



*Minnesota Hospital Association*

# Sepsis: Expert recommended care practices and protocols



November 3, 2017

# Agenda

- MHA QPS Overview
  - Rahul Koranne, MD, MBA**  
Minnesota Hospital Association Chief Medical Officer
- Sepsis care practices and protocols – Emergency Department perspective
  - David Larson, MD, FACEP**  
Ridgeview Medical Center
- Sepsis care practices and protocols – Inpatient perspective
  - Craig Weinert, MD, MPH**  
University of Minnesota Medical Center
- MHA Resources
  - Sepsis Road Map and QPS dashboard overview
  - Sepsis advisory committee site visits available
- Question & Answer

# Today's Presenters



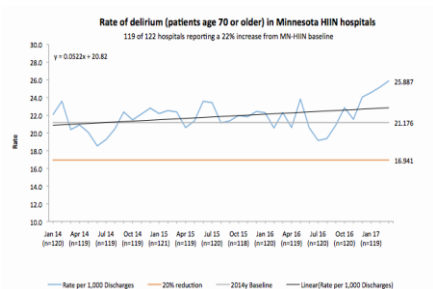
David Larson, MD,  
Emergency Medicine, Ridgeview  
Medical Center  
[david.larson@ridgeviewmedical.org](mailto:david.larson@ridgeviewmedical.org)



Craig Weinert, MD,  
Professor, Pulmonary and Critical  
Care, UMN  
[weine006@umn.edu](mailto:weine006@umn.edu)

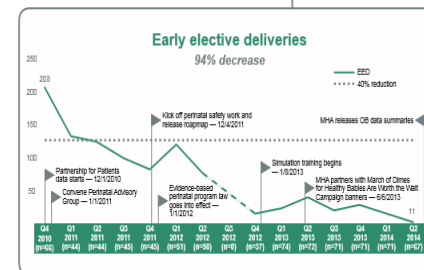


Rahul Koranne, MD  
MHA



**Issue Identified**

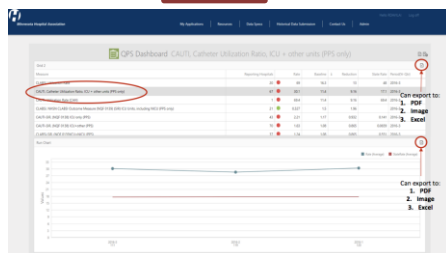
**Expert  
Committee**



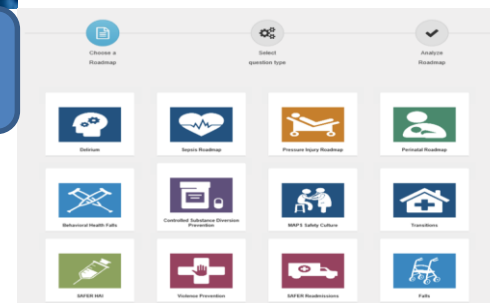
**Celebrate**



**Continuous Quality Improvement**



**Process, Outcome &  
Adherence Data**

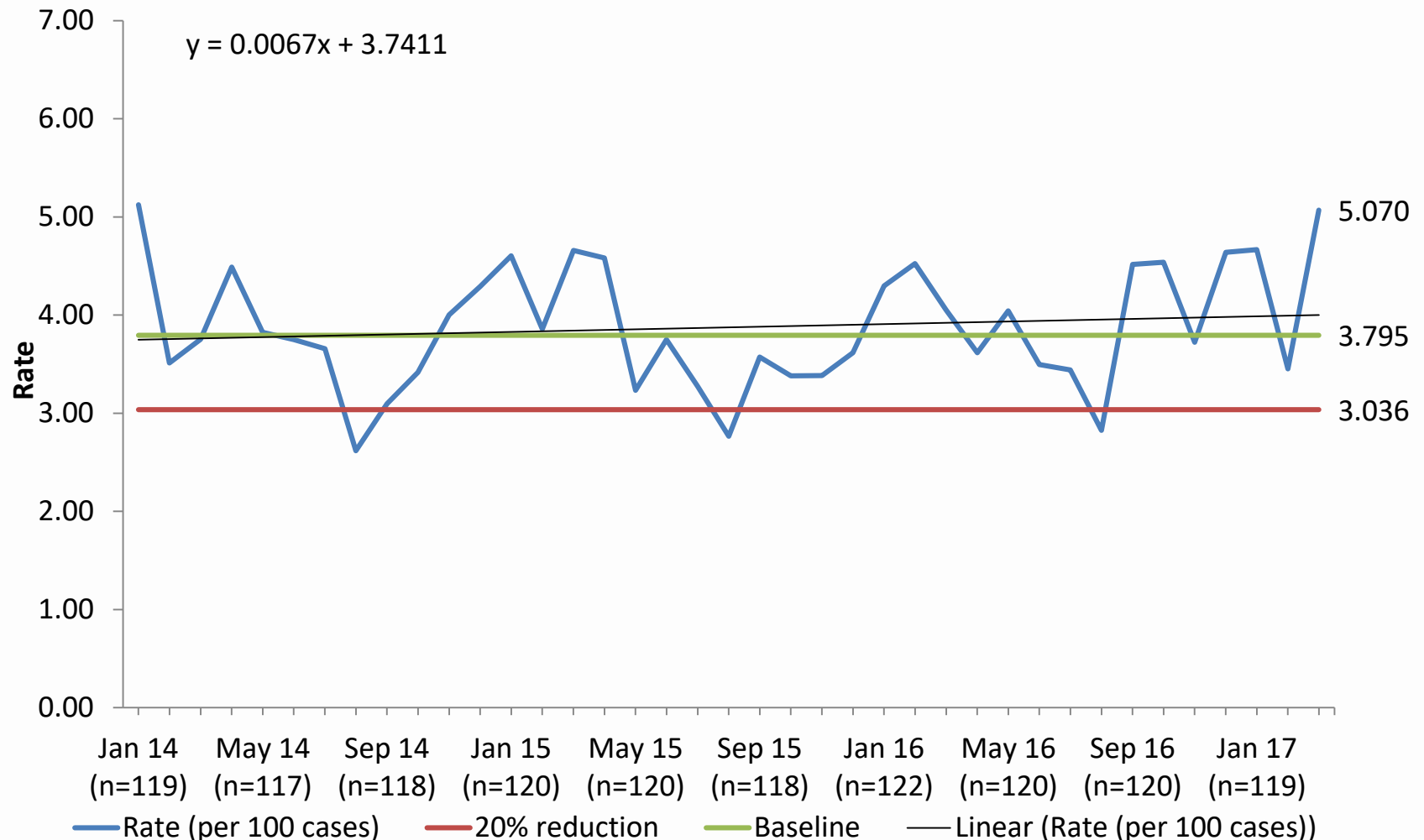


**MHA Road Map**

# Sepsis mortality, claims

120 of 122 hospitals reporting a 33.6% increase from MN-HIIN baseline

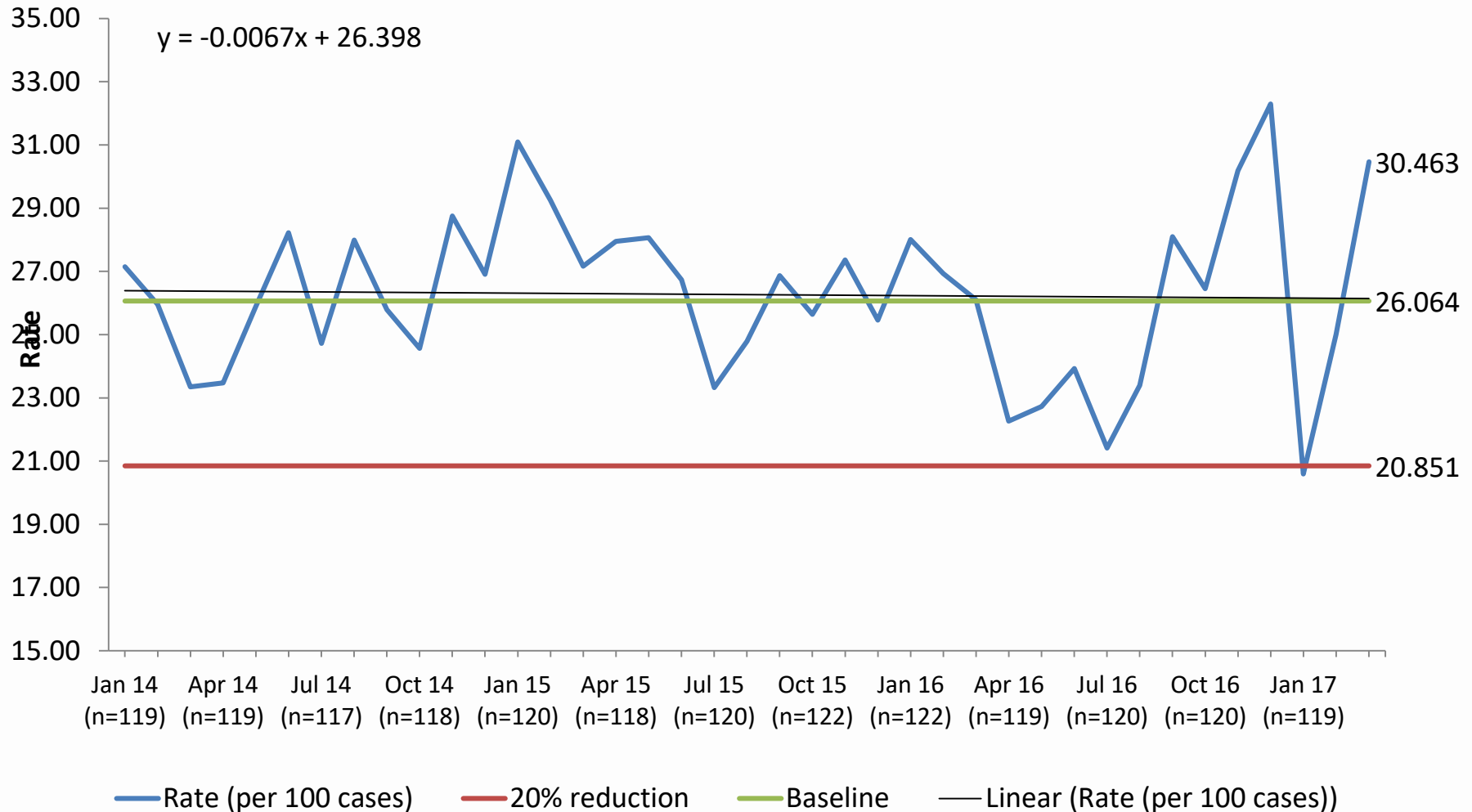
**All-cause, in-hospital mortality rate among sepsis patients in Minnesota  
HIIN hospitals**



# Septic shock mortality, claims

120 of 122 hospitals reporting a 17% increase from MN-HIIN baseline

## All-cause, in-hospital mortality rate among Septic Shock patients in Minnesota Hospitals





*Minnesota Hospital Association*

# Recognition & Management of Sepsis – ED Perspective

**David Larson, MD**  
Medical Director  
Emergency Department  
Ridgeview Medical Center



# 45 yr old female

- Presents to the ED with cough, chest pain and shortness of breath.
- Initial VS: T 98.3, BP 131/88 HR 140 R 24 Sat 88%
- Mental status: normal
- Chest xray: bilateral pulmonary infiltrates
- WBC 7.8 (90% PMN)
- Lactate 4.6

# Chest x-ray



# Objectives

- Early recognition of sepsis
- Initial management
- Appropriate disposition

# Sepsis is a Time Critical Emergency



# Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016

*Critical Care Medicine, March 2017*

“Similar to polytrauma, acute myocardial infarction, or stroke, **early identification** and **appropriate management in the initial hours** after sepsis develops improve outcomes”

# New Paradigm for Sepsis

**URGENCY**

# Hospital Mortality by Time to Antibiotics

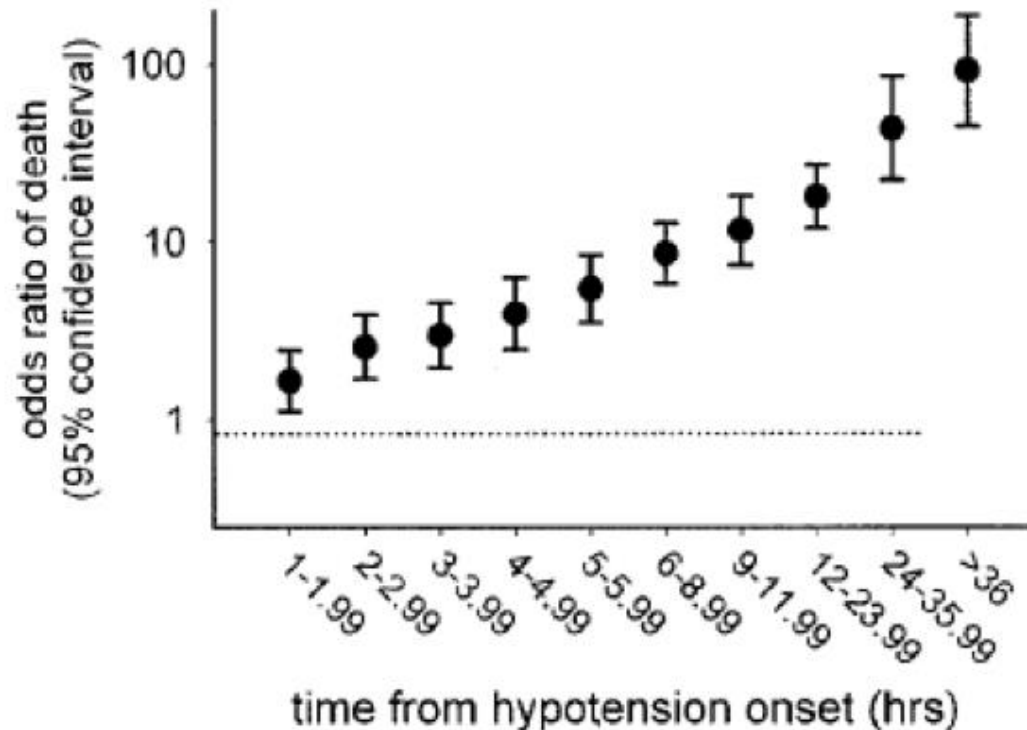
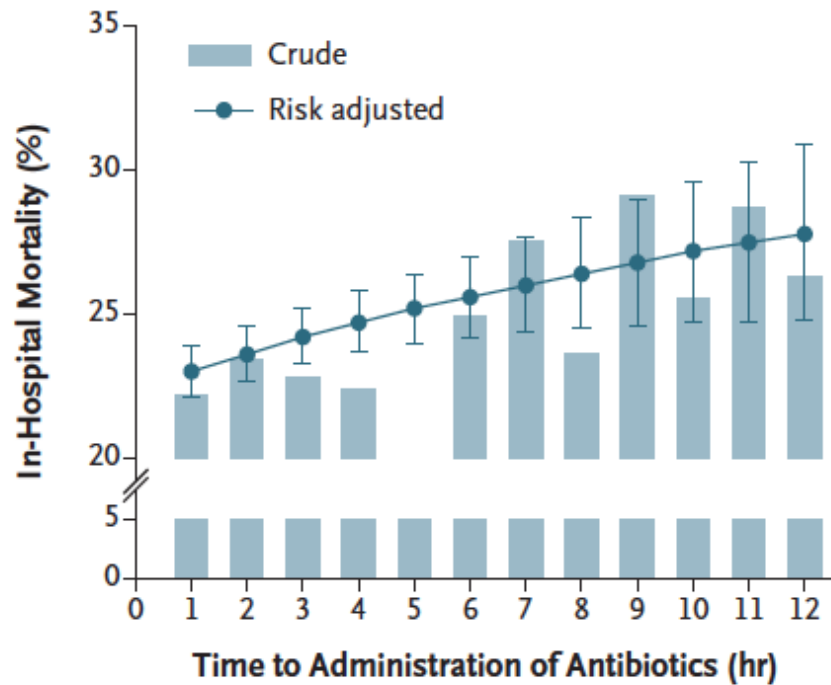


Figure 2. Mortality risk (expressed as adjusted odds ratio of death) with increasing delays in initiation of effective antimicrobial therapy. Bars represent 95% confidence interval. An increased risk of death is already present by the second hour after hypotension onset (compared with the first hour after hypotension). The risk of death continues to climb, though, to >36 hrs after hypotension onset.

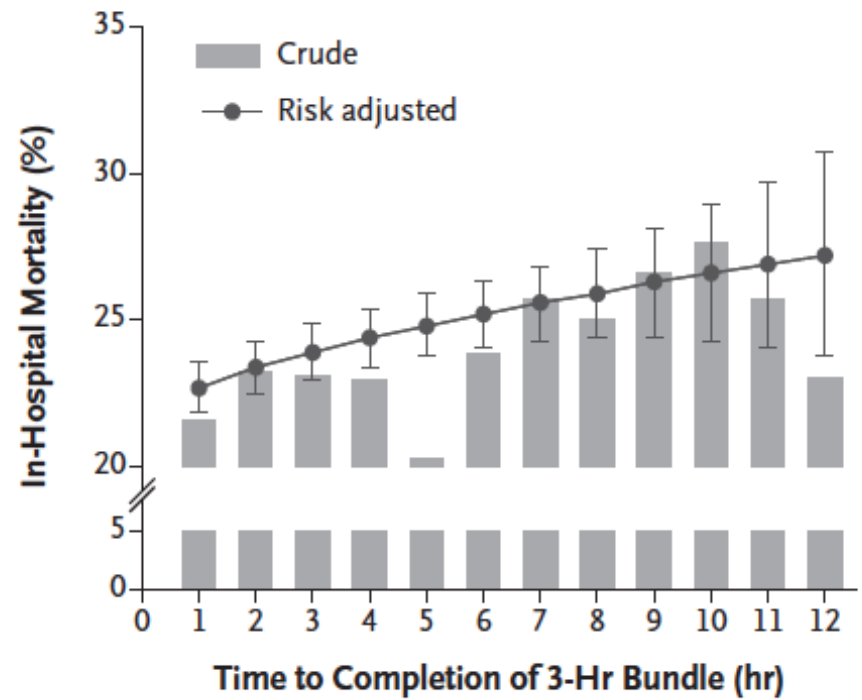
**In septic shock every hour delay in antibiotic administration was associated with a 7.6% decrease in survival** *Kumar, Crit Care Med 2006; 34:1589*

# Time to Treatment in Sepsis

**B Administration of Antibiotics**



**A 3-Hr Bundle**



# Early recognition in the ED

- **Systemic Inflammatory Response Syndrome (SIRS)**
  - 2 or more of the following
    - Fever or hypothermia ( $T > 100.4$  or  $< 96.8$ )
    - Tachycardia (  $HR > 90$ )
    - Tachypnea (  $RR > 20$  or  $PaCO_2 < 32$ )
    - Leukocytosis, leukopenia or left shift ( $WBC > 12,000$ ,  $< 4,000$  or  $> 10\%$  bands)
- Sepsis – defined as SIRS as a result of infection



Surviving Sepsis Campaign: International  
Guidelines for Management of Severe Sepsis  
and Septic Shock: 2012

# Definitions - 2012

- **Severe Sepsis:** Sepsis plus sepsis-induced organ dysfunction or tissue hypoperfusion
  - Sepsis-induced hypotension: Systolic Blood pressure <90 mm Hg or MAP <70 mm Hg or SBP decrease > 40mm Hg
- **Septic Shock:** Sepsis induced hypotension persisting despite adequate fluid resuscitation

# Organ dysfunction in sepsis

Altered LOC &/or  
Confusion

Acute lung injury  
RR  $\geq 22$ /min  
PaO<sub>2</sub>/FiO<sub>2</sub>  $< 400$

Liver dysfunction  
Bilirubin  $> 1.2$   
INR  $> 1.5$

Lactate  $\geq 4$

Tachycardia

↓CO<sub>2</sub>

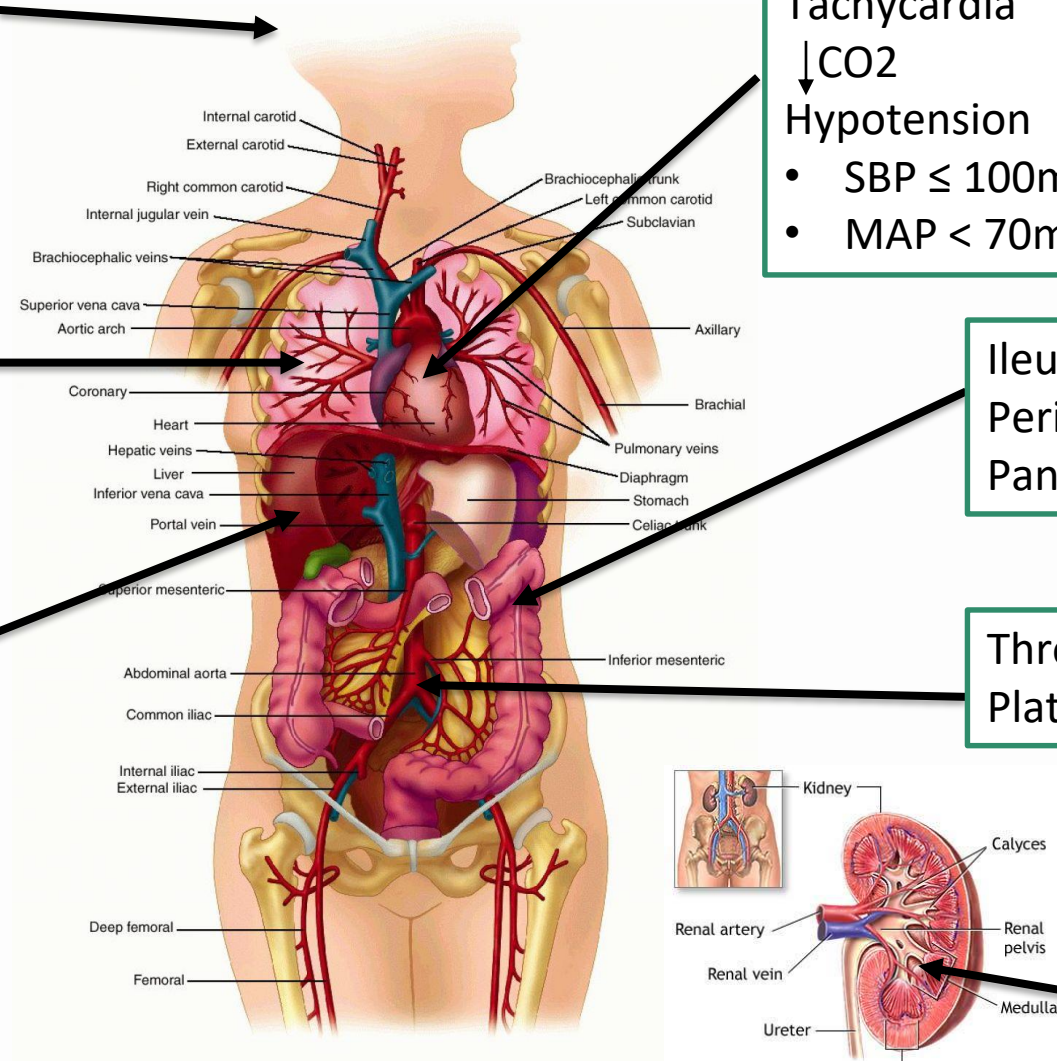
Hypotension

- SBP  $\leq 100$ mmHg
- MAP  $< 70$ mmHG

Ileus  
Peritonitis  
Pancreatitis

Thrombocytopenia  
Platelets  $< 150$ K

Oliguria  
Cr  $> 1.2$   
Urine output  $< 500$  ml/d



# Recognizing Sepsis Begins in Triage



# Reminders



# Emergency Department & General Floor Sepsis Algorithm

Begin at Triage using "Adult ED Sepsis Screening Tool"

Suspected infection and 2 more SIRS criteria?

## SIRS Criteria

Temperature  $\geq 100.0$  or  $\leq 96.8$   
Heart Rate  $> 100$  beats/min  
Respiratory Rate  $> 20$ /SpO<sub>2</sub>  $< 90\%$   
Altered Mental Status

**Nursing Early Detection Tool**  
100-100-100

Yes

No

Positive screen for sepsis

Negative screen for sepsis

Triage Level 1 or 2

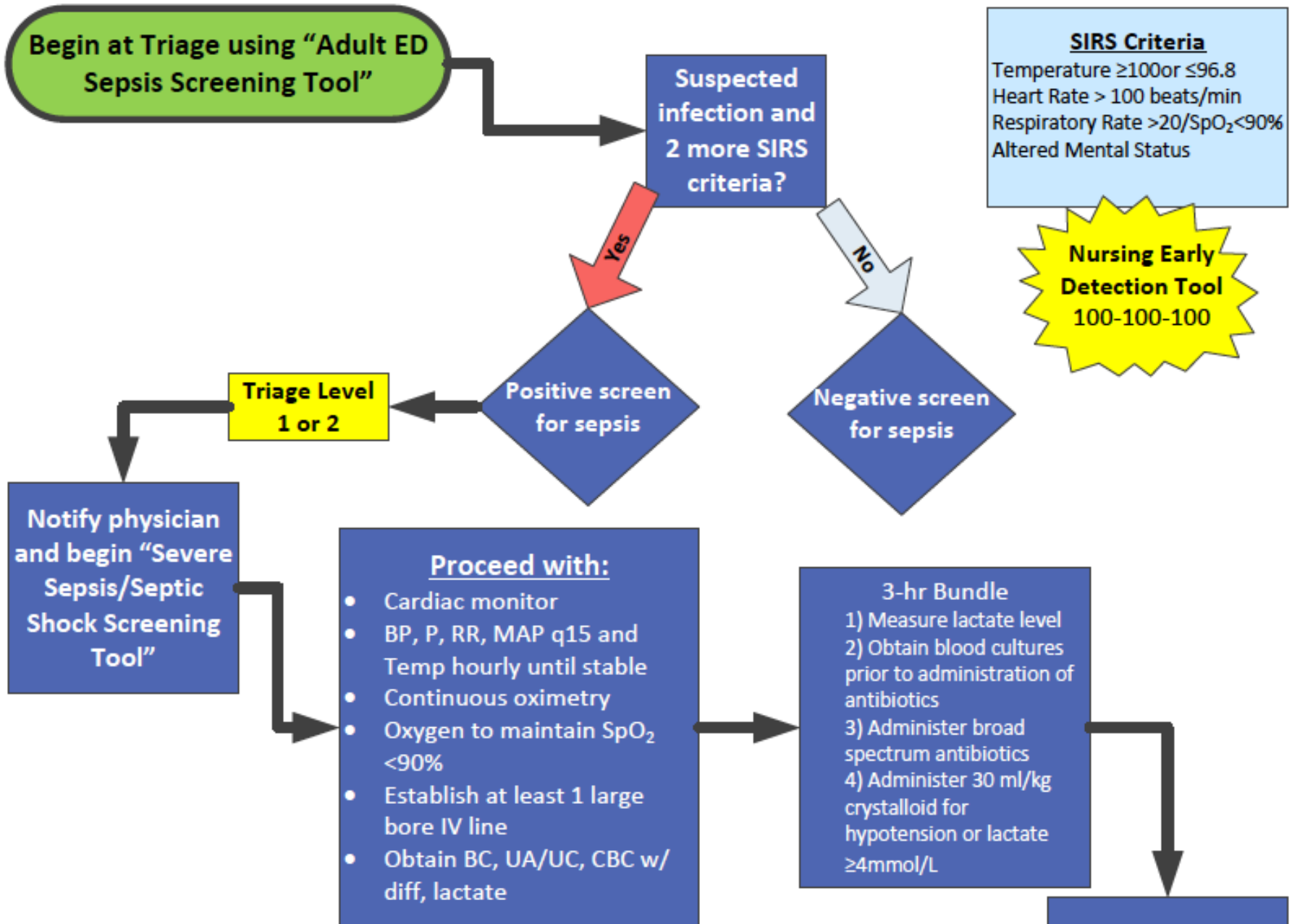
Notify physician and begin "Severe Sepsis/Septic Shock Screening Tool"

## Proceed with:

- Cardiac monitor
- BP, P, RR, MAP q15 and Temp hourly until stable
- Continuous oximetry
- Oxygen to maintain SpO<sub>2</sub>  $< 90\%$
- Establish at least 1 large bore IV line
- Obtain BC, UA/UC, CBC w/ diff, lactate

## 3-hr Bundle

- 1) Measure lactate level
- 2) Obtain blood cultures prior to administration of antibiotics
- 3) Administer broad spectrum antibiotics
- 4) Administer 30 ml/kg crystalloid for hypotension or lactate  $\geq 4$ mmol/L

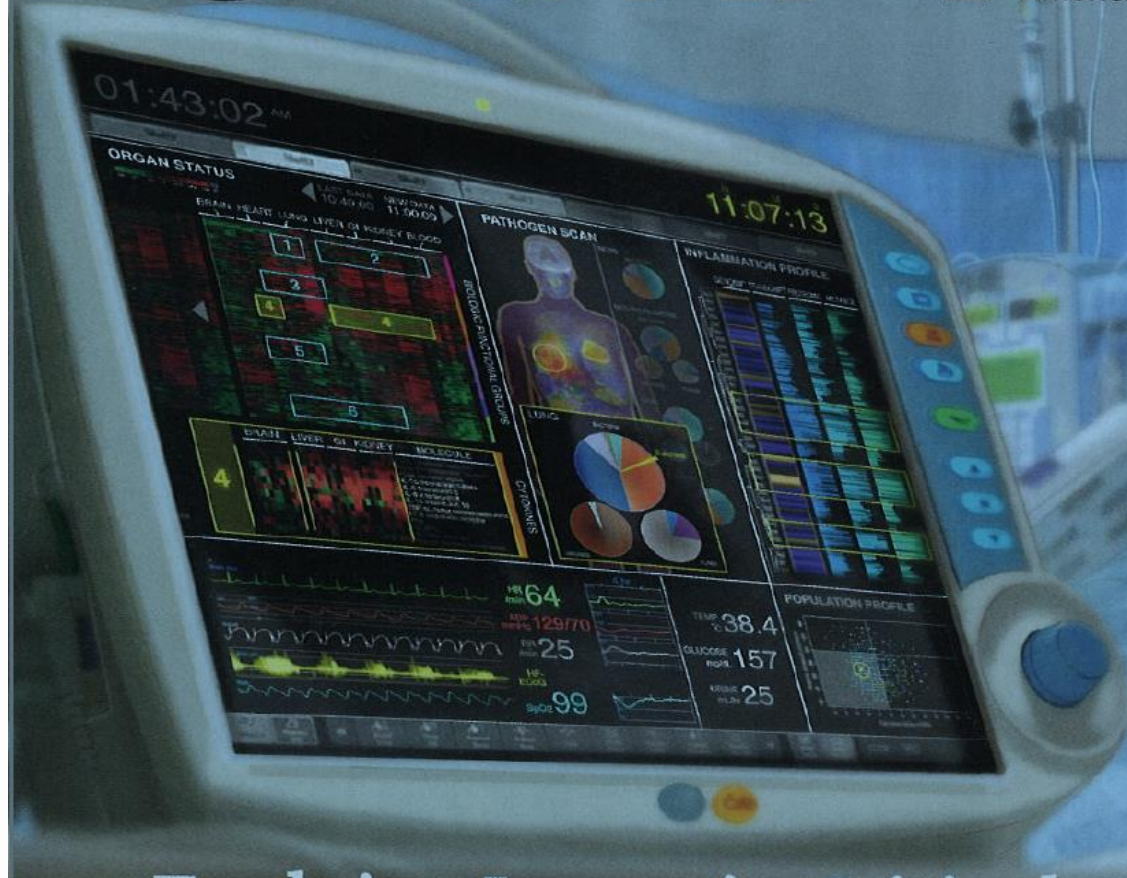


# Criticism of traditional definitions

- Too sensitive
  - A bad cold could be classified as sepsis
  - Routine post op patients
- Too much variability in the definition which can affect reported outcome such as mortality

# JAMA<sup>®</sup>

Journal of the  
American Medical Association



Evolving Issues in Critical Care and Sepsis

Special Communication | **CARING FOR THE CRITICALLY ILL PATIENT**

## The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3)

Mervyn Singer, MD, FRCP; Clifford S. Deutschman, MD, MS; Christopher Warren Seymour, MD, MSc; Manu Shankar-Hari, MSc, MD, FFICM; Djillali Annane, MD, PhD; Michael Bauer, MD; Rinaldo Bellomo, MD; Gordon R. Bernard, MD; Jean-Daniel Chiche, MD, PhD; Craig M. Coopersmith, MD; Richard S. Hotchkiss, MD; Mitchell M. Levy, MD; John C. Marshall, MD; Greg S. Martin, MD, MSc; Steven M. Opal, MD; Gordon D. Rubenfeld, MD, MS; Tom van der Poll, MD, PhD; Jean-Louis Vincent, MD, PhD; Derek C. Angus, MD, MPH

JAMA Feb 23, 2016

# New Definitions in 2016 guidelines

## ■ **Sepsis**

- Life-threatening organ dysfunction due to a dysregulated host response to infection
- Lay-term definition
  - “Sepsis is a life-threatening condition that arises when the body’s response to an infection injures it’s own tissues and organs”

## ■ **Septic shock**

- A subset of sepsis in which particularly profound circulatory, cellular, and metabolic abnormalities substantially increase mortality

# Organ Dysfunction

- Can be identified as an acute change in total SOFA score of  $\geq 2$

# Sequential Organ Failure Assessment Score (SOFA) criteria

Table 1. Sequential [Sepsis-Related] Organ Failure Assessment Score<sup>a</sup>

System	Score				
	0	1	2	3	4
Respiration					
Pao <sub>2</sub> /Fio <sub>2</sub> , mm Hg (kPa)	≥400 (53.3)	<400 (53.3)	<300 (40)	<200 (26.7) with respiratory support	<100 (13.3) with respiratory support
Coagulation					
Platelets, ×10 <sup>3</sup> /μL	≥150	<150	<100	<50	<20
Liver					
Bilirubin, mg/dL (μmol/L)	<1.2 (20)	1.2-1.9 (20-32)	2.0-5.9 (33-101)	6.0-11.9 (102-204)	>12.0 (204)
Cardiovascular					
MAP ≥70 mm Hg	MAP ≥70 mm Hg	MAP <70 mm Hg	Dopamine <5 or dobutamine (any dose) <sup>b</sup>	Dopamine 5.1-15 or epinephrine ≤0.1 or norepinephrine ≤0.1 <sup>b</sup>	Dopamine >15 or epinephrine >0.1 or norepinephrine >0.1 <sup>b</sup>
Central nervous system					
Glasgow Coma Scale score <sup>c</sup>	15	13-14	10-12	6-9	<6
Renal					
Creatinine, mg/dL (μmol/L)	<1.2 (110)	1.2-1.9 (110-170)	2.0-3.4 (171-299)	3.5-4.9 (300-440)	>5.0 (440)
Urine output, mL/d				<500	<200

Abbreviations: Fio<sub>2</sub>, fraction of inspired oxygen; MAP, mean arterial pressure; Pao<sub>2</sub>, partial pressure of oxygen.

<sup>a</sup> Adapted from Vincent et al.<sup>27</sup>

<sup>b</sup> Catecholamine doses are given as μg/kg/min for at least 1 hour.

<sup>c</sup> Glasgow Coma Scale scores range from 3-15; higher score indicates better neurological function.

Pulmonary  
Hematologic  
Liver  
Cardiac  
CNS  
Renal

- SOFA assists in predicting patient mortality
- It does require a blood gas
- Not appropriate for all clinical situations, i.e. Emergency Department where early recognition is key

# MedCalc

## Sequential Organ Failure Assessment (SOFA) Score

Predicts ICU mortality based on lab results and clinical data.

 US

Welcome Sepsis-3 readers! We've also added the qSOFA Score with a summary of the new definitions and recommendations.

Note: Use the worst value in a 24-hour period for the SOFA Score.

Partial Pressure of Oxygen

60

mm Hg

Fraction of Inhaled O2

40

%

Platelet Count

120

$\times 10^3/\mu\text{L}$

Glasgow Coma Scale

13

points

Bilirubin

1.2

mg/dL

Level of Hypotension (Vasopressor Status For  $\geq 1$  Hr)

☒ No Hypotension 0

☐ MAP  $< 70$  +1

☐ On vasopressors, dopamine  $< 5$   $\mu\text{g/kg/min}$  or dobutamine (any dose) +2

☐ Dopamine  $> 5$   $\mu\text{g/kg/min}$  or Epi/Norepi  $< 0.1$   $\mu\text{g/kg/min}$  +3

☐ Dopamine  $> 15$   $\mu\text{g/kg/min}$  or Epi/Norepi  $> 0.1$   $\mu\text{g/kg/min}$  +4

Creatinine (or Urine Output, Use Worst Value)

☐ Cr  $< 1.2$  mg/dL ( $< 106$   $\mu\text{mol/L}$ ) 0

☒ Cr 1.2-1.9 mg/dL (106-168  $\mu\text{mol/L}$ ) +1

☐ Cr 2.0-3.4 mg/dL (177-301  $\mu\text{mol/L}$ ) +2

☐ Cr 3.5-4.9 mg/dL (309-433  $\mu\text{mol/L}$ ) or Urine Output  $< 500\text{ml/day}$  +3

☐ Cr  $> 5.0$  mg/dL ( $> 442$   $\mu\text{mol/L}$ ) +4

7  
points

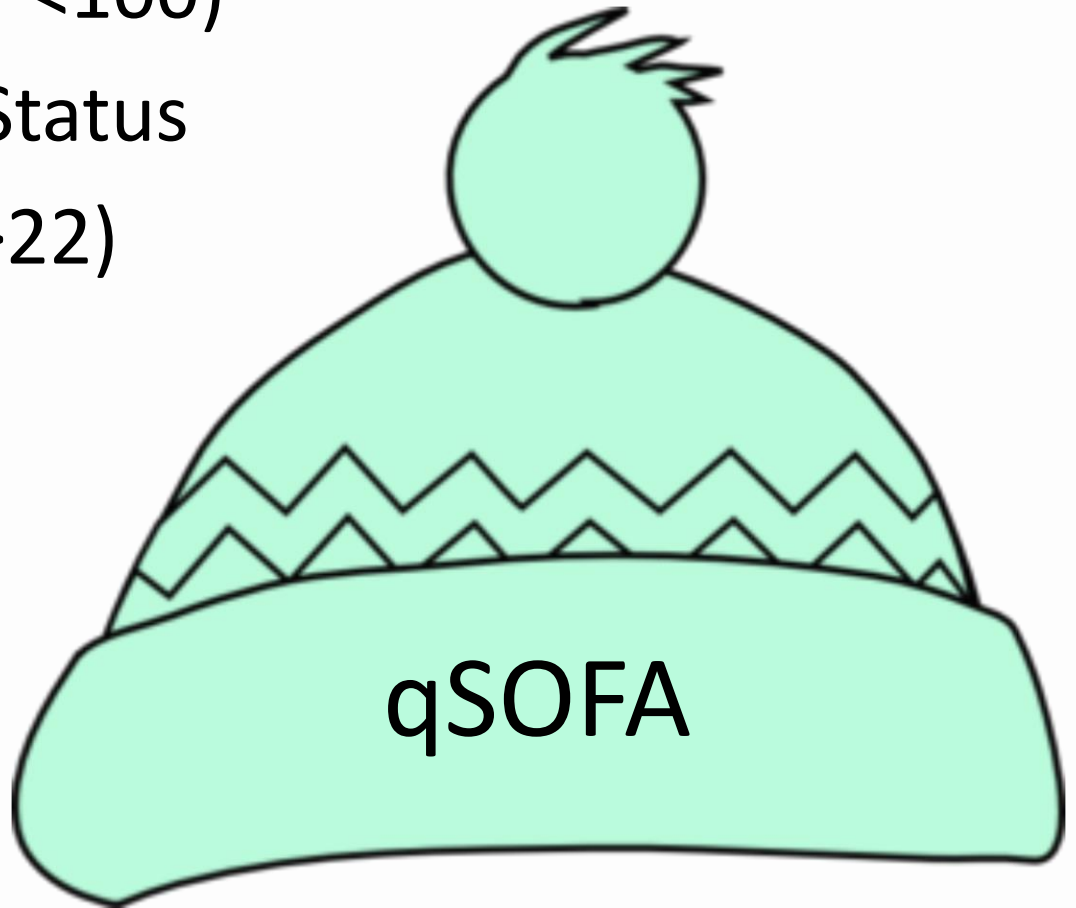
An initial SOFA score  $< 9$  predicted a mortality  $< 33\%$ , while an initial score  $> 11$  prediction of mortality of 95%.

# Clinical criteria of Sepsis

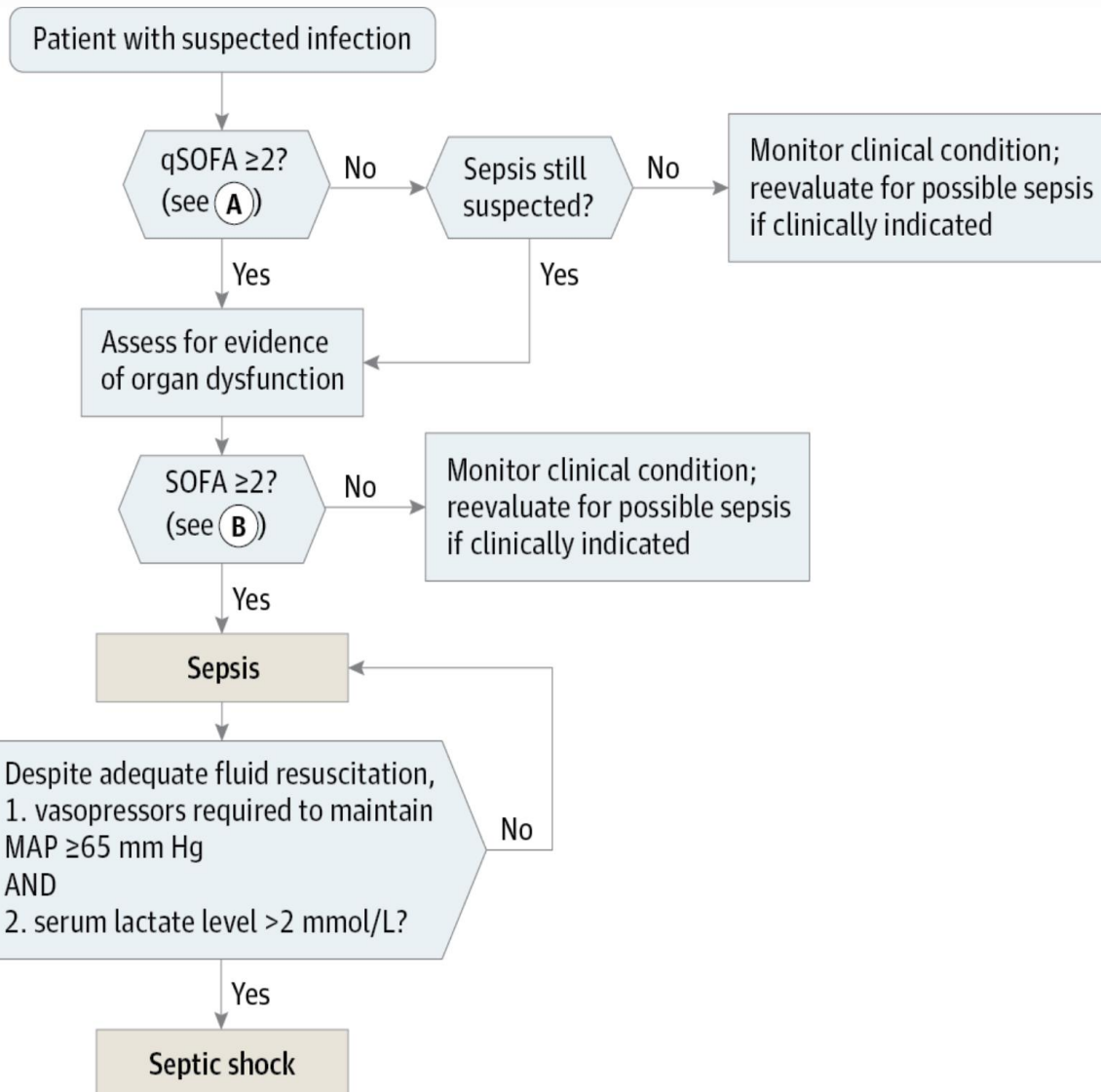
- Attempted to differentiate Sepsis from uncomplicated infections
- Interrogated large clinical data sets of hospitalized patients with presumed infection correlating 21 different clinical and laboratory criteria with clinical outcomes
  - Mortality and ICU length of stay > 3 days
- qSOFA – simple bedside criteria to screen those with infection who are likely to have poor outcomes.

# Remember qSOFA = HAT

- **H**ypotension (BP <100)
- **A**ltered Mental Status
- **T**achypnea (RR >22)



# New Sepsis Definitions



**A qSOFA Variables**

- Respiratory rate
- Mental status
- Systolic blood pressure

**B SOFA Variables**

- PaO<sub>2</sub>/FiO<sub>2</sub> ratio
- Glasgow Coma Scale score
- Mean arterial pressure
- Administration of vasopressors with type and dose rate of infusion
- Serum creatinine or urine output
- Bilirubin
- Platelet count

# Septic Shock Clinical Criteria

- Despite adequate fluid resuscitation, vasopressors needed to maintain  $\text{MAP} \geq 65$

And

- Lactate  $> 2$

# Screening for Sepsis in the ED

## 1992 Consensus Definitions

### Sepsis

#### 2 or more SIRS criteria

Temperature  $>38^{\circ}\text{C}$  or  $<36^{\circ}\text{C}$

Pulse rate  $>90$  beats/min

Respiratory rate  $>20$  breaths/min

WBC count  $>12,000$  cells/mL<sup>3</sup>

### Severe sepsis

#### Sepsis + evidence of organ dysfunction

Neurologic: altered mental status by history or examination

Cardiovascular: systolic blood pressure  $<90$  mm Hg after fluid challenge

Metabolic: lactate  $>4.0$  mmol/L

Hematologic: platelets  $<100,000$  cells/mL<sup>3</sup>

Renal: creatinine  $>2.0$  mg/dL, not known to be chronic

Pulmonary: respiratory rate  $>20$  breaths/min or pulse oximetry  $<90\%$   
on room air or  $<95\%$  while breathing supplemental oxygen  $>4$  L/min

### Septic shock

#### Sepsis + evidence of hypoperfusion

Vasopressor requirement

Hypotension after at least 2 L intravenous fluids

## SEP-3 Definitions

### Sepsis

#### 2 or more qSOFA criteria

Respiratory rate  $>20$  breaths/min

Systolic blood pressure  $<100$  mm Hg

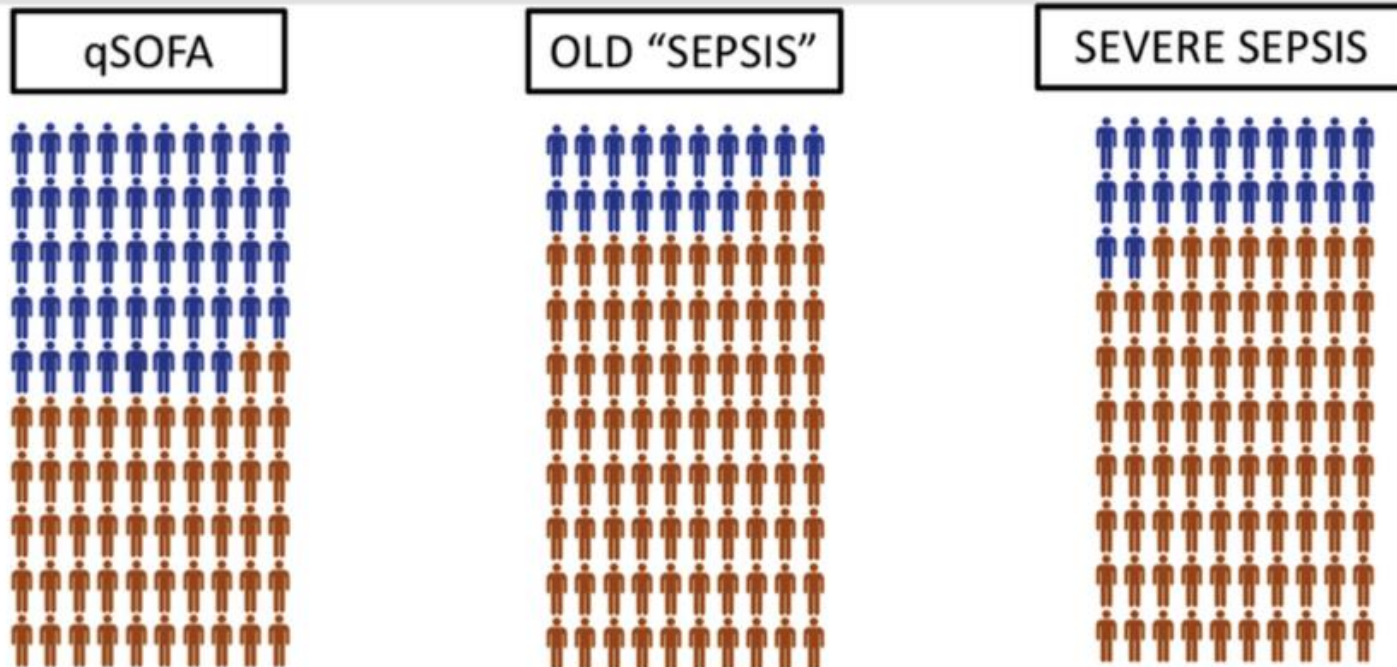
Altered mental status

### Septic shock

Vasopressor requirement to maintain mean arterial pressure  $>65$  and  
serum lactate  $>2.0$  mmol/L

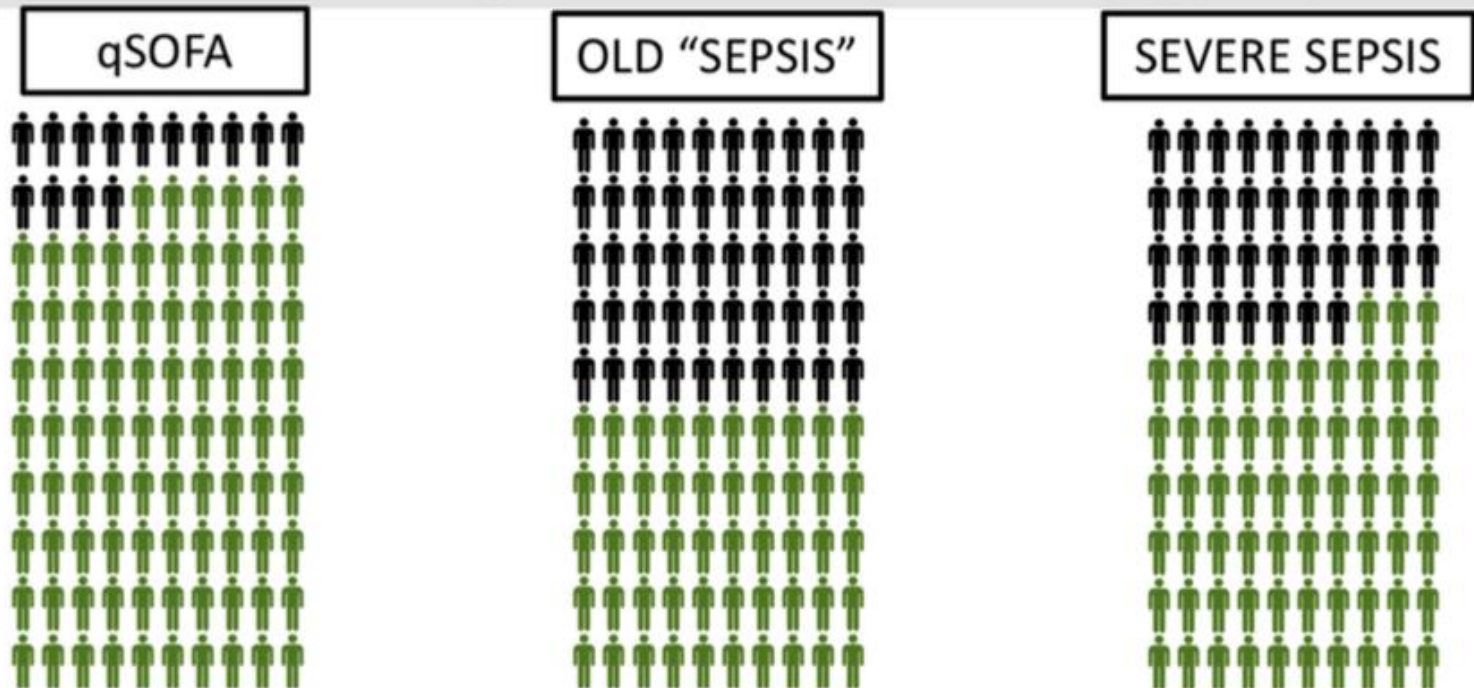
# SIRS vs qSOFA (sensitivity)

Among patients with infection who died during the hospitalization, how many were detected (RED)



# SIRS vs qSOFA (specificity)

Among patients who survived, how many were marked as high risk for dying (black)



# Lactate as a screening tool

- What does an elevated lactate mean?
  - Marker of cellular/metabolic stress
  - Can also occur with liver disease, catecholamine Rx, other drugs (metformin)
  - Independent predictor of mortality
  - Lactate > 4
    - Tissue hypoperfusion
    - “occult” sepsis\septic shock
    - Admit to ICU



# Lactate

Every hospital should be able to  
perform a lactate with results  
within 30 minutes

*“If a patient is sick enough to order a blood culture, then they are sick enough to order a lactate”* (Scott Davis, MD, Director of ICU SCH)

**Link lactate to blood culture order**

# Sepsis without fever



# The Absence of Fever Is Associated With Higher Mortality and Decreased Antibiotic and IV Fluid Administration in Emergency Department Patients With Suspected Septic Shock

Daniel J. Henning, MD, MPH<sup>1,2</sup>; Jeremy R. Carey, MD<sup>1</sup>; Kimie Oedorf, BSc<sup>1</sup>; Danielle E. Day, BSc<sup>1</sup>; Colby S. Redfield, MD<sup>1</sup>; Colin J. Huguenel, MD<sup>1</sup>; Jonathan C. Roberts, MD<sup>1</sup>; Leon D. Sanchez, MD, MPH<sup>1</sup>; Richard E. Wolfe, MD<sup>1</sup>; Nathan I. Shapiro, MD, MPH<sup>1,3</sup>

Henning, Crit Care Med 2017;45(6)

- 45% Septic shock patients – afebrile
- 21.7% higher risk of in-hospital mortality
- Absence of fever led to delayed diagnosis and treatment in the ED
- Associated with older age, alcoholism, COPD, end stage liver disease

# Recognizing Sepsis in older patients

- Fever may be absent
  - 13% in patients > 65 vs 4% in < 65yrs
- Lower incidence of tachycardia and hypoxemia
- Infection may not be apparent
  - More likely to have altered mental status (confusion, delirium)
  - Other non specific complaints such as weakness, falls, anorexia, incontinence

# Undifferentiated Shock

- Think Sepsis
- Obtain cultures and begin broad spectrum antibiotics

# Initial Management: Antibiotics

- **2016 Sepsis Guideline**

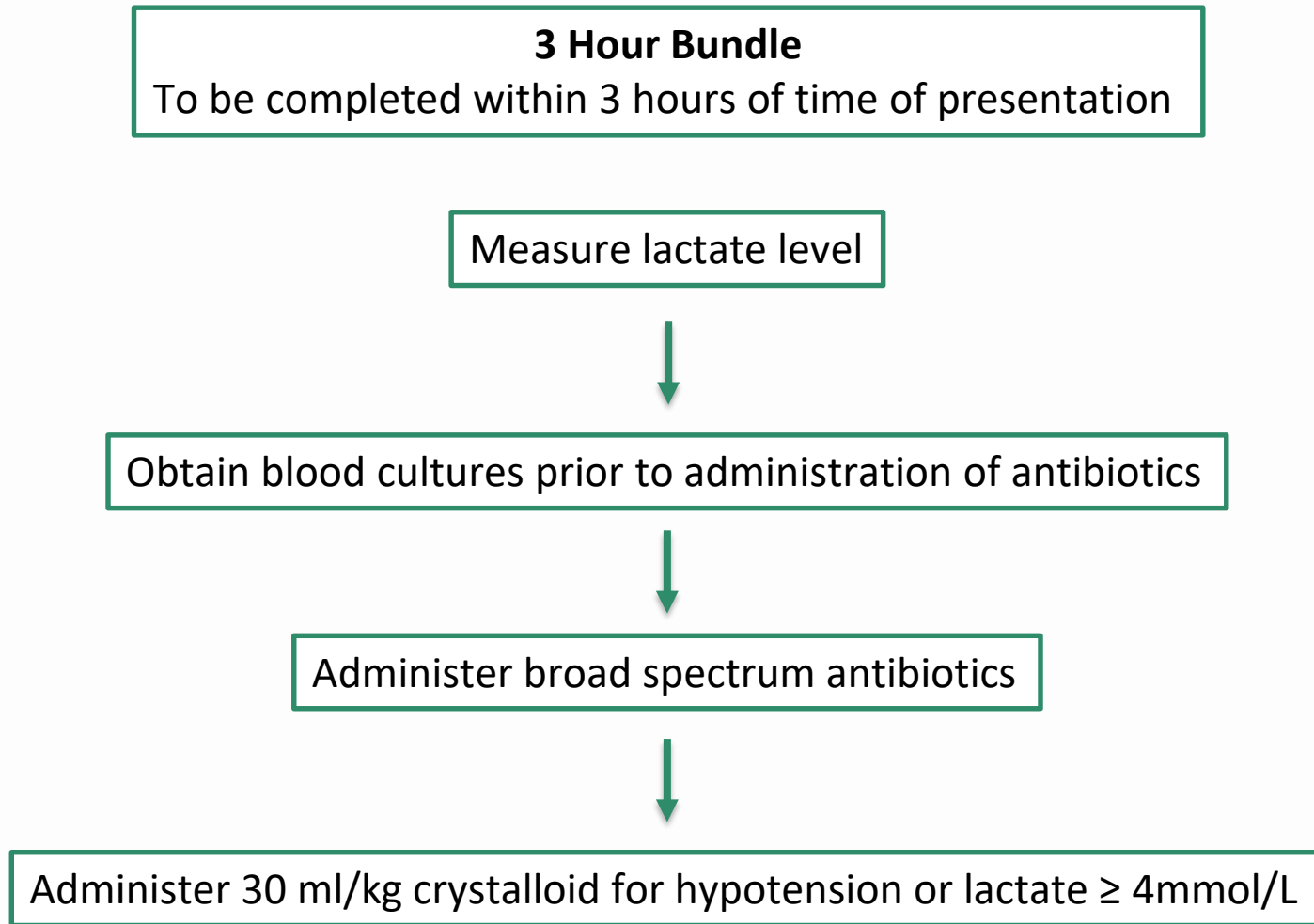
- "We recommend administration of IV antibiotics as soon as possible after recognition and within 1 hour for both sepsis and septic shock (strong recommendation)"

# Initial Management: IV Fluids

## ■ 2016 Sepsis Guideline

- “We recommend that, in the resuscitation from sepsis induced hypoperfusion, at least 30cc/kg of IV crystalloid fluid be given within the first 3 hours (strong recommendation)”

# Early treatment = improved outcomes



# Early treatment = improved outcomes

## 6 Hour Bundle

To be completed within 6 hours of time of presentation

Apply vasopressors (for hypotension that does not respond to initial fluid resuscitation) to maintain a mean arterial pressure (MAP)  $\geq 65$  mmHg



In the event of persistent hypotension after initial fluid administration (MAP  $< 65$  mmHg) or if initial lactate was  $\geq 4$  mmol/L, reassess vol. status and tissue perfusion & document findings.



Re-measure lactate if initial lactate is elevated

# Reassessment documentation

DOCUMENT REASSESSMENT OF VOLUME STATUS AND TISSUE PERFUSION WITH:

EITHER:

- Repeat focused exam (after initial fluid resuscitation) including vital signs, cardiopulmonary, capillary refill, pulse, and skin findings.

OR TWO OF THE FOLLOWING:

- Measure CVP
- Measure ScvO<sub>2</sub>
- Bedside cardiovascular ultrasound
- Dynamic assessment of fluid responsiveness with passive leg raise or fluid challenge

# Disposition

- ICU or transfer
  - Lactate  $>4$
  - SOFA or qSOFA  $> 2$
  - Requiring vasopressors to maintain MAP

# CAH: When to transfer ?

Lactate > 4  
mmol/ml

OR

Unresponsive to  
30ml/kg fluid  
(no increase in  
UOP or BP)

OR

2 or more of the  
following:

- SaO<sub>2</sub> < 90% or increase in O<sub>2</sub> requirements
- SBP < 90 mmHg or decrease by 40 mmHg from baseline or MAP < 65 mmHg
- UOP < 30 ml/hr, increase in creatinine > .05 mg/dl from baseline or ≥ 2.0 mg/dl
- Altered mental status, GCS ≤ 12
- Platelets < 100,000, INR > 1.5, PTT > 60 secs
- Serum total bilirubin ≥ 4mg/dl or plasma total bilirubin > 2.0 mg/dl or 35 mmol/L
- Progression of symptoms despite treatment

Time to Transfer goal: < 2 hrs

# 45 yr old female

- Presents to the ED with cough, chest pain and shortness of breath.
- Initial VS: T 98.3, BP 131/88 HR 140 R 24 Sat 88%
- Mental status: normal
- Chest xray: bilateral lung consolidation involving all lobes.
- WBC 7.8 (90% PMN)
- Lactate 4.6

# Initial management

- Screen positive for Sepsis
  - SIRS
    - Tachycardia, tachypnea, left shift
  - Severe Sepsis
    - Respiratory failure
    - Lactate > 4
  - qSOFA
    - RR, HR

# Missed opportunities

- Triage level 3 (no sepsis alert)
  - No fever
- Received broad spectrum antibiotics (2hrs 20mins after arrival)
- IV NS 1000L
- Admitted to community hospital medical floor 4 hrs 43 mins after arrival

# Hospital course

- Respiratory status deteriorated and hypotension (systolic 80, MAP 60) requiring intubation, pressors and transfer to ICU.
- Lactate 5.8
- Worsening respiratory failure and ARDS
- Transferred to Tertiary hospital ICU
- Discharged 2 wks later
  - Strep pneumo pneumonia
  - ARDS

# Summary

- Screen for Sepsis
  - Fever may not be present
- Have a protocol
- Early antibiotics and fluid resuscitation
- Transfer to the appropriate level of care
- Have a PI process for sepsis



*Minnesota Hospital Association*

# Recognition & Management of Sepsis – Inpatient Perspective

**Craig Weinert, MD, MPH**  
Critical Care Physician,  
Pulmonologist  
University of Minnesota  
Medical Center



# In-patient perspective

- Conceptual approach is similar to ED—screen, assess, treat quickly, follow for deterioration
  - Low threshold for abx, rare justification for avoiding full 30 ml/kg initial fluid bolus
    - Ok to use in “CKD”, “CHF” “dialysis”, “EF 35%” unless in gross volume overload
- Use LA as a marker of severity of illness needing higher level of care
- Alerts and elevated LA can help create a sense of urgency especially in “new” cases

# Non-septic causes of elevated LA and SIRS

- In-patients sepsis alerts complicated by:
  - Persistent abnl VS or elevated WBC even if sepsis is being treated appropriately
  - LA > 2 even if improving
    - Surgery
    - Liver failure (cirrhosis not by itself)
    - Cardiac failure
    - Bleeding
    - Advanced cancer
    - Respiratory distress
    - All of these are also associated with infections/sepsis
    - Requires examining the pt with a “skeptical” approach

# Negative consequences of repeated sepsis alerts

- Possibility of repeated fluid boluses to “make the LA better”
- Alarm fatigue (might ignore the next “alarm”)
- DNR/DNI vs palliative care vs comfort care patients
- Multiple blood draws, pressure on lab
- Increased antibiotic use (not a problem if de-escalation is followed)

# System approach to make it hard to miss a sepsis case

- SIRS alerts (paper or electronic)
- Automatic or low barrier to obtaining stat lactate
- Rapid provider evaluation
- Access to order sets/bundles
- Sense of urgency (like stroke or STEMI)
- Review of process measures for sample of (or all) cases (not just deaths or transfers)
- Ongoing staff education and physician champion

# Questions?

- qSOFA
- Sepsis definitions
- CMS vs MHA vs SSC bundles

# Resources



MHA patient safety resources

<https://www.mnhospitals.org/patient-safety/current-initiatives/sepsis-and-septic-shock#/videos/list>



<http://www.survivingsepsis.org/Pages/default.aspx>



<http://www.sccm.org/Pages/default.aspx>

# QPS Data Portal

## Welcome to the Quality and Patient Safety Data Portal

In order to share statewide and national benchmarks, the Minnesota Hospital Association's Quality and Patient Safety Division collects outcome data on hospital-acquired conditions (HACs). Additionally, we offer interactive roadmaps to share best practices and to help you improve quality and patient safety at your organization. Within this data portal, you will find four sections: 1) Outcome data 2) Roadmaps 3) Patient and Family Engagement (PFE) data and 4) QPS Dashboard. The following roadmaps are available on this site: Maps Culture, Behavioral Health Falls, Controlled Substance Diversion Prevention, Delirium, Falls, Medication Safety, Opioid/Anticoagulant/Hypoglycemic, Perinatal, Pressure Injury/Ulcers, SAFER from Readmissions, Sepsis, Surgery, Transitions, Violence Prevention and VTE. Our MHA committees will continue to tier the following roadmaps: Opioid/Anticoagulant/Hypoglycemic, Safe from HAIs and Transitions. We will communicate when these are tiered and loaded into the Quality and Patient Safety Data Portal. The QPS Dashboard is currently under construction. The QPS Dashboard and the PDF versions of the roadmaps will be available on August 1, 2017.



### Outcome data

Complete and review outcome measures for a select facility.

[Proceed](#)



### Road Map and Process data

Work through road maps set up for continual improvement in a given area.

[Proceed](#)



### PFE data

Work through PFE data.

[Proceed](#)



### Reports

Access reports for both outcome and road map information.

[Proceed](#)

# Sepsis Road Map



Minnesota Hospital Association

[My Applications](#)

[Resources](#)

[Data Specs](#)

[Historical Data Submission](#)

[Contact Us](#)

Hello ANGELA.POKHARELI

[Log off](#)

[← Back](#)

## Current Hospital:

MHA Test Facility - Saint Paul



Choose a  
Road map

Sepsis Roadmap



Select  
question type

Advanced



Analyze  
Road map

### The facility's core strategies for the early detection and treatment of sepsis and septic shock

A process is in place to initiate a rapid response to treat patients that screen positive for sepsis, patterned after other time critical emergencies such as trauma, STEMI, or stroke.

Ongoing, annual, interdisciplinary, education on early detection and treatment of sepsis and septic shock, examples include simulation exercises and grand rounds.

Current and standardized evidence based literature is provided to patients in the clinic setting to increase public awareness.

☒ Yes ☐ No ☐ N/A

Notes: [Save](#)

☐ Yes ☐ No ☐ N/A

☐ Yes ☐ No ☐ N/A

A sepsis quality improvement process is in place

Analyze

# Outcome Data Benchmarking

## Welcome to the Quality and Patient Safety Data Portal

In order to share statewide and national benchmarks, the Minnesota Hospital Association's Quality and Patient Safety Division collects outcome data on hospital-acquired conditions (HACs). Additionally, we offer interactive roadmaps to share best practices and to help you improve quality and patient safety at your organization. Within this data portal, you will find four sections: 1) Outcome data 2) Roadmaps 3) Patient and Family Engagement (PFE) data and 4) QPS Dashboard. The following roadmaps are available on this site: Maps Culture, Behavioral Health Falls, Controlled Substance Diversion Prevention, Delirium, Falls, Medication Safety, Opioid/Anticoagulant/Hypoglycemic, Perinatal, Pressure Injury/Ulcers, SAFER from Readmissions, Sepsis, Surgery, Transitions, Violence Prevention and VTE. Our MHA committees will continue to tier the following roadmaps: Opioid/Anticoagulant/Hypoglycemic, Safe from HAIs and Transitions. We will communicate when these are tiered and loaded into the Quality and Patient Safety Data Portal. The QPS Dashboard is currently under construction. The QPS Dashboard and the PDF versions of the roadmaps will be available on August 1, 2017.



### Outcome data

Complete and review outcome measures for a select facility.

Proceed



### Road Map and Process data

Work through road maps set up for continual improvement in a given area.

Proceed



### PFE data

Work through PFE data.

Proceed



### Reports

Access reports for both outcome and road map information.

Proceed

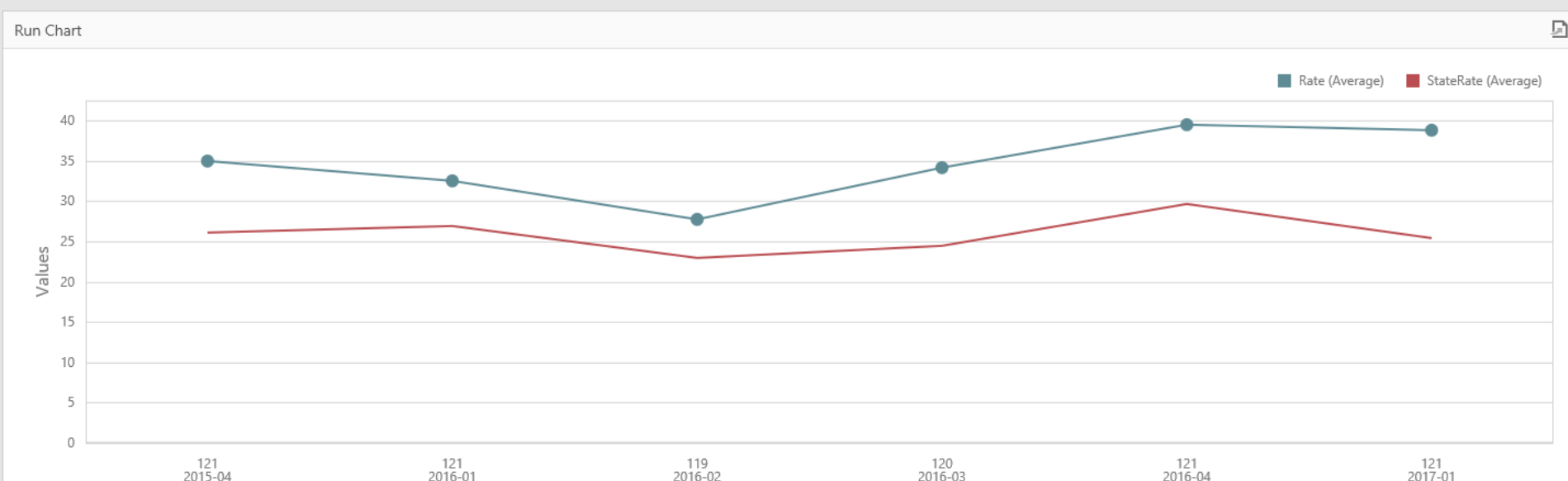
# Outcome Data Dashboard



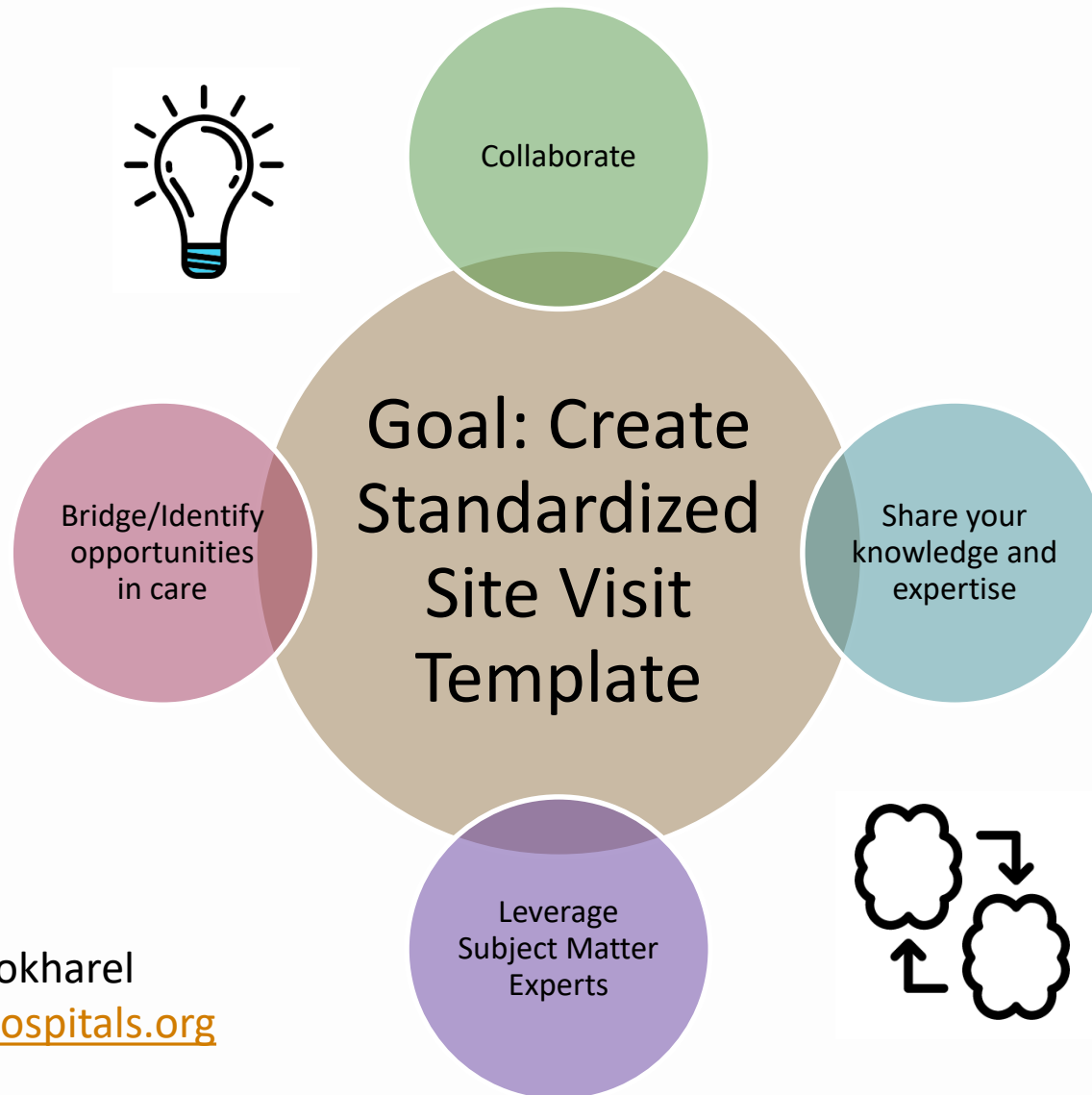
## QPS Dashboard Sepsis Shock, all-cause mortality



Measure	Reporting Hospitals		Rate	MHIIN-Baseline	MHIIN-Reduction	State Rate	Period(Yr-Qtr)
Sepsis Shock, all-cause mortality	121	●	38.824	26.064	20.851	25.420	2017-01
Sepsis, all-cause mortality	121	●	6.122	3.785	3.028	4.417	2017-01
SSI, (NQF 0753), Abdominal Hysterectomy (PPS)		●	2.591	7.356	5.885		
SSI, (NQF 0753), Colon Surgeries (PPS)		●	34.765	25.935	20.748		
SSI, (NQF 0753), Total Hip replacement (PPS)		●	35.088	9.279	7.423		
SSI, (NQF 0753), Total Knee replacement (PPS)		●	6.757	5.222	4.178		
VAE, ventilator-associated complication IVAC		●		2.567	2.054		



# Site Visit Invitation



Contact: Angie Pokharel

[apokharel@mnhospitals.org](mailto:apokharel@mnhospitals.org)

## QUALITY & PATIENT SAFETY

You are here: Patient safety in Minnesota hospitals » Quality & Patient Safety Initiatives » Shock

### Quality & Patient Safety

#### Quality & Patient Safety Initiatives

- Antibiotic Stewardship
- Communicating Outcomes
- Delirium
- Emergency Overhead Pages
- Falls
- Health Care-Associated Infections
- Health Care Disparities
- Medication Safety
- Obstetrics & Newborn
- Patient & Family Engagement
- Patient Handling
- Patient Safety Culture
- Pressure Ulcers
- Readmissions & Safe Transitions of Care
- SAFER Care
- Sepsis and Septic Shock
- Standardized Colored Wristbands
- Surgery and Procedures
- Workplace Violence Prevention
- Adverse Health Events
- Collaboratives
- Partnership for Patients
- Safety Alerts
- Awards

### SEPSIS AND SEPTIC SHOCK: EARLY IDENTIFICATION SAVES LIVES

Sepsis and septic shock can be associated with a mortality rate of up to 50 percent. MHA has coordinated the development of a Sepsis toolkit to facilitate the adoption of sepsis early detection tools and the Surviving Sepsis Campaign 3- and 6-hour care bundles by hospitals of all sizes.

Download the Sepsis road map.

[+ Seeing Sepsis toolkit](#)

[+ Seeing Sepsis Long Term Care resources](#)

[+ Webinar recordings](#)

#### Videos



Early recognition of sepsis & septic shock in the ED



Improving care for patients with sepsis & septic shock



Sepsis patient story, St. Cloud Hospital

-- Category --



Minnesota Hospital Association

## Sepsis Road Map

MHA's road maps provide hospitals and health systems with evidence-based recommendations and standards for the development of topic-specific prevention and quality improvement programs, and are intended to align process improvements with outcome data. Road maps reflect published literature and guidance from relevant professional organizations and regulatory agencies, as well as identified proven practices. MHA quality and patient safety committees provide expert guidance and oversight to the various road maps.

Each road map is tiered into fundamental and advanced strategies:

- Fundamental strategies** should be prioritized for implementation, and generally have a strong evidence base in published literature in addition to being supported by multiple professional bodies and regulatory agencies.
- Advanced strategies** should be considered in addition to fundamental strategies when there is evidence the fundamental strategies are being implemented and adhered to consistently and there is evidence that rates are not decreasing and/or the pathogenesis (morbidity/mortality among patients) has changed.

**Operational definitions** are included to assist facility teams with road map auditing and identifying whether current work meets the intention behind each road map element.

**Resources** linked within the road map include journal articles, expert recommendations, electronic order sets and other pertinent tools which organizations need to assist in implementation of best practices.

Road map sections	Road map questions (If not present at your hospital or answering no, please see next column for suggested resources)	If specific road map element is missing, consider the following resources:
<b>The facility's core strategies for the early detection and treatment of sepsis and septic shock</b> <b>FUNDAMENTAL</b> <i>(check each box if "yes")</i> <ul style="list-style-type: none"> <li><input type="checkbox"/> A physician is designated to lead sepsis performance improvement efforts.</li> <li><input type="checkbox"/> Sepsis champions are promoted throughout the facility.</li> <li><input type="checkbox"/> Routine sepsis screening performed in the ED and inpatient units based on SIRS criteria.</li> <li><input type="checkbox"/> Standardized order sets in the ED and inpatient units for early detection and treatment of sepsis and septic shock that incorporate the Surviving Sepsis Campaign 3 and 6 hour bundles.</li> <li><input type="checkbox"/> For patients with sepsis or septic shock evidence based guidelines are in place that indicate when to transfer to a higher level of care.</li> </ul>		<ul style="list-style-type: none"> <li>Screening for sepsis in the emergency department can lead to early treatment and save lives. Consider using the MHA ED Seeing Sepsis Screening tool identified signs and symptoms. <a href="#">MHA ED Seeing Sepsis Screening Tool</a></li> <li>A standardized order set can provide the care team with clear direction on how to treat septic patients coming into the emergency department. Use the Seeing Sepsis 3 and 6-hour bundles to ensure that your organization incorporates all essential treatment elements. <a href="#">Surviving Sepsis 3 Hour Bundle</a> <a href="#">Surviving Sepsis 6 Hour Bundle</a></li> </ul>

© 2017 Minnesota Hospital Association | 1

Sepsis webinar recordings, videos



### Webinar recordings

- Recognition and Management of Severe Sepsis and Septic Shock, June 2017
- Download the slide presentation



### Seeing Sepsis toolkit

- Sepsis screening tool: ED
- ED algorithm
- Sepsis simulation tool: ED
- ED triage poster
- Act fast poster
- Early detection graphic tool
- Sepsis screening tool: inpatient
- Sepsis simulation tool: inpatient
- Order bundle for hospitals with an ICU

# Question and Answer

