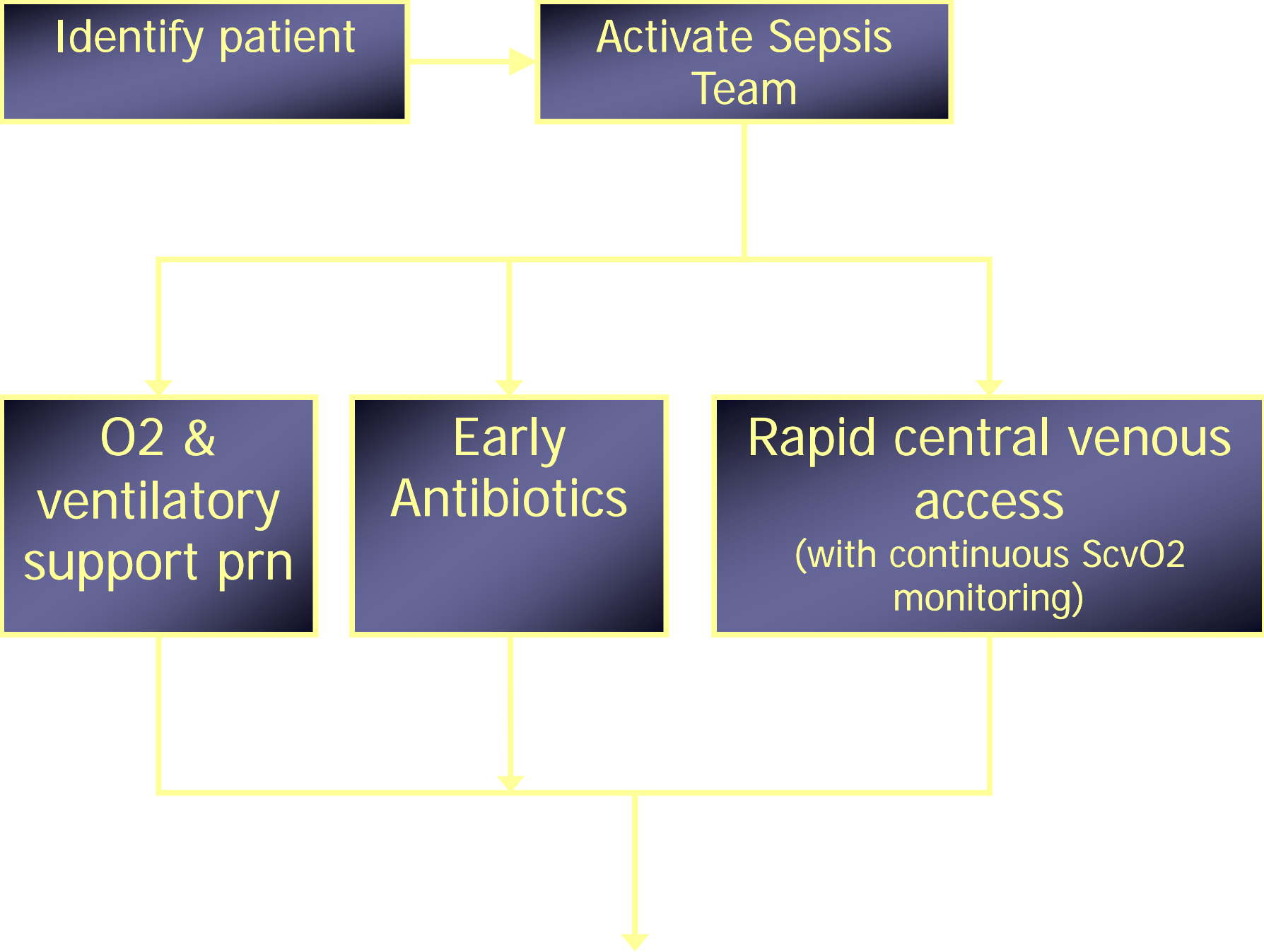


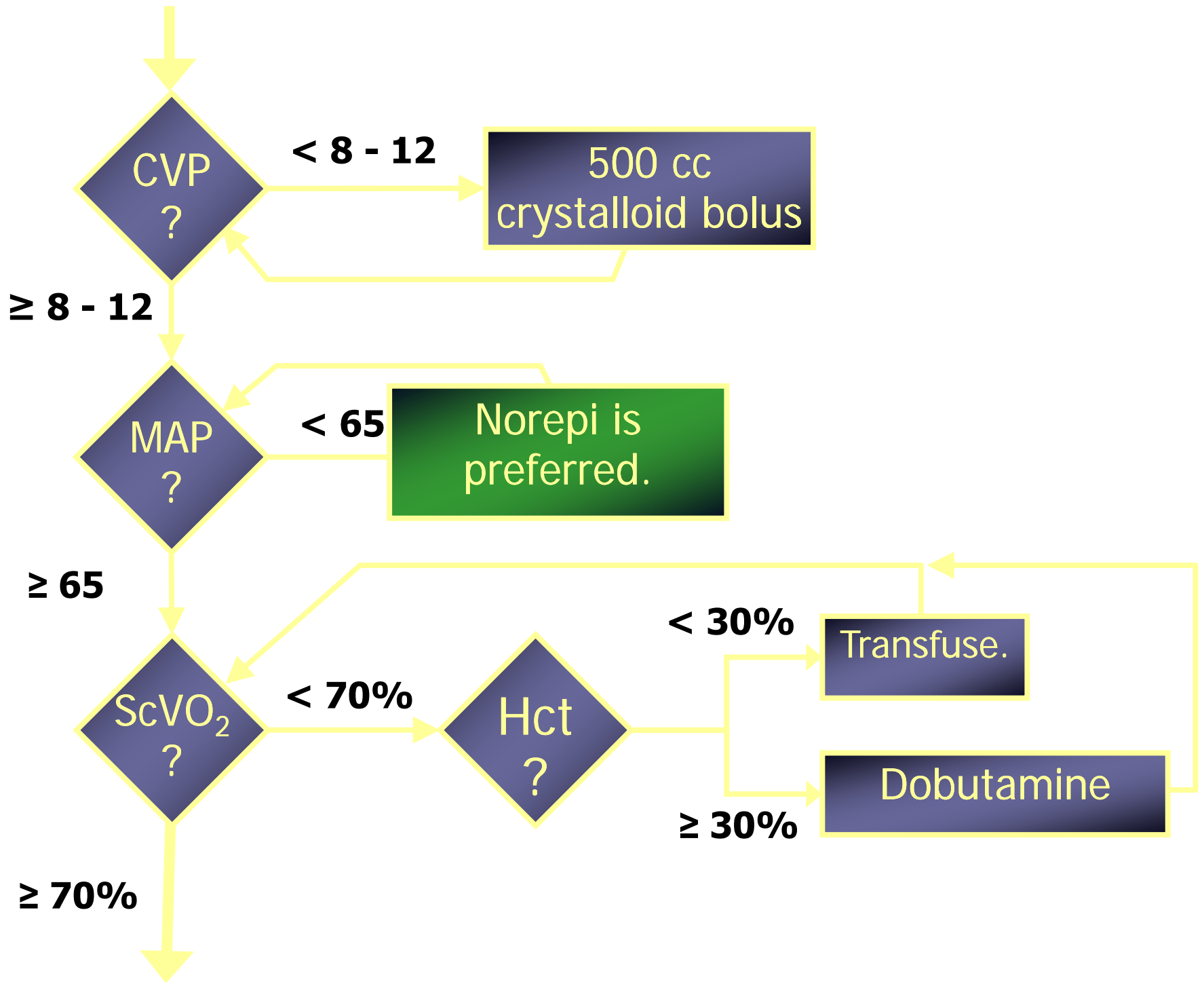
Lactate
Only
32%



Shock
Only
41%









```
graph TD; A[ICU Admission] --> B[ACTH stim test. Steroids if criteria met?]; A --> C[Start activated protein C if criteria met.]; A --> D[Intensive insulin for Euglycemia?]; A --> E[Prevent Excessive Inspiratory Plateau Pressures];
```

ICU Admission

ACTH stim test. Steroids if criteria met?

Start activated protein C if criteria met.

Intensive insulin for Euglycemia?

Prevent Excessive Inspiratory Plateau Pressures

Step 4: Education, Education, Education

- Nursing Education (3 hours)
 - Basic sepsis education
 - Theory behind EGDT
 - How to use the catheter
- Physician Education
 - Grand rounds
 - Handbook
 - Online tutorial
 - Continuous e-mails and bedside education
 - Specific case feedback

Step 5: Implementation

- Adopting the “sepsis team” mentality
- Line placement
- Resource pager
- Comfort Zone with nursing driven protocol
- ED-ICU interactions

Step 6: Evaluation

- Multidisciplinary quality assurance committee
- Quality assurance measures & benchmarks
- **Real-time** Provider feedback
 - “Big Brother is Watching”

MUST vs Historical Control (Septic Shock only)

	Treatment <i>n=79</i>	Controls (<i>n=51</i>)	P-value
APACHE II	23.9	24.5	.34
Total Fluids (6h)	4000cc (±2590)	2500cc (±1773)	0.001
Vasopressors (6h)	80%	57%	0.01
RBC Transfused(24h)	30%	18%	0.07
Dobutamine (24h)	14%	4%	0.06
Triage-antibiotics median (minutes)	90 (min)	120 (min)	0.001

Shapiro, Howell, Talmor, Lahey, Weiss, Lisbon, [Crit Care Med, 2006]

MUST Protocol Mortality Rates

	Dead	Total	Mortality Rate (95%CI)
All patients	21	116	18.1% (11-25%)
Septic Shock	16	79	20.3% (11-29%)
Lactate Only	5	37	13.5% (3-25%)

Shapiro, Howell, Talmor, Lahey, Weiss, Lisbon, [Crit Care Med, 2006]


MUST vs Historical Control (Septic Shock only)

	Treatment (<i>n</i> =79)	Controls (<i>n</i> =51)	P-value
Mortality	20.3%	29.4%	0.3

928 patients needed to reach statistical significance, results are encouraging, but will need to be answered by a large scale multicenter, clinical trial.

In Your Busy ED.....

- Patient #1: 70 year old female, crushing chest pain, ST elevation MI
 - (ACTIVATE CATH LAB)
- Patient #2: 50 year old female, major car crash, hemodynamically stable
 - (ACTIVATE TRAUMA TEAM)
- Patient #3: 70 year old female, cough, fever, tachycardic, obtunded, BP=88/50
 - (UTILIZE SEPSIS PROTOCOL)



How am I going to
implement a sepsis
protocol at my
institution?



Saints Medical Center Reducing Sepsis Mortality

Christina Breault BS, CPHQ

Janet Liddell MSN/MBA, RN

MHA MASSACHUSETTS HOSPITAL ASSOCIATION

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Saints Medical Center

- 157-Beds Community Hospital in Lowell, MA providing Primary and Acute care services to 315,000 residents in 25 towns
 - 3700 Visits/month - ED
 - 550 Hospital Discharges/month
- 5 In-Patient Units
 - 3 Med/Surg, 1 Step Down, 1 ICU

Focus on Mortality

- 2009 Identified Need for Improvement
 - ❖ Attended IHI National Forum
 - ❖ Saving Lives by Studying Deaths,
Helen Lau, RN, Kaiser Permanente
 - Lau, H., Litman, K.: Saving Lives by Studying Deaths: Using Standardized Mortality Reviews to Improve Inpatient Safety. *Jt Comm J Qual Patient Saf* 37(9):400-408, Sep.2011

Mortality Review Committee

- Support of the Board of Trustees
- Initiated Mortality Review Committee
- 4 Physicians, 2 Nurses, 1 Analyst
- 100% Case Review
 - IHI 2 x 2 Matrix
 - Global Trigger Tool

100% Mortality Case Review

- Pattern of patient presentation – ED
 - Chief complaints
 - MS Changes
 - Weakness, lethargy
 - Vital signs
 - ↓ BP, ↑ HR, ↑ RR, ↓ SaO₂
 - Labs: ↑ WBCs ↑ Bands

Best Practice Literature Search

- Dellinger, R.P.: Surviving Sepsis Campaign: International guidelines for management of severe sepsis and septic shock: 2008. *Intensive Care Med* 34:17–60
- Rivers, E., et al.: Early Goal-Directed Therapy in the Treatment of Severe Sepsis and Septic Shock. *N Engl J Med* 2001; 345:1368-1377
- Attended: Premier Inc. Breakthroughs Conference, Jun 2010
 - Mortality and Sepsis best practices sessions

Data Driven Process

- Mortality Rate vs Mortality Index
- Mortality Index by DRG for Opportunities
 - Sepsis Identified as Top Driver
 - Dehydration
- Everything lining up
 - Case review, Data, Literature

Mortality Review Committee: Focus on Sepsis

- Sept 2010
 - Focused MD Case Review: All Severe Sepsis and Septic Shock
 - Met with Coding
 - Guided by IHI's 6-hour Sepsis Resuscitation Bundle:
 - Bld Cx ā ABX
 - IVFs
 - ABX w/in 1 hr of arrival
 - LA

Findings

- Lack of fluid resuscitation in ED
- No Lactic Acid measurements
- AND strong ED physician reluctance to implement rapid fluid resuscitation
- However,
 - Patients were receiving ABX w/in 1 hr arrival
 - Bld Cx drawn ā ABX
 - And Hospitalist physician champion on mortality committee

Revitalized Sepsis Committee

- Led by Quality Department
- Dedicated team:
 - ED Physicians & Nurses
 - Pharmacy, Lab, Infection Control
- Attended Quest Sprint 3-sessions Webinar
 - Evidenced based Best Practices
 - Hospital experiences with implementation
 - Shared tools

Revitalized Sepsis Committee

- Cont'd
 - Disseminated scholarly best practice articles (for physician by-in)
 - Shared results of Mortality Review Committee's focused Sepsis findings
 - Developed Algorithm for rapid initiation of sepsis bundle in ED

The Algorithm

- Designed to:
 - Be a nurse driven protocol for sepsis resuscitation
 - Standardize rapid identification of sepsis in ED @ Triage
 - Allow for early rapid fluid resuscitation
- MEC Approval, Dec 2010
- Live Jan 2011

Does the patient have two or more of the following:

- Temp > 100.9 (38C) or < 96.8 (36C)
- Heart Rate > 90/minute
- Respiratory Rate > 20/minute

AND one of the following:

- Apparent Mental Status Changes
- SBP < 90mmHg or SBP < 100 w/ history of HTN or MAP < 65

NO

Not Septic;
Continue Pt
Assessment

YES

Patient has known or SUSPECTED Infection?

NO

YES

Continue as "yes" for all elderly patients with unexplained hypotension or mental status changes

- Begin NS @ 500 cc/hr until labs returned or seen by physician
- Obtain Sepsis Lab Order Set
- **VERBAL NOTIFICATION TO PHYSICIAN OF IV FLUID INITIATION**

Is SBP less than 90 and / or MAP less than 65?

NO

YES

Septic Shock

Is one of following Present?

- Lactate Level > 2
- WBC > 12,000 or < 4,000
- Bands > 10
- Evidence of Organ Dysfunction*
- Pneumonia or Abscess on imaging study

NO

Rapid Resuscitation Protocol not indicated

YES

Consider Severe Sepsis

INITIATE RAPID SEPSIS PROTOCOL

*** Guideline Indicators of Organ Dysfunction**

Respiratory: SpO₂ < 90% or mechanical ventilation required

Renal: Urine output < 0.5ml/kg/hr, or Creatinine > 2.0 mg/dL or increased 50% from baseline

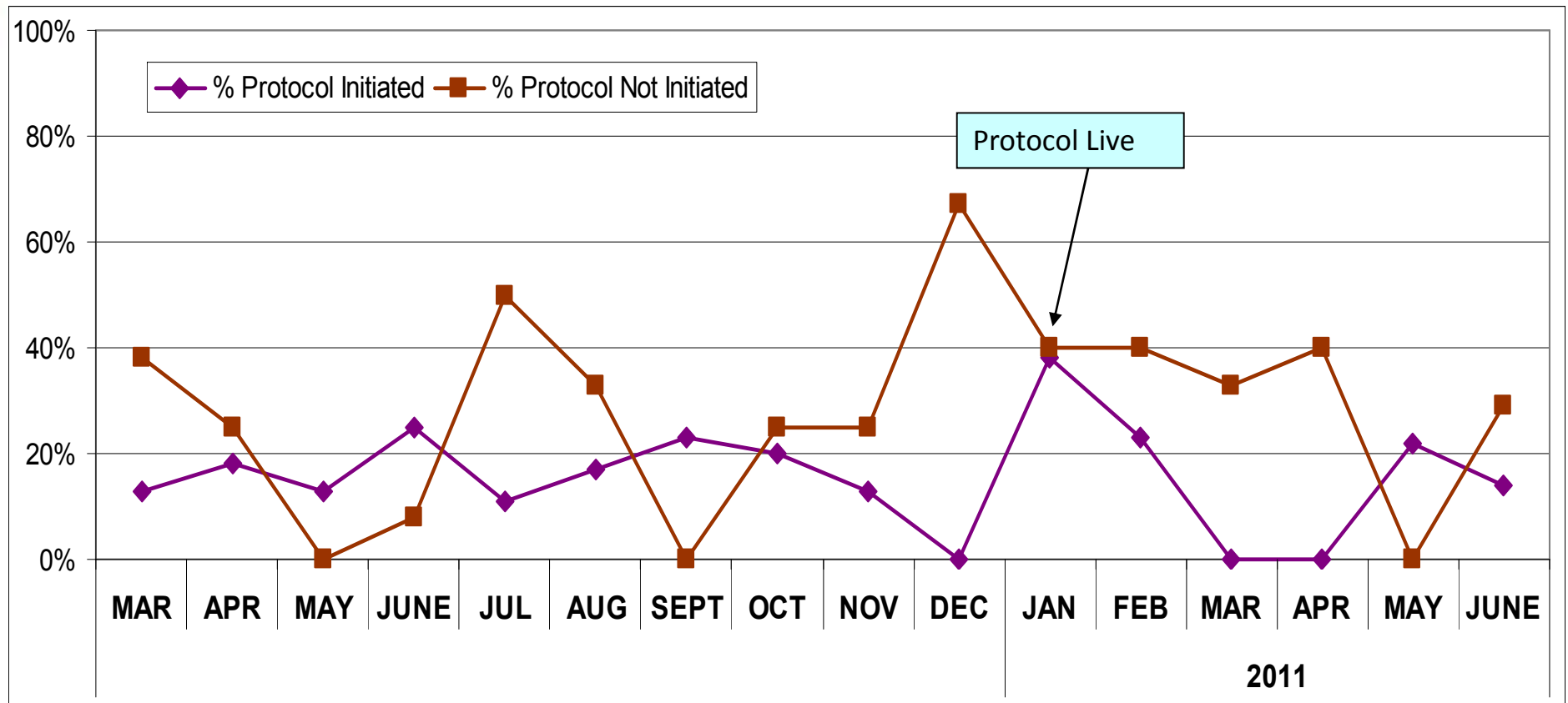
Hematologic: Platelets < 100,000/mm³, or PT/PTT > upper limit of normal

Metabolic: pH < 7.3 and Lactic Acid > 2.0mM ol/L

Hepatic: LFTs > 2 times upper limit of normal; Bilirubin > 2.0 mg/dL

CNS: Mental Status Changes

Monitoring Sepsis Mortality



Monitoring Performance Improvement

- Monthly data collection re:
 - Sepsis Mortality Case Review
 - ED Sepsis Bundle Compliance
- Monthly Sepsis Committee
 - Case Review
 - Data Driven Approach

Contact Information

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- jliddell@saintsmed.org

FIRST, Do No Harm: April, 2011

Quality & Patient Safety Division, Board of Registration in Medicine

Reducing Hospital Mortality: A Team Approach to Discovering Causes, Improving Care





Lowell General Hospital Early Recognition of Sepsis

- Erin Donovan, Director of Quality & Risk
- Janyce Breton, RN, Nursing Informatics Specialist
- Lowell General Hospital

- October 6, 2011

LGH Mortality Review Program

- 100% RN Review
- Exemption Criteria
- Peer Review Process
- American College of Surgeons' NSQIP participant

LGH Mortality Review Program

- 100% RN Review
- Exemption Criteria
- Peer Review Process
- American College of Surgeons' NSQIP participant

Goals

- Reduce incidence post-operative sepsis through early identification of possibly septic patients
- Keep the topic in front of caregivers
- Leverage the power of the EMR
- Encourage critical thinking at the bedside

Screening Tool

Catheter Acquired UTI Screening

Does Patient Have a Foley Catheter

Yes
 No

If foley has been removed:

1. Discontinue Notify MD UTI order
2. Complete Urinary Indwelling Cath Discontinuation powerform

Foley Catheter Inserted at LGH

Yes
 No

Sepsis Screening

Does Patient Have a Known or Suspected Infection

Yes
 Yes, but being treated
 No

MRSA and VRE Screening

Patient Resides In Nursing Home, Chronic Care or Rehab Facility

Yes
 No

History of MRSA

To confirm history review culture results in lab tab.

No known Hx
 History and negative culture within 1 yr
 *History and positive culture within 1 yr
 History and positive culture greater than 1 yr

History of VRE

No known Hx
 History and negative culture within 1 yr
 *History and positive culture within 1 yr
 History and positive culture greater than 1 yr

If yes is selected the first MRSA and VRE Culture will automatically be ordered.

*Place patient on contact isolation if the most recent MRSA or VRE within one year was positive. Document the appropriate Isolation and Precaution information on the Order Entry Detail section. Right click in the History boxes to print the Education sheets for patients on hand hygiene, MRSA/VRE.

Conditional Logic

SIRS Criteria - [Patient Name]

SIRS Criteria (Systemic Inflammatory Response Syndrome)

Does Patient Have a Known or Suspected Infection

Yes
 Yes, but being treated
 No

SIRS Criteria

	Yes	No	Comment
*HR > 90			
*PCO2 < 32 or Mechanical Vent			
*RR > 20			
*T < 96.8 or > 100.4 Deg F			
*WBC > 12, < 4 or > 10% bands			

SIRS Criteria Score

If SIRS score is 2 or more, the Notify MD Sepsis order will be placed.

If PCO2 result is not available, document No.

SIRS Worksheet

SIRS Criteria (Systemic Inflammatory Response Syndrome)

SIRS Criteria

	Yes	No	Comment
*HR > 90	X		
*PCO2<32 or Mechanical Vent		X	
*RR > 20	X		
*T <96.8 or > 100.4 Deg F		X	
*WBC >12, <4 or >10% bands	X		

SIRS Criteria Score

3

If SIRS score is 2 or more, the Notify MD Sepsis order will be placed.

If PCO2 result is not available, document No.

When speaking with the MD, include the following information: Vital Signs, Labs, Urinary Output and Lung Sounds.

Test Name	Result	Date
Heart Rate:	94 bpm	09/30/11 11:00
Respiratory Rate:	22 br/min	09/30/11 14:00
Oral Temperature:	98.7 DegF	09/30/11 07:50
pCO2:	34.8 mmHg	09/30/11 12:08
Systolic BP:	95 mmHg	09/30/11 13:30
Diastolic BP:	56 mmHg	09/30/11 13:30
WBC:	23.3 ul	9/30/11 12:36
Bands:	27 %	09/30/11 12:36
Abs Neutrophil:		

Criteria Score Generates Rule

SIRS Criteria (Systemic Inflammatory Response Syndrome)

SIRS Criteria

	Yes	No	Comment
*HR > 90	X		
*PCO2<32 or Mechanical Vent		X	
*RR > 20	X		
*T <96.8 or > 100.4 Deg F		X	
*WBC >12, <4 or >10% bands	X		

SIRS Criteria Score

If SIRS score is 2 or more, the Notify MD Sepsis order will be placed.

If PCO2 results are not available, select No

When speaking with the MD, include the following information: Vital Signs, Labs, Urinary Output and Lung Sounds.

Test Name	Result	Date
Heart Rate:		
Respiratory Rate:		
Oral Temperature:		
pCO2:		
Systolic BP:		
Diastolic BP:		
WBC:		
Bands:		
Abs Neutrophil:		

Rule Activates

1. Order

Patient Care						
Active						
09/30/2011 14:41	  	SYSTEM, SYSTEM	Notify MD Sepsis	Ordered	09/30/11 14:41:21 EDT, 09/30/11 14:41:21 EDT	Patient has met Sepsis Criteria, Ordered secondary because SIRS Crite...

2. Nursing Task

Pending	09/30/2011 14:41	Notify MD Sepsis	Notify MD Sepsis	09/30/11 14:41:21 EDT, 09/30/11 14:41:21 EDT	Patient has met Sepsis Criteria, Ordered secondary because SIRS Criteria score wa...
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Infection Screening MD Notify - [blacked out]

*Performed on: 09/30/2011 1447 By: Breton RN, Janyce

Physician Communication Log

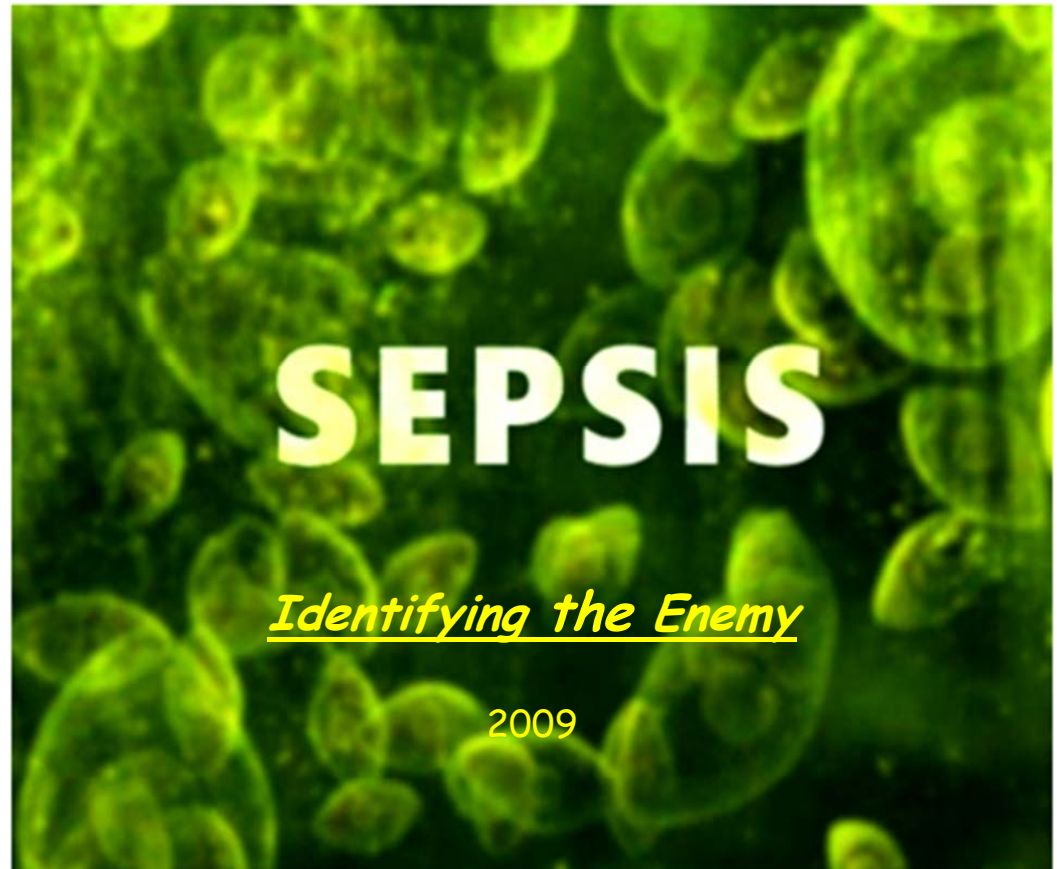
Date & Time: 09/30/2011 1447 Physician Notified: None, MD

Reason Physician Notified:

<input type="checkbox"/> Bedside Visit	<input type="checkbox"/> Indwelling cath criteria not met	<input checked="" type="checkbox"/> Sepsis criteria
<input type="checkbox"/> Call to MD for Update	<input type="checkbox"/> Notification of Admission	<input type="checkbox"/> Transfer to Critical Care
<input type="checkbox"/> Consult Done	<input type="checkbox"/> Phone Call to Attending	<input type="checkbox"/> Other:
<input type="checkbox"/> Faxes Sent	<input type="checkbox"/> Phone Call to Primary	

Comments: MD ordered antibiotics and increased fluids

Welcome to
Nursing Best
Practices



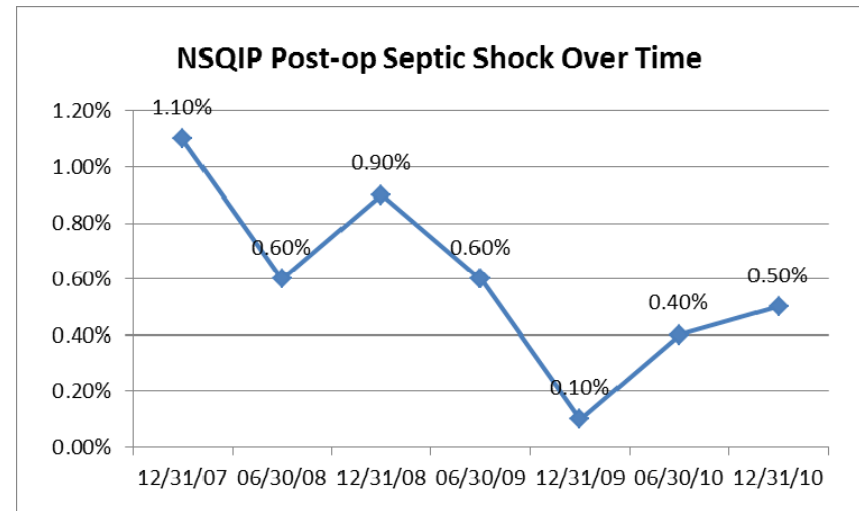
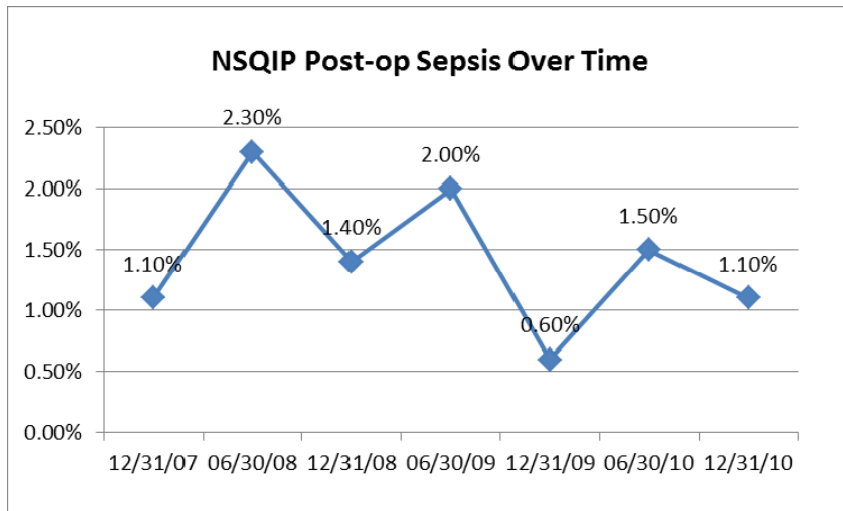
Education Content

- Sepsis Statistics
- Biology of Condition
- Continuum
 - Infection
 - SIRS
 - Sepsis
 - Severe Sepsis
- Warning Signs
- Organ Dysfunction
- Septic Shock
- EMR Enhancements

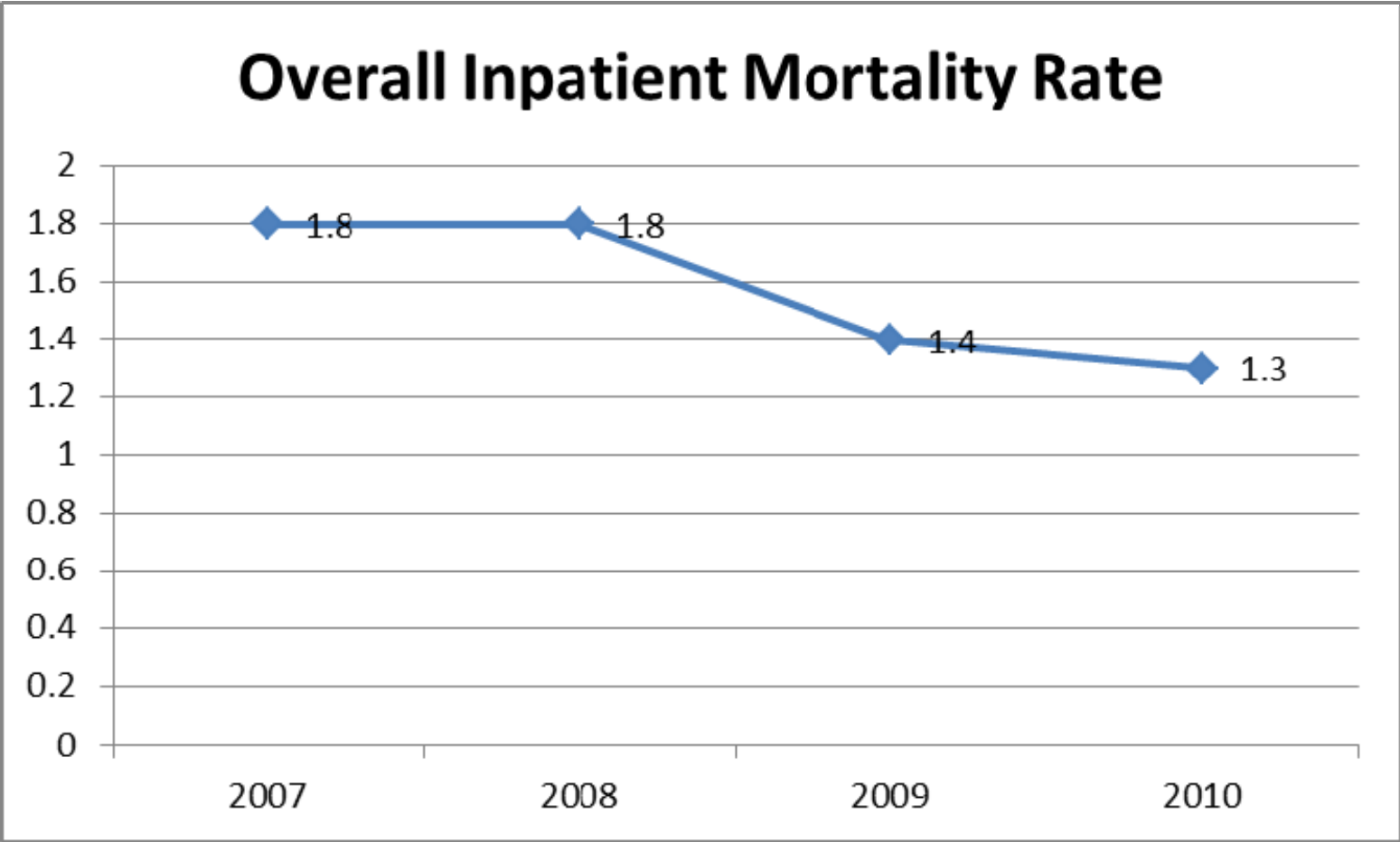
HOSPITAL	Hospital's Sepsis Length-of-Stay (days)	Hospital's Sepsis Mortality Rate %	Hospital's Sepsis Cost per case
Lowell General Hospital	13.28	32.56	\$26,735
Statewide Acute Care Hospitals Total	20.81	44.94	\$82,553

Source: MA DHCFP FY 2009 acute care hospital discharge database extract from MA Health Data Consortium. Additional analysis by MHA

Outcome Measures



Overall Inpatient Mortality Rate



Final Thoughts

- Developed by Nurses for Nurses
- Tie together the tools and the critical thinking
- Monitor Usage and Provide Feedback
- Share the Outcomes



Fairview Hospital

Working Across Settings to Effectively Identify Patients with Sepsis

Geraldine McQuoid, RN, MA,
MSN, Director of Hospital
Education & Infection Control

Partnering to Address Sepsis: ACH & LTC

- Participants agreed that our mutual partnerships benefited both our Nurses and our Patients as indicated by Press Ganey Customer Satisfaction scores and increased Nursing retention.
- Participants agreed that an increase in clinical skills resulted in earlier identification in the sepsis cascade.
- Participants agreed that our partnership resulted in an increase in effective communication between our practice settings during admission and discharge transactions.

Patients Admitted with Sepsis

6/1/2008 – 5/31/2009

- Total # of sepsis patients admitted from LTC was 12
- 6 (50%) were admitted to Medical-Surgical Unit
- 6 (50%) were admitted to ICU
- Average length of stay 5.3 days

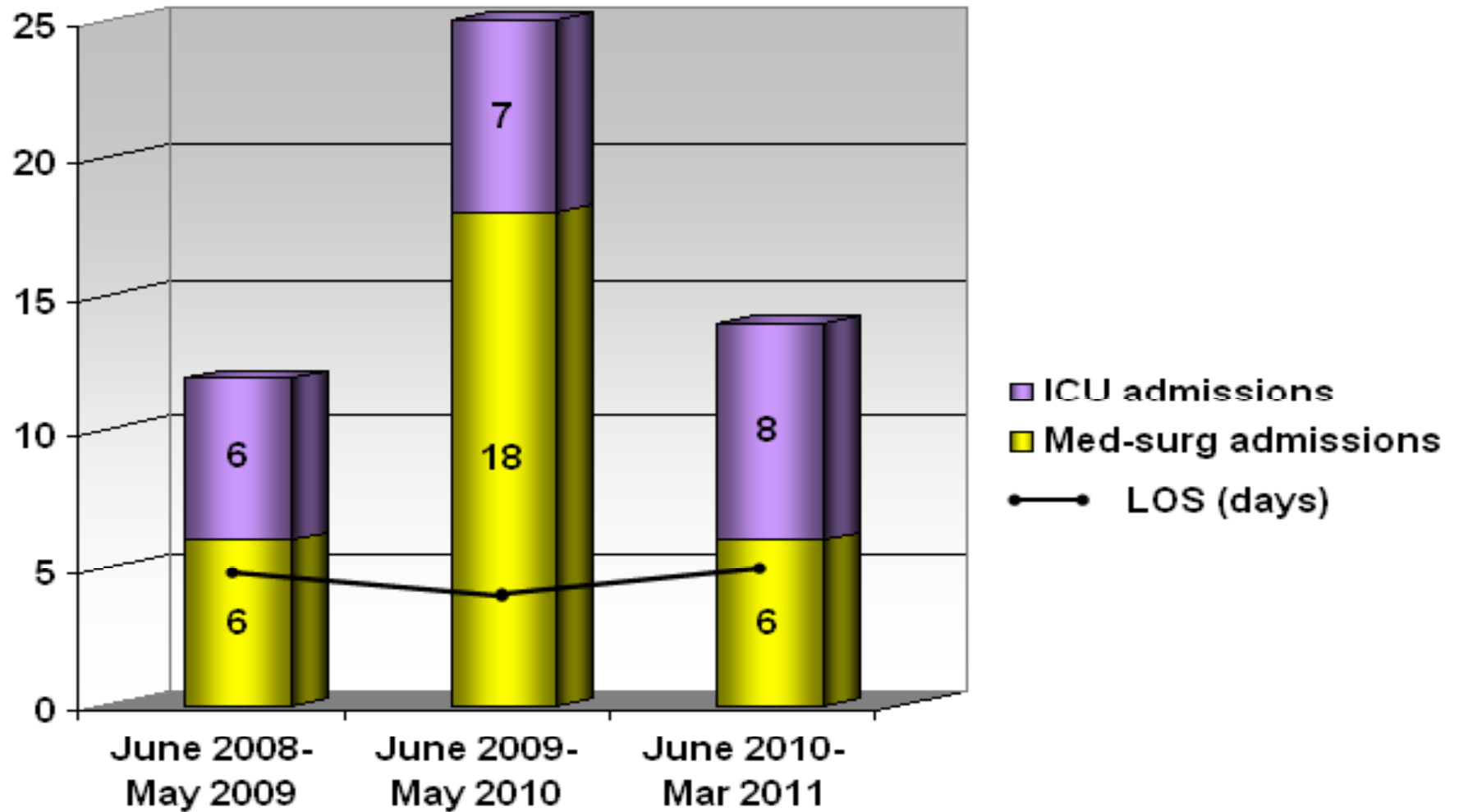
6/1/2009 – 5/10/2010

- Total # of sepsis patients admitted from LTC was 25
- 18 (72%) were admitted to Medical Surgical Unit
- 7 (28%) were admitted to ICU
- Average length of stay 3.7 days
- Physicians were provided with education around sepsis identification and coding at the time of admission
- LTC nurses identified sepsis earlier in the sepsis cascade

6/1/10 – 3/31/11

- Total of sepsis patients admitted from LTC 14
- 6 (43%) were admitted to Medical-Surgical Unit
- 8 (57%) were admitted to ICU
- Average length of stay 5.1 days

Results





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Questions & Discussion

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M-LiNK Portfolio

SEPSIS LEARNING SERIES

Upcoming Events:

- October 13th 3:30 – 4:30pm

Sepsis bundles: Implementation Strategies

- November 10, 2011 12-1:30pm

Implementing Systems and Clinical Processes for Managing Sepsis



M-LiNk Portfolio

SEPSIS LEARNING SERIES

Please visit the M-LiNk page of PatientCareLink to access slides, audio recordings and related resources from M-LiNk webinars and events.

Thank you for your participation.