Sepsis Learning Collaborative:

Improving Inter-Hospital Transfers for Patients with Sepsis

How to Work With ICU to Improve Sepsis Care Transitions and Boarding

Presenters

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Improving Inter-Hospital Transfers for Patients with Sepsis

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Conflicts of Interest

- This speaker has no relevant financial relationships to disclose
- Topics discussed in this lecture are components of the American College of Emergency Physicians Emergency Quality Network (E-QUAL)
- The content of this lecture was developed following an extensive literature search and contains up-to-date, evidence-based information

Objectives

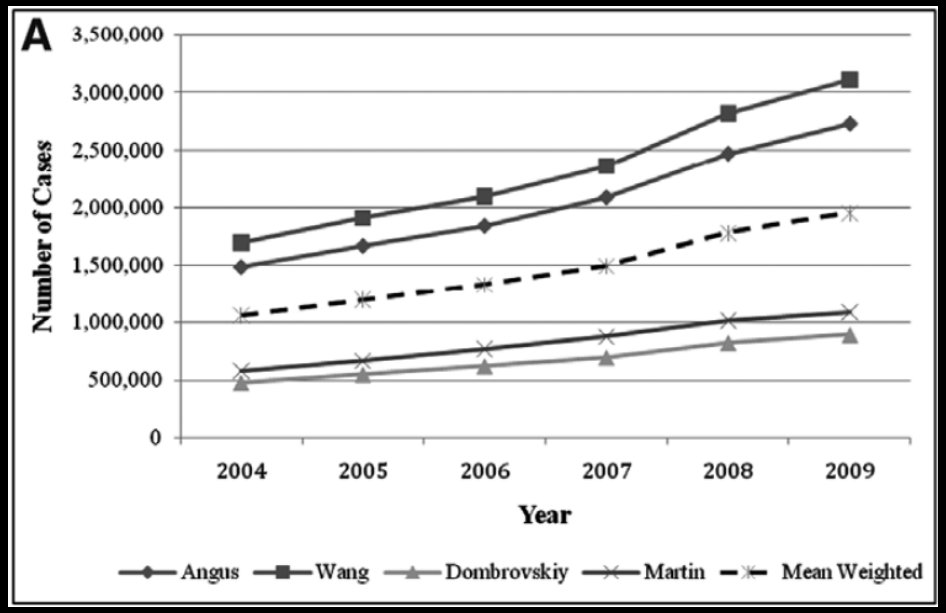
- To describe current systems of care for patients with sepsis, including clinical outcomes
- To provide framework for thinking about sepsis systems of care
- To define strategies to build and improve regional sepsis networks

What is Sepsis?

Sepsis is the systemic response to infection.

Sepsis is sometimes adaptive, but in severe cases, it can be responsible for organ failure and death.

Image courtesy MIMS, Inc.



Severe sepsis is now responsible of 17% of all in-hospital deaths

Severe sepsis accounts for 40% of all ICU expenditures (almost $17 billion)

Gaieski DF, et al. Crit Care Med 2013;41:1167-74.

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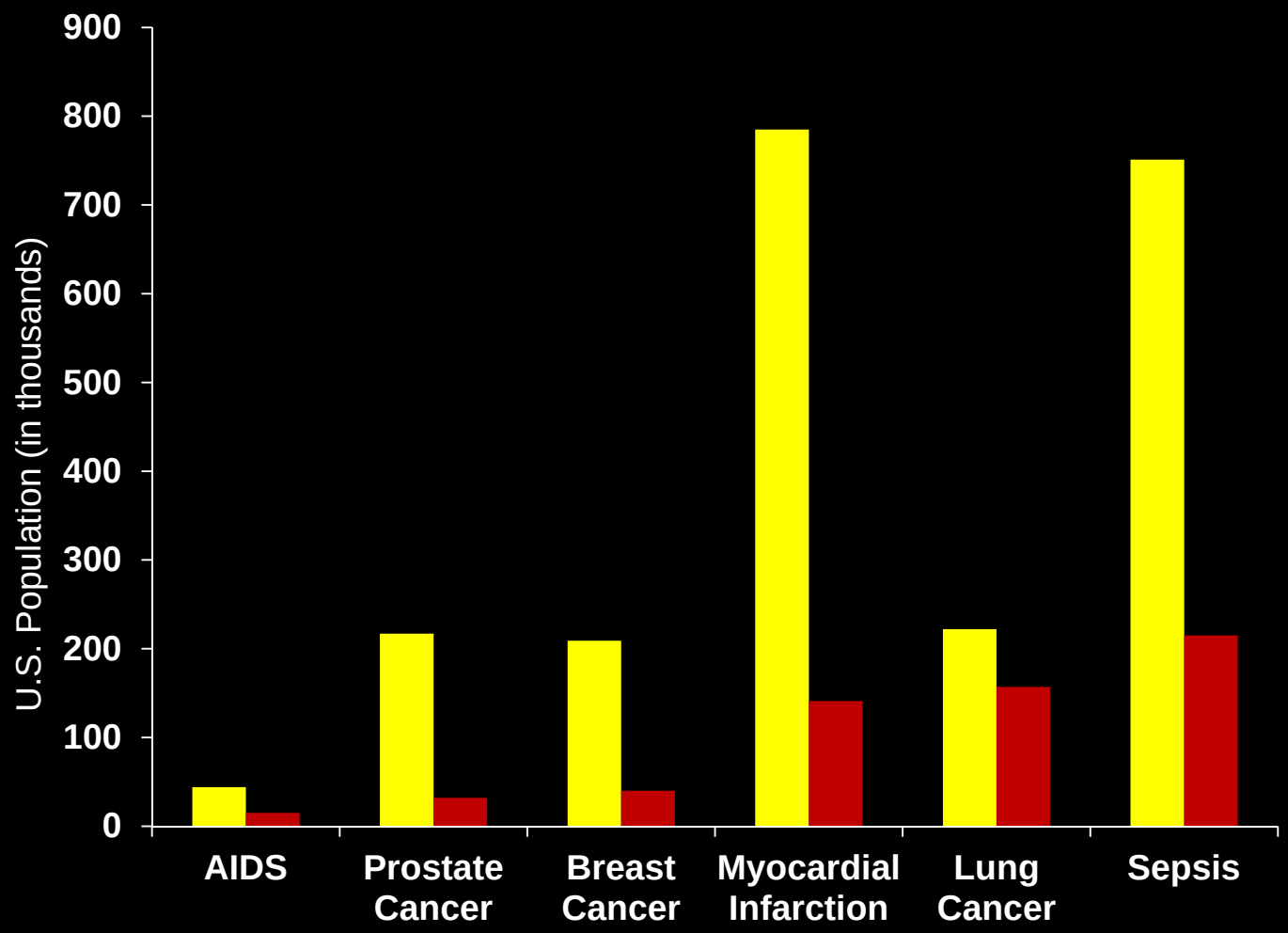

Martin G. et al. N Engl J Med 2003;348:1546-1554

American Cancer Society

American Health Association

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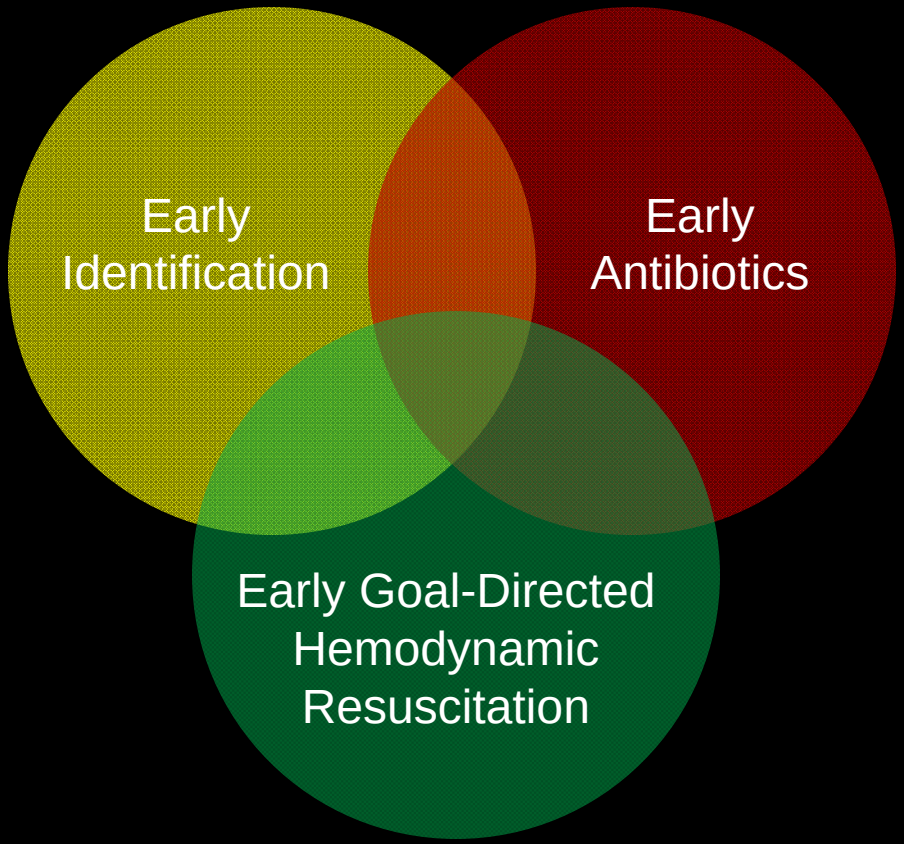
Early Sepsis Therapy



Osborne TM. Emerg Med Crit Care Rev 2006.

Where does <u>regionalization</u> fit into existing sepsis treatment algorithms?

* Not SEP-1

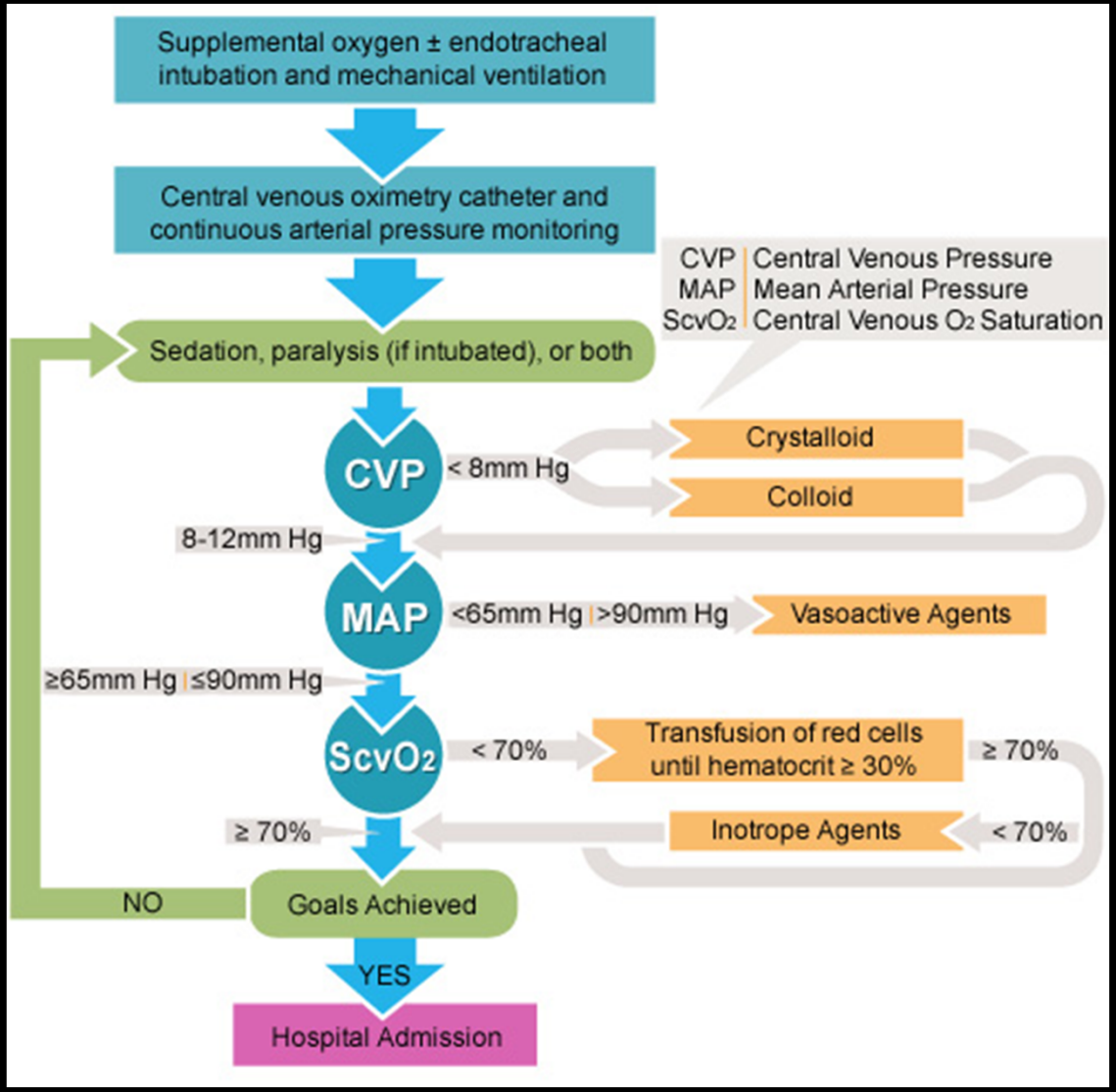
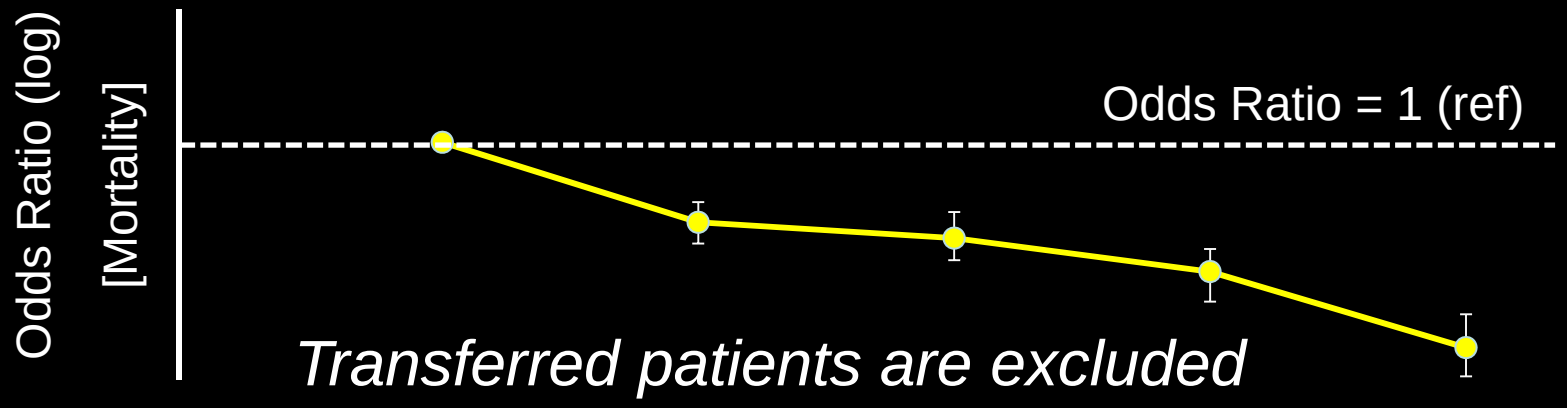


Image courtesy Surviving Sepsis Campaign©

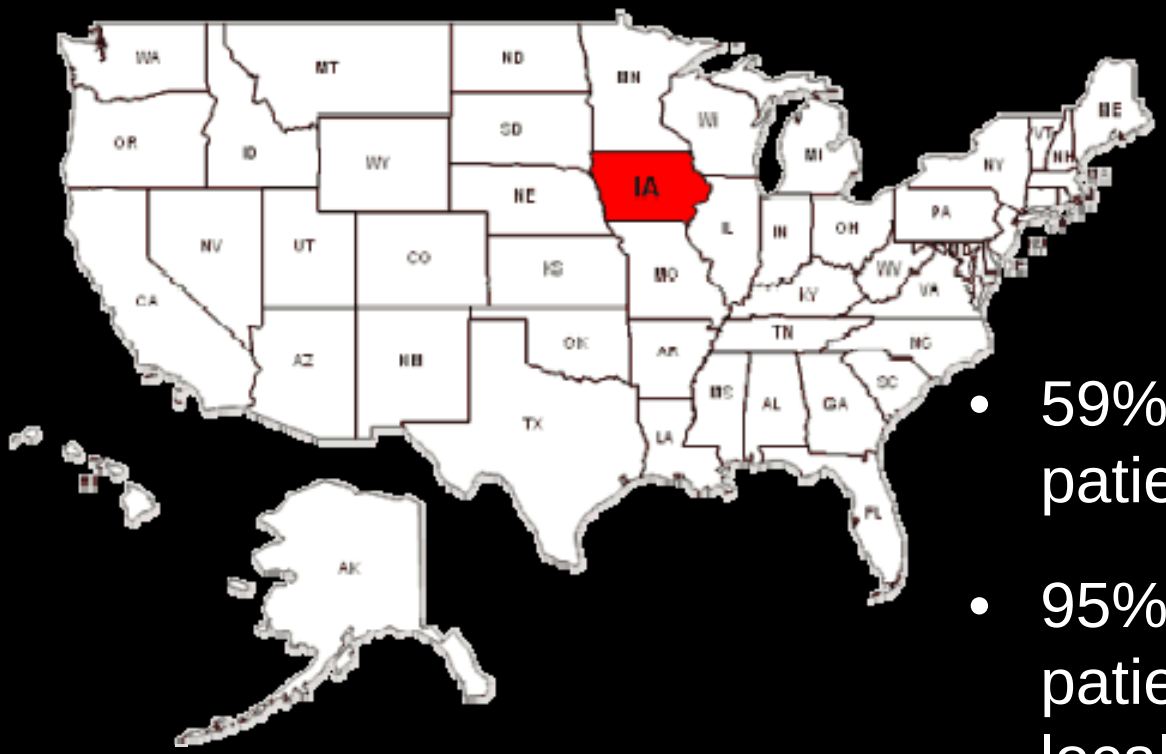
Background: Volume Influences Outcomes

Diagnosis	ED Case Volume Quintile (95% CI)				
	Very Low	Low	Medium	High	Very High
Sepsis					
Overall mortality rate, %	18.0 (17.8–18.2)	18.9 (18.6–19.1)	18.6 (18.4–18.9)	17.7 (17.4–17.9)	15.8 (15.6–16.0)
Unadjusted OR	Ref	1.02 (0.98–1.05)	0.98 (0.94–1.02)	0.89 (0.85–0.93)	0.74 (0.70–0.78)
Adjusted OR*	Ref	0.83 (0.79–0.87)	0.80 (0.76–0.85)	0.74 (0.69–0.78)	0.62 (0.58–0.67)
Early mortality rate, %	7.8 (7.6–8.0)	7.7 (7.5–7.9)	7.2 (7.0–7.3)	6.8 (6.6–6.9)	6.0 (5.8–6.1)
Unadjusted OR	Ref	0.96 (0.92–1.01)	0.89 (0.85–0.94)	0.84 (0.80–0.88)	0.69 (0.65–0.74)
Adjusted OR*	Ref	0.84 (0.80–0.89)	0.80 (0.76–0.86)	0.78 (0.72–0.83)	0.67 (0.62–0.73)



Kocher KE, et al. Ann Emerg Med 2014;64(5):446-57.

Background



- 59% of Iowa severe sepsis patients are transferred
- 95% of rural sepsis patients seek care at their local hospital

Mohr NM, et al. Crit Care Med [in press] 2016.
Mohr NM, et al. J Crit Care [in press] 2016.

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Background: Rural Sepsis Outcomes

Image courtesy Shutterstock (Lightspring)

- Inter-hospital transfer is associated with 9.2% increased mortality (21% higher if transferred from inpatient status)
- Rural hospital bypass increases mortality by 5.6%
- Adherence with *Surviving Sepsis Campaign* targets in a sample of transferred sepsis patients was 11%
  - Appropriate antibiotics : 34%
  - Adequate fluid bolus by 3 h: 54%

Faine BA, et al. Crit Care Med 2015;43:2589-96.
Mohr NM, et al. Crit Care Med [in press] 2016.
Mohr NM, et al. J Crit Care [in press] 2016.

Question

How can sepsis care be improved outside tertiary centers?

Is early inter-hospital transfer the solution?

Image courtesy Shutterstock (Lightspring)

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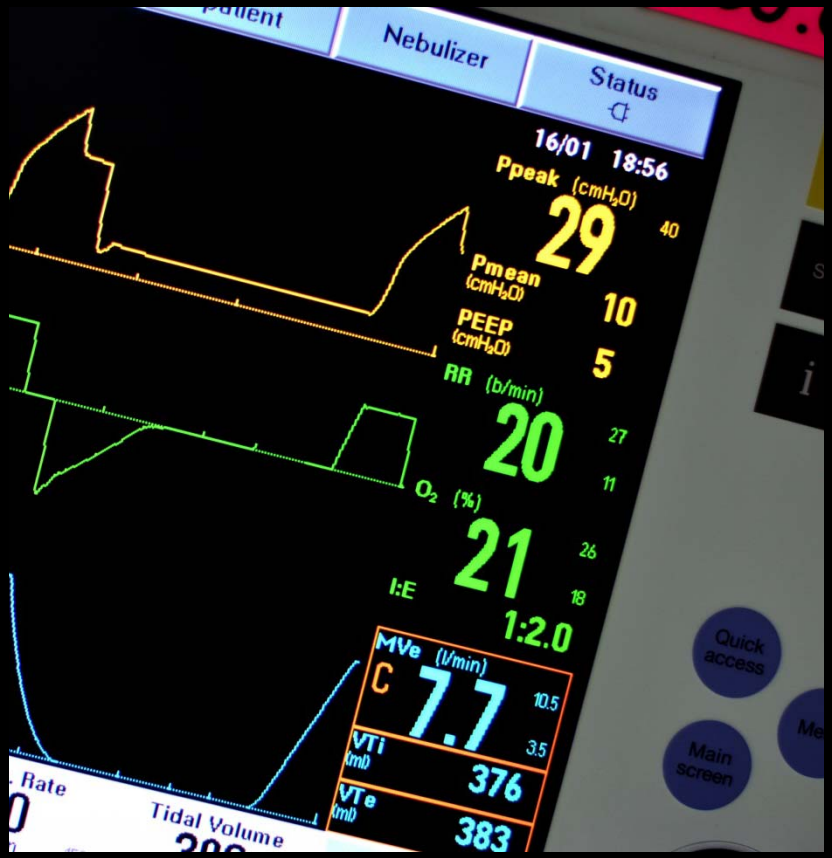
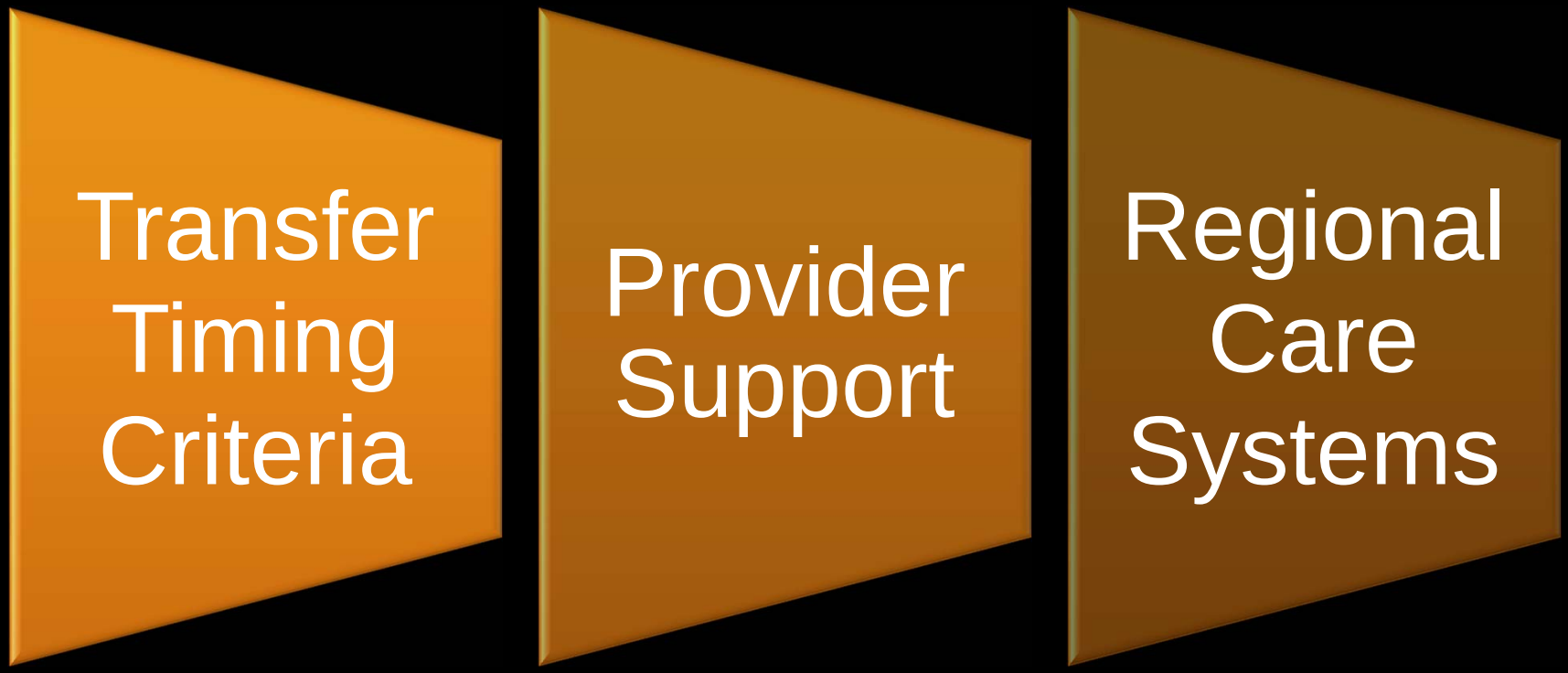
Sepsis is Different from Trauma



- Most important aspects of care are simple
- Advanced resources not necessary early
- Guidance can be provided remotely (telemedicine)

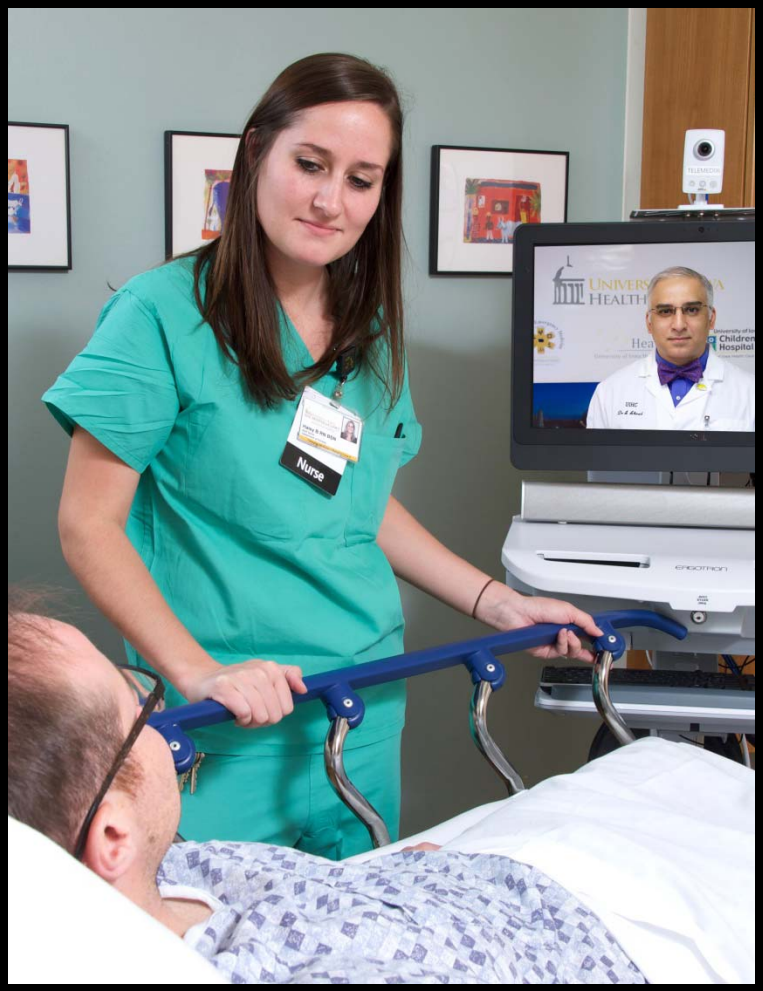
Regional Sepsis Care



Transfer Timing Criteria/Guidance

- Early risk stratification for transfer
- Prioritizing early care over early transfer
- Surveillance of admitted patients with infection
- Treatment pathways

Provider Support



- Access to high quality transport services
  - With ability to continue sepsis therapy
- Access to specialist guidance
  - Telemedicine
- Real-time performance feedback

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Regional Care Systems

- Identification of hospital capabilities
- Patient risk stratification for transfer
- Formalizing transfer networks and developing common treatment pathways
- Standardizing transfer communication
- Incorporating EMS

KSP
Kansas Sepsis Project

Conclusions

- Transferred sepsis patients are at high risk of poor outcomes, perhaps *because* of the inter-hospital transfer process
- Developing regional systems of sepsis care can improve transitions of care, bundle adherence, and clinical outcomes
- Focusing on high quality early care pre-transfer may improve sepsis survival

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How to Work With ICU to Improve Sepsis Care Transitions and Boarding

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Interim Chair, Department of Emergency Medicine
Einstein Healthcare Network
Professor of Emergency Medicine
Jefferson Medical College

First Steps

- Get to know your ICU Physician and Nursing Leaders
- Create trust and develop the relationship
- Invite them to your ED Staff Meetings
- Keep all communication and emails positive, constructive, and professional

Create the ED-MICU Workgroup Share the Evidence for Best Practice

- Multidisciplinary Group
- Meetings every 2 weeks
- Mission Statement
- Agenda
- Fix the easy stuff first!
- Nothing is important until you measure it!

Mission Statement

- “To improve the rapid ED Care Process and timely Disposition to MICU for all critical patients with Sepsis”
- “To significantly reduce the morbidity and mortality of our patients with Sepsis”

Process Mapping

- Create “Process Maps” for each segment of the Sepsis Patient
- Immediate ED Care for Suspected Sepsis and Septic Shock
- MICU Bed Order and Handoff and Orders
- MICU Bed ready and RN handoff and Transport

Thin Slice: First Hour

- Early Recognition
- Sepsis Bundle Completion
- Intubation and Vent Management
- Fluid Bolus and Resuscitation
- Broad Spectrum Antibiotics
- Repeat Lactate
- Special Imaging
- Pressors and stabilization

Second Hour

- MICU bed requested
- MICU Physician consulted and at Bedside
- MICU orders written
- Other Advanced Studies and Treatment needed
- MICU Bed Assigned

Third Hour

- ED RN Handoff and all Documentation completed
- ED RN "To-Do" list (what have we NOT done yet)
- Transport to MICU
- "The ABCs and the PDSA of the ICU Queue": GershengornHB. AnnAmThoracSoc June 2015; V12,N6,pp791-793

Create the Measurement Tool

- Bedside measurement tool is best
- ?Paper vs EMR?
- Assign QA Staff to abstract each Sepsis Tool concurrently
- Concurrent Email Summary of each Sepsis Case to both ED and MICU staff
- Include each Milestone, and what went well!
- Benchmark
- Reflect upon struggles and meet to find new solutions and new Policy

<PLACE PATIENT STICKER HERE> NOT PART OF PERMANENT MEDICAL RECORD – FOR QA ONLY

EINSTEIN EMERGENCY MEDICINE
Adult Sepsis Bedside Tool

Date: Patient Weight:

VITAL SIGNS: T HR RR BP

SIRS SIGNS: T >38 or < 36 HR >90 RR > 20 WBC > 12, < 4 or > 10% bands

EARLY RECOGNITION: SIRS SIGNS AND SUSPECTED INFECTION

	TIME (24hr)	GOAL (cumulative time)
Triage	_____	<10 minutes
Recognition of Sepsis	_____	<10 minutes
Severe Sepsis?	YES?	NO?
ED Provider to Bedside	_____	<10 minutes

IV ACCESS AND FLUID BOLUS

IV Access	_____	<15 minutes
IVF BOLUS 30cc/kg Start time (Use Pressure bag)	_____	_____
Contraindications to full bolus?	_____	
IVF End time	_____	<1 hour

CULTURES and LABS

Labs drawn	_____	_____
Initial Lactate: _____	SEVERE SEPSIS?	_____
Blood cultures/urine cultures	_____	_____
Repeat lactate: _____	SEVERE SEPSIS?	_____

EARLY ANTIBIOTICS AND SHOCK MANAGEMENT

Antibiotics	_____	<3 hours

Need vasopressors? YES/NO

EARLY CRITICAL CARE CONSULT AND ED2 TIME

MICU or Surgery Paged	_____	_____
Admitting Consultant @ Bedside	_____	_____

Beyond the Basics: The ED

- Create a “Minimum Data Set” for the ED Workup
- “The patient is in Shock, and I just tubed them”
- “We have Critical Care Labs and Lactate resulted”
- “We have the EKG and the CXR”
- “The Sepsis Bundle has been started”
- The MICU really needs nothing else.

Beyond the Basics: The Call

- Innovate the MICU call process to include all key personnel all at once
- MICU Attending and Fellow at bedside <30minutes
- MICU Charge RN (to ready MICU bed and workforce)
- SDU Charge RN (to take a stable pt to free up MICU bed)
- BedBoard and RN Supervisor

Beyond the Basics: At Bedside

- Create a culture of collaboration and cross-check
- Meet your MICU team at the bedside
- MICU Team should confirm ED Bundle completion
- 6 hr MICU Bundle metrics should also be cross-checked
- 24hr Outcome as well as “Pt Discharged from MICU” should be communicated to both Departments

Complexities for Consideration

- Codify your Criteria for MICU vs CCU admissions
- Include your Surgeons in Sepsis Discussions
- Create a safe “MICU Downgrade” protocol
- Create a “Persistent Lactemia Rule” to reduce dangerous downgrades
- Include SDU Attendings in the Sepsis Workgroup
- Create Surge Capacity Protocol for when MICU is full

ADVANCED IDEAS:
PDSA of the MICU Queue

- ICUs operate at or beyond full capacity
- We must all help to improve MICU thruput
- Decrease “time to transfer out” of MICU (within 1hr)
- MICU bed cleaning/servicing
- SDU Bed Availability
- Flexible staffing model with ICU on-call RNs
- Use Queuing Theory and Simulation

ADVANCED IDEAS: Implementation of a STAT Acuity RN

- Carries the RRT Beeper and is highly specialized RN
- Responds to all Critical cases
- Assists in immediate management concerns
- Confirms that all Bundle elements are met
- Transports the patient to the ICU
- Provides continuity of care
- Improves system-wide patient flow and safety

ADVANCED IDEAS: Hospitalist Bed Management Can Help Thruput

- Twice-daily ICU Bed-Management Rounds
- Regular visits to the ED to access flow
- "Hospitalist bed management effecting throughput from the ED to the ICU", HowellE, et.al. Journal of Critical Care 2010, V25, 184-189

Sepsis Webinar:
Wednesday, September 21st
12:00pm-1:00pmEST

ACEP E-QUAL Network Resources and More Information:
www.acep.org/equal

Contact Nalani Tarrant (Project Manager):
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