

Sepsis Management

UCLA Health



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Sepsis Project Manager

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Background

- UCLA Health – An academic medical center that includes acute care inpatient services, ambulatory clinics, urgent care centers, and psychosocial services.
- Bed Capacity
 - Ronald Reagan – 520
 - Santa Monica – 266
- Daily ED Patient Flow
 - Ronald Reagan - 155
 - Santa Monica – 145
- At UCLA Health, we are building an interdisciplinary team that will work together to improve patient outcomes.

MOVERS

- M – Mortality
- O – Outcomes
- V – ValU
- E – Patient Experience
- R – Reduce Readmissions
- S – Patient Safety

Background

Severe sepsis affects more than 1 million Americans/year

- 28-50% mortality rate

Bundle compliance ↑, mortality rates ↓

Surviving Sepsis Campaign

- Global initiative to improve sepsis mortality rates
- Defines standards of care to treat severe sepsis and septic shock

DSRIP

(Delivery System Reform Incentive Payments)

DSRIP sepsis guidelines

- Pay for Performance Initiative – 21 CA hospitals receive Medicaid dollars for reaching pre-set milestones
- Based on guidelines from Surviving Sepsis Campaign and Society of Critical Care Medicine

Goal = 55% bundle compliance by July 2015

- 4 elements required
 - Lactate
 - BC x 2 sets
 - IV broad spectrum abx
 - IVF bolus

DSRIP Criteria

Severe Sepsis Criteria

- 2 SIRS
- + Infection – Suspected or Confirmed
- + New Onset Organ Failure or Dysfunction

Septic Shock Criteria

- Severe Sepsis
- + Hypotension (SBP < 90) and/or ↑ Lactate (≥ 4)

CMS/TJC Criteria for Core Measures

Beginning with October 1, 2016 Discharges

Severe Sepsis Criteria

- 2 SIRS
- + Infection – Suspected or Confirmed
- + New Onset Organ Failure or Dysfunction

Septic Shock Criteria

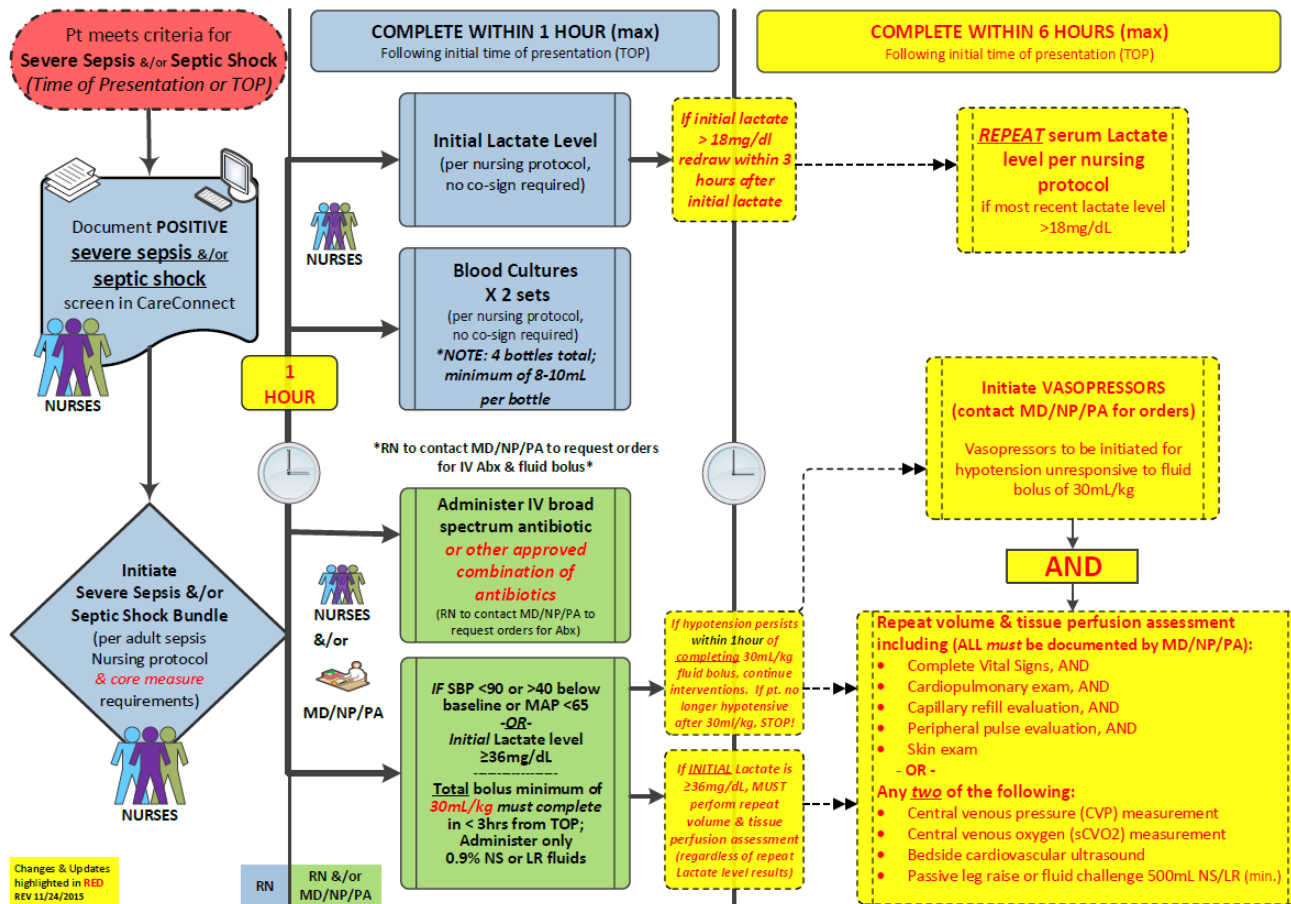
- Severe Sepsis
- + Persistent Hypotension and/or Lactate (≥ 4)

Sepsis Improvement Team Structure

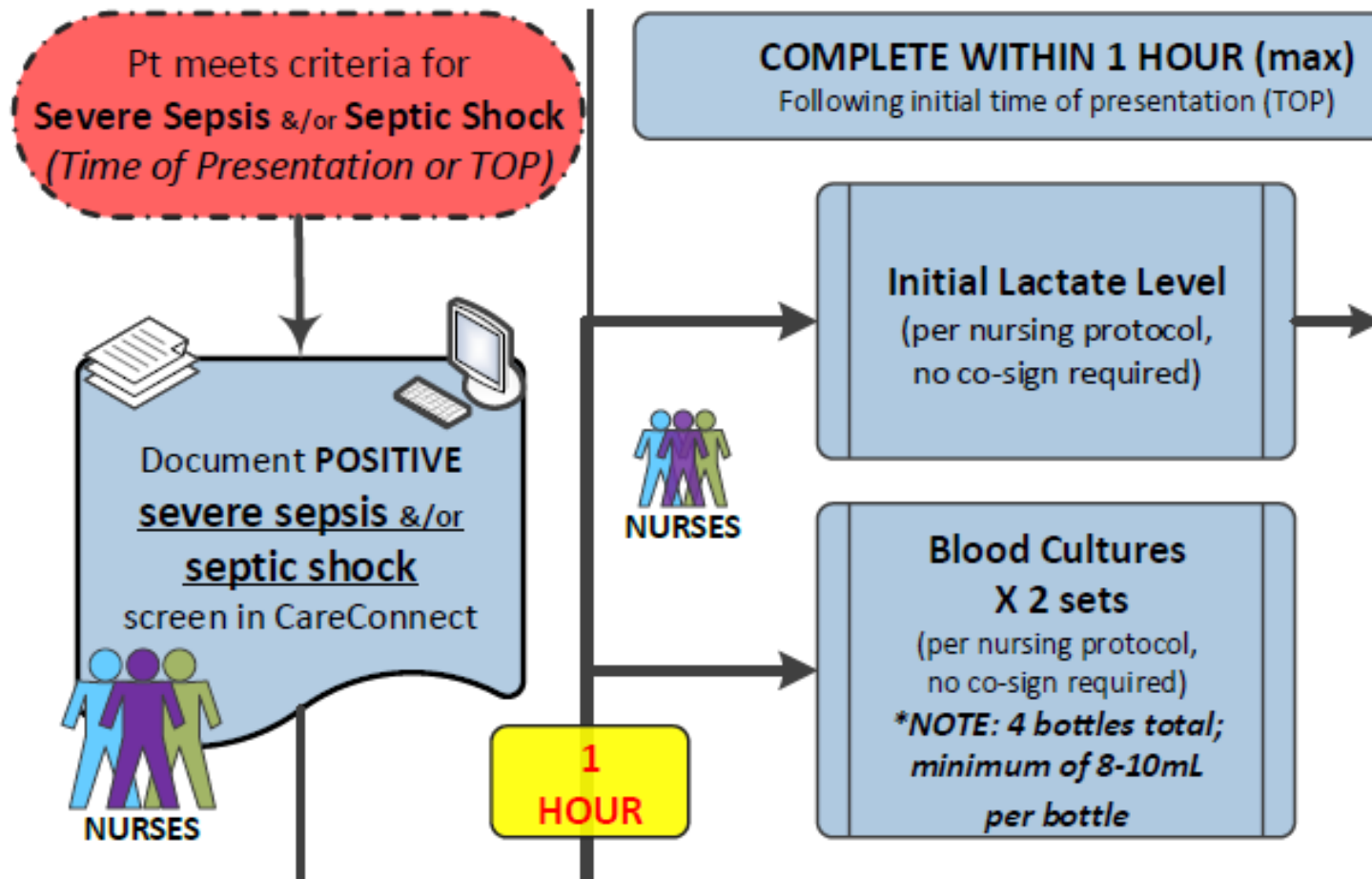
- Sepsis Physician Champions
 - Health System
 - Unit Level
- Project Managers, Health System
 - Mortality
 - Sepsis
- Sepsis Executive Committee
- Quality Management Services - QMS
- Sepsis Champions
- PI Project Teams

Sepsis Core Measures Process Map

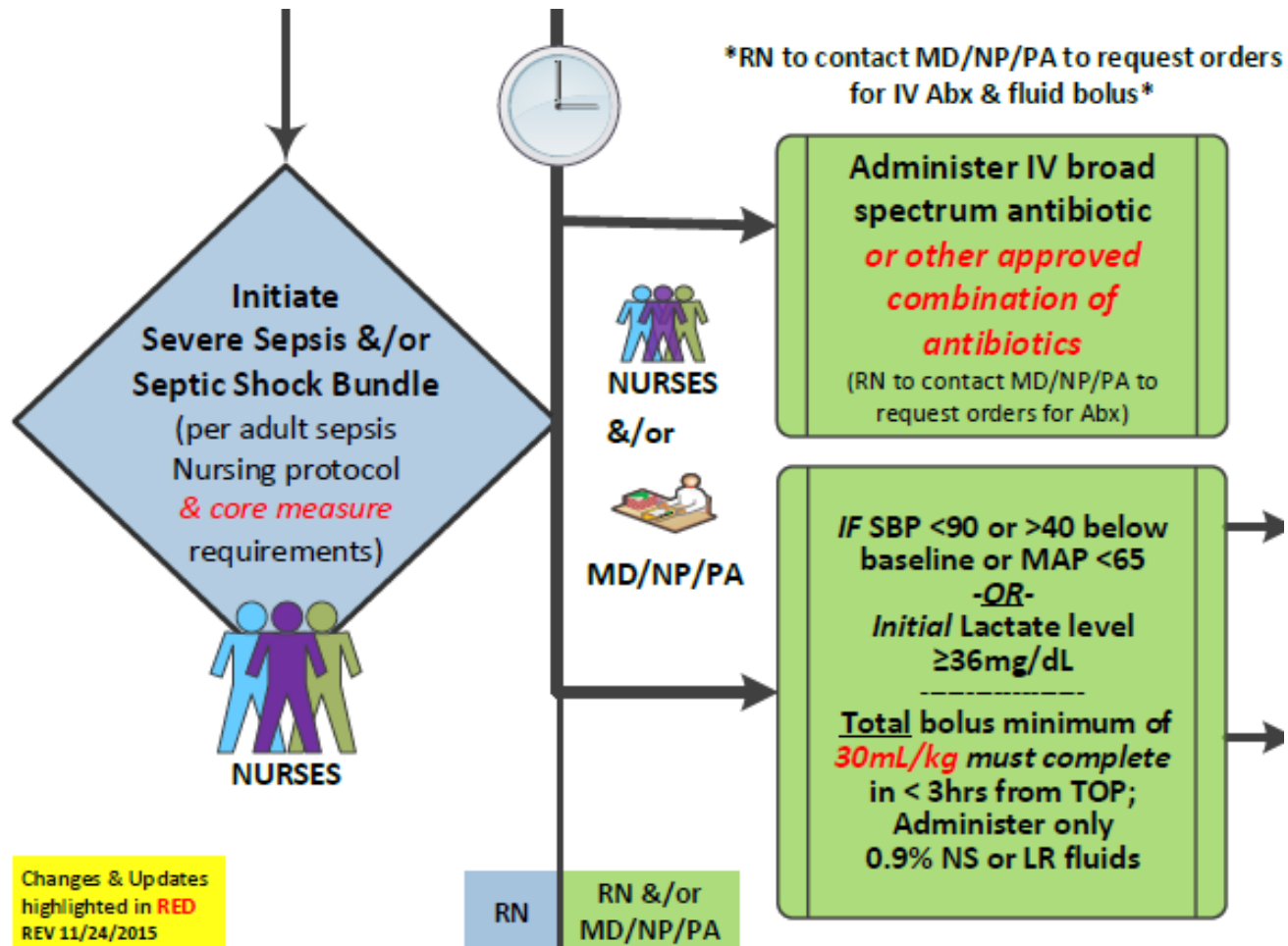
UCLA Health SEVERE SEPSIS & SEPTIC SHOCK: EARLY MANAGEMENT BUNDLE



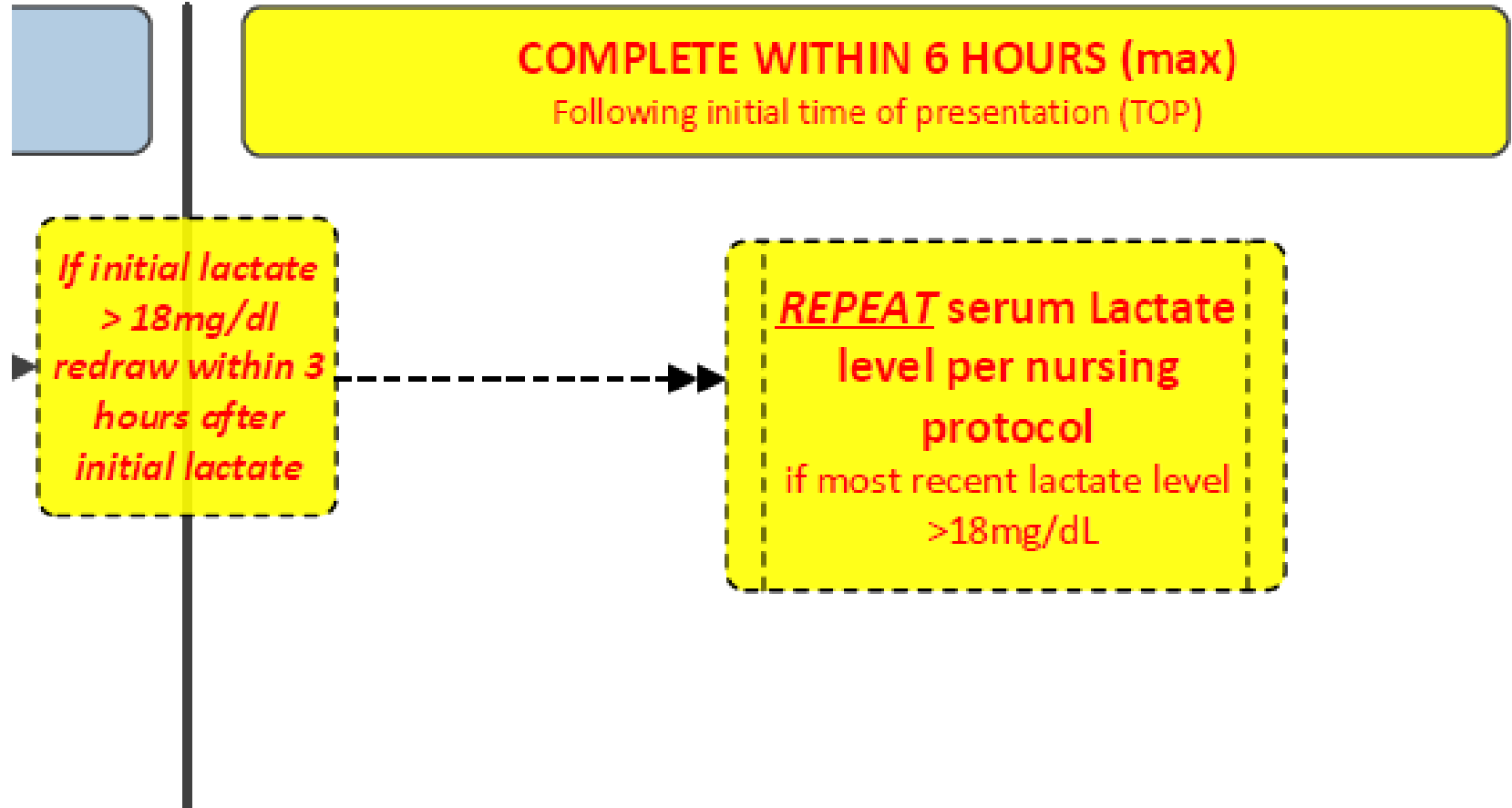
Sepsis Core Measures Process Map



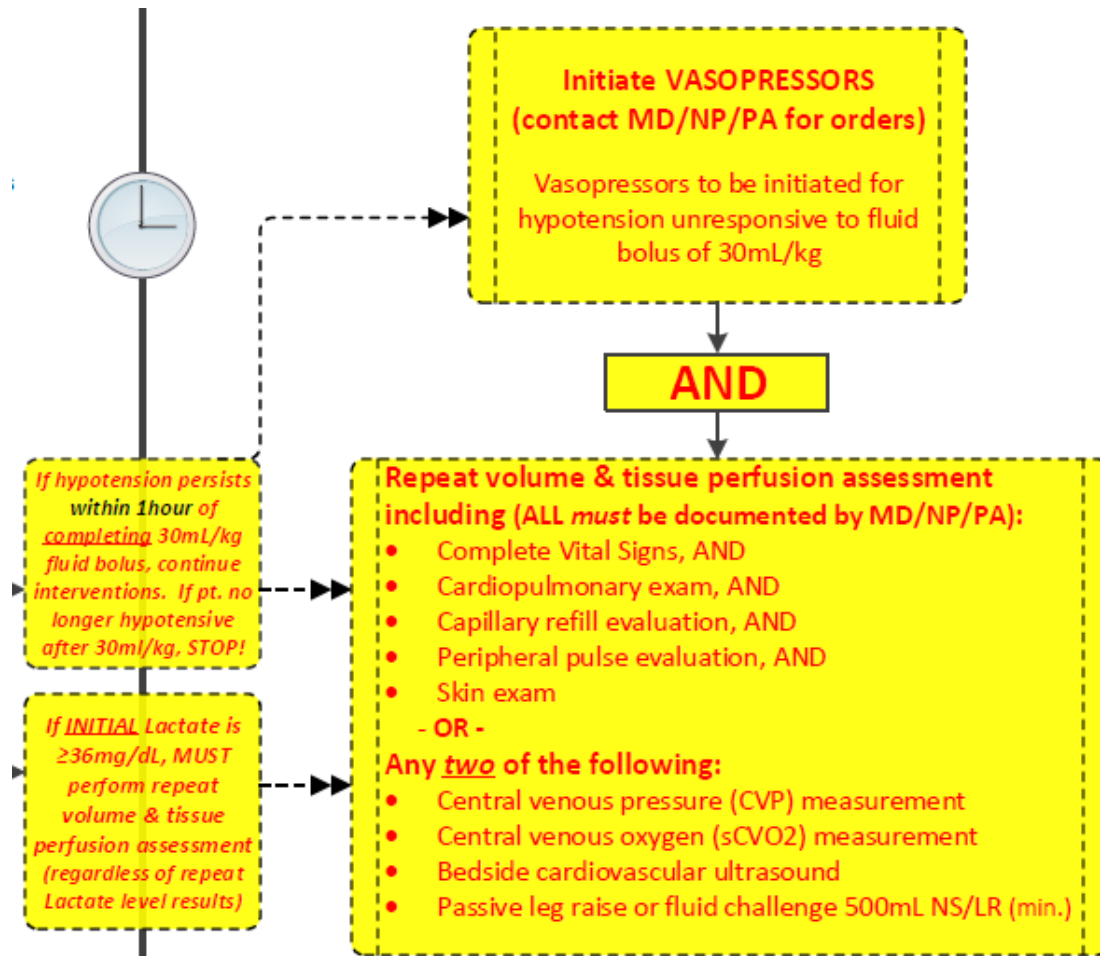
Sepsis Core Measures Process Map



Sepsis Core Measures Process Map

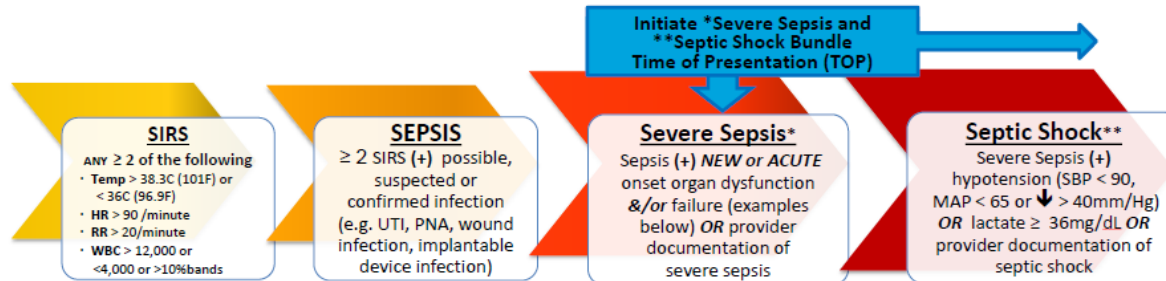


Sepsis Core Measure Process Map



Sepsis Continuum

UCLA Health SEPSIS: Defining a Disease Continuum



*Initiate Severe Sepsis/Septic Shock: Early Management Bundle as soon as patient meets criteria for Severe Sepsis &/or Septic Shock

- (*) **Severe Sepsis – Implement bundle within 1 hour of TOP**
- ✓ Draw Lactate
- ✓ Draw Blood Cultures x 2 sets (4 bottles) **before** abx
- ✓ Administer broad spectrum IV abx
- (*) **Severe Sepsis – Follow-up**
- ✓ If initial lactate > 18 , repeat lactate within 3 hours after initial lactate
- (**) **Septic Shock – Implement bundle within 1 hour of TOP**
 Initiate all elements required for Severe Sepsis *plus*:
- ✓ Administer IVF bolus of 0.9% NS or LR 30ml/kg (complete within 3 hours of TOP)
- ✓ If hypotension persists within **1 hour** of completion of IVF bolus, administer **vasopressors** and MD/NP/PA performs **repeat volume and tissue perfusion assessment**.
- ✓ If initial lactate ≥ 36 , MD/NP/PA performs **repeat volume and tissue perfusion assessment**.

For additional details, see Process Map of Severe Sepsis & Septic Shock: Early Management Bundle

For Questions or Inquiries Contact:

Ronald Reagan UCLA Medical Center
 Quality Management Services – (310)-794-0224
 UCLA Medical Center, Santa Monica
 Quality Management Services – (424)-259-8532

Organ Dysfunction

Organ Dysfunction r/t chronic disease or medication does not apply

- Cardiovascular:** Systolic BP < 90 OR MAP < 65 OR decrease by > 40 mmHg from baseline for patient = (+)Septic Shock
- Respiratory:** New need for mechanical ventilation or BIPAP
- Renal:** Creatinine > 2.0 OR urine output < 0.5 mL/kg/hr for 2 hours
- Hematologic:** Platelets $< 100,000$ OR INR > 1.5 (not on Warfarin) OR aPTT > 60 sec
- Hepatic:** Bilirubin > 2.0
- Metabolic:** Lactate > 18 mg/dL = (*)Severe Sepsis
 Lactate ≥ 36 = (**)Septic Shock
- Neurologic:** Altered mental status OR decrease LOC OR decrease GCS

Resources

- UCLA Sepsis Website <http://sepsis.mednet.ucla.edu/pages/>
- Nurses** - use UCLA Adult Sepsis Nursing Protocol & Sepsis Nursing Lab Panel in CareConnect to initiate severe sepsis/septic shock bundle for ALL patients ≥ 18 yrs. meeting severe sepsis &/or septic shock criteria
 How to use Lab Panel - "Manage Orders," Type in "Sepsis," Select "Sepsis Nursing Order Panel," and choose "No co-sign needed"
 Nurse Driven Protocol - <http://www.mednet.ucla.edu/Policies/pdf/NursingGuidelines/Sepsis.pdf>
- MD/NP/PA** - use Adult Sepsis Order Set in CareConnect for ≥ 18 yrs.

Rev 11/2015

Sepsis Order Set

▼ **Adult Sepsis Focused Order Set** [Manage My Version](#) ▼

Add Order

For adults with normal renal function.

- 1) Measure lactate level.
- 2) Obtain blood cultures x 2 prior to administration of antibiotics.
- 3) Administer broad spectrum antibiotics within one (1) hour of sepsis presentation or positive sepsis screen.
- 4) Administer 30 mL/kg crystalloid for hypotension and/or lactate ≥ 36 mg/dL.

[Surviving Sepsis Campaign](#)

▼ General	
▶ Vital Signs	1 of 1 selected
<input checked="" type="checkbox"/> Maintain Mean Arterial Pressure (MAP) > 65 mmHg <small>Routine, Until discontinued starting Today at 1320 Until Specified</small>	
▶ Nursing	1 of 1 selected
<input checked="" type="checkbox"/> Antibiotics must be administered within 1 hour of sepsis identification and after cultures have been obtained. <small>Routine, Until discontinued starting Today at 1320 Until Specified Antibiotics must be administered within 1-hour of sepsis identification.</small>	
▼ Labs	
▶ Now Labs	2 of 4 selected
<input checked="" type="checkbox"/> Lactate <small>P STAT, Once First occurrence Today at 1320 Vein</small>	
<input checked="" type="checkbox"/> Redraw Lactate 3 hours after 1st lactate level if first lab result is >18 mg/dl. Discontinue order if not applicable. <small>STAT, Once - Starting in 3 hours First occurrence Today at 1620</small>	
▶ Microbiology	1 of 1 selected
<input checked="" type="checkbox"/> Blood Cultures x 2 from different sites	
<input checked="" type="checkbox"/> Blood culture #1 <small>P STAT, Once First occurrence Today at 1320 Central Line</small>	
<input checked="" type="checkbox"/> Blood culture #2 <small>P STAT, Once First occurrence Today at 1320 Peripheral</small>	
▼ IV Fluids	
▶ IV Fluids	0 of 2 selected
▶ IV Fluid Bolus	0 of 2 selected

Sepsis Order Sepsis – Crystalloid Fluid Bolus

sodium chloride 0.9% IV soln bolus 2,480 mL ✓ Accept ✗ Cancel

Administer 31 mL/kg for Severe Sepsis/Septic Shock Bundle if clinically indicated.

Reference Links: 1. Micromedex

Dose: mL/kg 31 mL/kg

Weight Type:

Weight: 89.9 kg 68.4 kg 77 kg 80 kg

Dosing weight: 80 kg (recorded 14 days 11 hours ago)

Administer Dose: 2,480 mL 31 mL/kg × 80 kg (Dosing weight as of Mon Apr 25, 2016 0200)
= 2,480 mL

Administer Amount: 2,480 mL

Route: Intravenous

Priority: STAT

Frequency: STAT

Starting: Today Tomorrow At:

First Dose: Today 1345 Number of doses: 1

Scheduled Times: [Hide Schedule](#)

Administer Over:

Admin. Inst.:

Prod. Admin. (none)

Inst:

Comments (F6): [Click to add text](#)
(300 char max.)

▶ Additional Order Details

Next Required ✓ Accept ✗ Cancel

Sepsis Screening Tool - ED

Sepsis screening - Sepsis Screening ↑ ↓

Time taken: 1608 6/8/2016 Show: [Row Info](#) [Last Filed](#) [Details](#) [All Choices](#)

Values By [Create Note](#)

▼ Sepsis Screening - This shift, or within the past 12 hours prior to RN assessment, does patient have:

>/= 2 signs of SIRS? Temp <36 or >38.3 HR > 90 RR > 20 WBC <4,000 or >12,000 or >10% bands None

SIRS Criteria:

- T >38.3 degrees C (101 degrees F) OR <36 degrees C (96.8 degrees F)
- HR >90
- RR >20
- WBC >12,000 OR <4,000 OR >10% Bands

SUSPECTED/CONFIRMED infection/compromised immune system, an indwelling catheter or central line? Yes No

EXAMPLES:

- UTI
- Pneumonia
- Wound Infection
- Elevated WBC's, etc.
- Hem/Onc or Hx of solid organ/BM transplants
- Long-term steroid use or immune suppression meds

>/= 1 sign of organ system dysfunction or failure (not chronic)? SBP < 90 or MAP < 65 or Decrease by 40mmHg from Baseline for Pt. Need for Mechanical Ventilation or BiPAP

Altered Mental Status or Decreased LOC or decreased GCS Lactate > 18mg/dL Creatinine > 2.0 or Urine Output < 0.5mL/kg/hr for 2 hours Bilirubin >2.0

Platelets < 100,000 or INR >1.5 (Not on Warfarin) or aPTT > 60 sec. None

EXAMPLES of organ system dysfunction or failure (Organ Dysfunction r/t chronic disease or medication does not apply)

- **Cardiovascular:** Systolic BP < 90 OR MAP <65 OR decrease by > 40mmHg from baseline for patient = **(+)Septic Shock**
- **Respiratory:** New need for mechanical ventilation or BiPAP
- **Renal:** Creatinine > 2.0 OR urine output < 0.5mL/kg/hr for 2 hours
- **Hematologic:** Platelets < 100,000 OR INR > 1.5 (not on Warfarin) OR aPTT > 60 sec
- **Hepatic:** Bilirubin > 2.0
- **Metabolic:** Lactate > 18 mg/dL = (*)Severe Sepsis
Lactate greater than or equal to 36 = (**)Septic Shock
- **Neurological:** Altered Mental Status OR decrease LOC OR decrease GCS

Sepsis Screening Tool - Inpatient

Sepsis Screen - Sepsis Admission Assessment

Time taken: 1611 6/8/2016

Show: [Row Info](#) [Last Filed](#) [Details](#) [All Choices](#)

Values By [Create Note](#)

▼ **Sepsis Screen - *Complete ALL Sepsis screening questions once per shift.* - This shift, or within the past 12 hours prior to RN assessment, does patient have:**

SUSPECTED/CONFIRMED Yes No

infection/compromised immune system, an indwelling catheter or central line?

EXAMPLES:

- UTI
- Pneumonia
- Wound Infection
- Elevated WBC's, etc.
- Hem/Onc or Hx of solid organ/BM transplants
- Long-term steroid use or immune suppression meds

>= 2 signs of SIRS? Yes No

SIRS Criteria:

- T >38.3 degrees C (101 degrees F) OR <36 degrees C (96.8 degrees F)
- HR >90
- RR >20
- WBC >12,000 OR <4,000 OR >10% Bands

>= 1 sign of organ system dysfunction or failure (not chronic)? Yes No

EXAMPLES of organ system dysfunction or failure (Organ Dysfunction r/t chronic disease or medication does not apply)

- **Cardiovascular:** Systolic BP < 90 OR MAP <65 OR decrease by > 40mmHg from baseline for patient = **(+)Septic Shock**
- **Respiratory:** New need for mechanical ventilation or BiPAP
- **Renal:** Creatinine > 2.0 OR urine output < 0.5mL/kg/hr for 2 hours
- **Hematologic:** Platelets < 100,000 OR INR > 1.5 (not on Warfarin) OR aPTT > 60 sec
- **Hepatic:** Bilirubin > 2.0
- **Metabolic:** Lactate > 18 mg/dL = (*)Severe Sepsis
Lactate greater than or equal to 36 = (**)Septic Shock
- **Neurological:** Altered Mental Status OR decrease LOC OR decrease GCS

Sepsis Screening Tool - Flowsheet

Flowsheets

File Add Rows Add LDA Cascade Add Col Insert Col Hide Device Data Compact Last Filed Graph Go to Date Values By Refresh Legend Cost

Vital Signs Assessment Intake/Output Invasive Devices Daily Cares/Safety

Mode: Accordion Expanded View All 1m 5m 10m 15m 30m 1h 2h 4h 8h 24h Based On: 0700 | Reset Now

	Admission (Current)...		
	3/3/16	6/8/16	
Making the Connection			
Clinical Goal(s) for the ...			
Sepsis Screen - *Com...	1618	1500	
Neurological			
Neuro Check	Sepsis Screen - *Complete ALL Sepsis screening questions once per shift.* - This shift, or within the past 12 hours prior to RN assessment, does patient have:		
Glasgow Coma Scale	SUSPECTED/CONFIRMED infection/compromised immune system, an	Yes	
Cranial Nerves	>= 2 signs of SIRS?	Yes	
NIH Stroke Scale (Esp...	>= 1 sign of organ system dysfunction or failure (not chronic)?	Yes	
Waist to Hip Ratio	Severe Sepsis/Septic Shock Screen:	POSITI...	
WENT	Interventions:	MD Noti...	

Nurse Driven Protocol

- Based on Positive Severe Sepsis/Septic Shock Screen
- Use Nurse Order Set
 - Lactate
 - Repeat Lactate
 - Blood Cultures x 2 Sets
 - Notify provider and request order for IV abx and fluids if needed



Sepsis Nurse Order Set

Sepsis Nursing Order Panel



Remove

4 of 4 selected

 **Bacterial Culture Blood** 

P STAT, Once First occurrence Today at 1310

 **Bacterial Culture Blood** 

P STAT, Once First occurrence Today at 1310

Lactate 

P STAT, Once First occurrence Today at 1310

Vein

Redraw Lactate 3 hours after 1st lactate level if first lab result is >18 mg/dl. 

Discontinue order if not applicable.

Routine, Once - Starting in 3 hours First occurrence Today at 1610

MOVING Forward to Success

- Sepsis BPA
- Early Recognition and Response Team
- Sepsis Champions
 - Spread Education to Units
 - Bring Ideas for Process Improvement to Committee
- Case Analysis
 - Improve Bundle Compliance
 - Identify Process Improvement Opportunities

Questions

Question?

SMaxwell@mednet.ucla.edu
<http://sepsis.mednet.ucla.edu>

