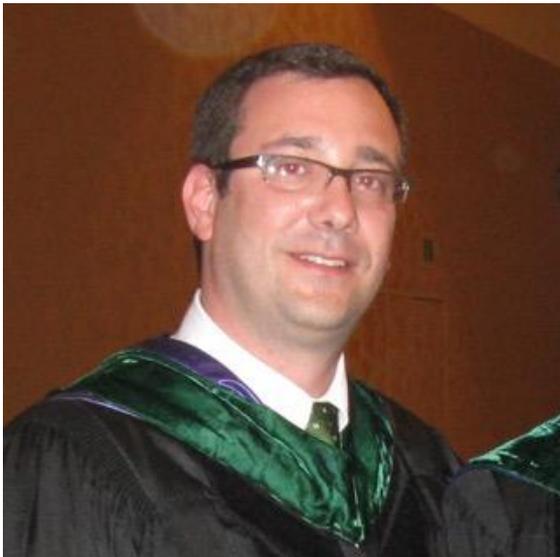


ACEP Emergency Quality (E-QUAL) Network Sepsis Learning Collaborative 2016

Funded by the Center for Medicare & Medicaid Innovation (CMMI)

Presenters



Dr. Todd Slesinger



Dr. Arjun Venkatesh

Objectives

- Review the Sepsis Tool Kit available on the Emergency Quality Network (E-QUAL) website
- Describe the current CMS TJC national hospital performance measures for sepsis: SEP-1
- Clarify areas of the measure to inform providers and data abstracters on how to be complaint
- Describe the use of a Qualified Clinical Data Registry to meet quality reporting requirements for the CMS PQRS program
- Review 6 sepsis quality measures used for quality improvement and public reporting purposes

Understanding the National Hospital Performance Measures for Sepsis: SEP-1

Todd L. Slesinger, MD, FACEP, FCCM, FCCP, FAAEM
Program Director and Academic Chair
Department of Emergency Medicine

Disclosures

- ACEP Sepsis Expert panel – Vice Chair
- ACEP CMMI TCPI SAN – Sepsis Project Manager

Objectives

- Review the Sepsis Tool Kit available on the Emergency Quality Network (E-QUAL) website
- Describe the current CMS TJC national hospital performance measures for sepsis: SEP-1
- Clarify areas of the measure to inform providers and data abstracters on how to be compliant

Sepsis Tool Kit

Sepsis Toolkit



Sepsis Initiative Landing Page

<https://www.acep.org/Legislation-and-Advocacy/Federal-Issues/Quality-Issues/ACEP-E-QUAL-Network-Sepsis-Initiative/>

Sepsis Toolkit

- Guidelines & Materials
 - DART tool - by ACEP Sepsis Expert Panel
 - An evidence-driven tool to guide the early recognition and treatment of sepsis and septic shock
 - <https://www.acep.org/dart/>
- Collaboration with the GNYHA
- They used both invasive and non-invasive pathways across approximately 70 hospitals with varying resources
 - Easy to understand protocols and screening tools

Sepsis Toolkit

- CME Credit
 - Up to date lectures from ACEP Scientific Assembly on sepsis including treatment of adults and children
- Webinar series available
- Information on SEP-1
- Access to the Clinical Emergency Data Registry (CEDR)

SEP-1

SEP-1

- In the FY 2015 IPPS/LTCH PPS final rule (p. 50236), published on August 22, 2014, the Centers for Medicare & Medicaid Services (CMS) adopted this composite measure for the Hospital Inpatient Quality Reporting Program (IQR) for discharges occurring on or later than **October 1, 2015**.

Why?

- The purpose of this composite measure is to facilitate the “efficient, effective, and timely delivery of high quality sepsis care in support of the Institute of Medicine’s aims for quality improvement.”

Some Details

- Much of this is based on the Surviving Sepsis Campaign
 - Some changes were made based on more recent data and publications (ProCESS, ProMISe and ARISE) in terms of reassessment of volume and perfusion status
- Adults (18 or older) with principle or other ICD-10-CM Diagnosis codes of Sepsis, Severe Sepsis and Septic Shock
- This is a composite measure (bundle) meaning
 - All or None

Exclusions

- Patients under the age of 18
- Patients with LOS greater than 120 days
- Directive for comfort measures within 3 hours of presentation of severe sepsis
- Directive for comfort measures within 6 hours of presentation of septic shock
- Transfer in from another acute care facility
- Patients with severe sepsis who expire within 3 hours of presentation
- Patients with septic shock who expire within 6 hours of presentation
- Patient/caregiver refusal for care that must be documented by provider
- Patients receiving IV antibiotics for more than 24 hours prior to presentation

Screening - Definitions

- 1991 Bone et al. published in CHEST the:
 - Definitions of Sepsis and Organ Failure and guidelines for the use of innovative therapies in Sepsis. The ACCP/SCCM Consensus Conference Committee
 - SIRS Criteria
 - Initial Definitions of Sepsis, Severe Sepsis and Septic Shock

Uncomplicated Sepsis

- Suspected infection *plus*
- Two out of Four SIRS criteria
 - Temp > 100.9 (38.3) or < 96.8 (36)
 - Heart Rate > 90
 - Respiratory rate > 20 or PaCO₂ < 32 mm HG
 - WBC > 12K or < 4K or > 10% bands

Severe Sepsis

- Uncomplicated Sepsis (2 or more SIRS) *plus*
- One or more organ dysfunction *including*
 - Serum Lactate > 2.0 mmol/L

Organ Dysfunction

- SBP < 90 or MAP < 70
- Cr > 2.0 or UOP < 0.5 cc/kg for > 2 hours
- Bili > 2
- Platelets < 100,000
- INR > 1.5 or PTT > 60
- Lactate > 2.0 (Lactate > 4.0 is Septic Shock bundle)

Not in CMS definition:

- *Altered Mental Status, GCS < 14*
- *Oxygen Sat < 91% (P/F < 300)*

Septic Shock

- Severe Sepsis *plus*
- Hypotension (SBP < 90 or MAP < 70) *after fluid bolus*
 - Note Lactate > 4.0 *requires* Septic Shock bundle

SEP-1 Severe Sepsis Bundle

- Need suspected source of infection
- Two or more SIRS criteria
- Evidence of Organ Dysfunction
- *Screening tool / checklist can be very helpful*

Severe Sepsis Bundle

- **WITHIN 3 HOURS OF PRESENTATION**
 - Measure serum *Lactate*
 - Obtain *Blood Cultures* prior to antibiotics
 - Administer *Broad Spectrum Antibiotics*

- **WITHIN 6 HOURS OF PRESENTATION**
 - Repeat measurement of serum *Lactate* if **initial is > 2.0**

Severe Sepsis Bundle

- *WITHIN 3 HOURS OF PRESENTATION*
 - Measure serum Lactate
 - Venous is good
 - POC measurement gives you more time to complete the bundle
- “Time of presentation” is defined as the **time of triage** in the Emergency Department

Severe Sepsis Bundle

- *WITHIN 3 HOURS OF PRESENTATION*
 - Obtain *Blood Cultures* prior to antibiotics
 - Very important to make sure this is documented well by nursing
 - *Remember: All or Nothing*

Severe Sepsis Bundle

- *WITHIN 3 HOURS OF PRESENTATION*
 - Administer *Broad Spectrum Antibiotics*
 - With combination regimens, give “broad” first
 - e.g. Pip/Tazo or Cefepime **before** Vanco
 - “broad” must be intra-venous
 - Consider iv push dosing - review administration protocols
 - Consider oral dosing for secondary e.g. Azithromycin

Severe Sepsis Bundle

- *WITHIN 6 HOURS OF PRESENTATION*
 - Repeat measurement of serum Lactate if **Initial is > 2.0**
 - Consider automated ordering through the EHR or
 - Involve the laboratory to create reflex orders

SEP-1 Septic Shock Bundle

- Severe Sepsis Bundle
- 30 mL/kg Fluid Resuscitation (within 3 hours)
- Vasopressor Administration (within 6 hours)
- Repeat Volume Status and Tissue Perfusion Assessment

- *Checklist may be helpful*

Septic Shock Bundle

- ***WITHIN 3 HOURS OF PRESENTATION***
 - Measure Serum Lactate
 - Obtain Blood Cultures prior to antibiotics
 - Administer broad spectrum antibiotics
 - Resuscitation with 30mL/kg crystalloid fluids
- ***WITHIN 6 HOURS OF PRESENTATION***
 - Repeat measurement of Serum Lactate if **initial is > 2.0**
 - Repeat volume status and tissue perfusion assessment
 - Vasopressor administration (If hypotension after fluids)

Septic Shock Bundle

- *WITHIN 3 HOURS OF PRESENTATION*
 - Resuscitation with 30mL/kg crystalloid fluids
 - Documented weight is very important - calculated
 - Consider an order for 30cc/kg
 - 0.9% NS or LR count
 - Cannot document your way out of this (CHF, ESRD ...) unless above exclusion

Septic Shock Bundle

- ***WITHIN 6 HOURS OF PRESENTATION***
 - Repeat volume status and tissue perfusion assessment
 - **Two Methods:**
 - **Focused physical exam *must* include:**
 - Vital signs
 - Cardiopulmonary exam
 - Capillary refill
 - Peripheral pulse evaluation
 - Skin exam
 - *Documented by provider*

Septic Shock Bundle

- **WITHIN 6 HOURS OF PRESENTATION**
 - Repeat volume status and tissue perfusion assessment
 - **Two Methods:**
 - **OR any two of the following:**
 - Central venous pressure measurement
 - Central venous oxygen measurement
 - Bedside cardiovascular ultrasound
 - Passive leg raise or fluid challenge
 - *Documented by provider*

Septic Shock Bundle

- *WITHIN 6 HOURS OF PRESENTATION*
 - Vasopressor administration (If hypotension after fluids)

New Definitions - (Sepsis-3)?

- Do Not Apply to this Measure
- We will discuss next month - Stay Tuned!

Questions?

Severe Sepsis Bundle

- **WITHIN 3 HOURS**
 - Measure serum *Lactate*
 - Obtain *Blood Cultures* prior to antibiotics
 - Administer *Broad Spectrum Antibiotics*
- **WITHIN 6 HOURS**
 - Repeat measurement of serum *Lactate* if **initial is > 2.0**

Septic Shock Bundle

- **WITHIN 3 HOURS**
 - *Severe Sepsis Bundle* **PLUS**
 - Resuscitation with 30mL/kg crystalloid fluids
- **WITHIN 6 HOURS**
 - *Severe Sepsis Bundle* **PLUS**
 - Repeat volume status and tissue perfusion assessment
 - Vasopressor administration

CEDR: Measuring Emergency Care Quality in Septic Shock

**ACEP Emergency Quality (E-QUAL) Network
Sepsis Learning Collaborative 2016**

Arjun Venkatesh MD, MBA, MHS

Disclosures

- Centers for Medicare and Medicaid Innovation
- Centers for Medicare and Medicaid Services
- MCIC Vermont
- Co-Chair CEDR quality measure development subcommittee

CEDR OVERVIEW

CEDR Goals

CEDR seeks to accept patient data from practicing emergency clinicians in a registry seeking to:

1. Provide a unified method for ACEP members to collect and submit Physician Quality Reporting System (PQRS), MOC, OCC, Ongoing Professional Practice Evaluation (OPPE) data to meet quality improvement and regulatory requirements.
2. Promote the highest quality of emergency care for patients.
3. Demonstrate the value of emergency care.
4. Facilitate appropriate emergency care research.

CEDR: Qualified Clinical Data Registries (QCDRs)

- Data aggregator platform
 - Utilize data from all sources (billing, EHR) for all patients
- Allows ACEP to develop clinically meaningful and feasible quality measures
- QCDR allows for
 - Benchmarking reports in real-time
 - CMS payment incentives
 - TJC OPPE/FPPE Compliance
 - MOC Part IV activities (in conjunction with ABEM)

Example Dashboard

Web Demo practice

CEDR e01: Emergency Department Utilization of CT for Minor Blunt Head Trauma for Patients Aged 18 Years and Older

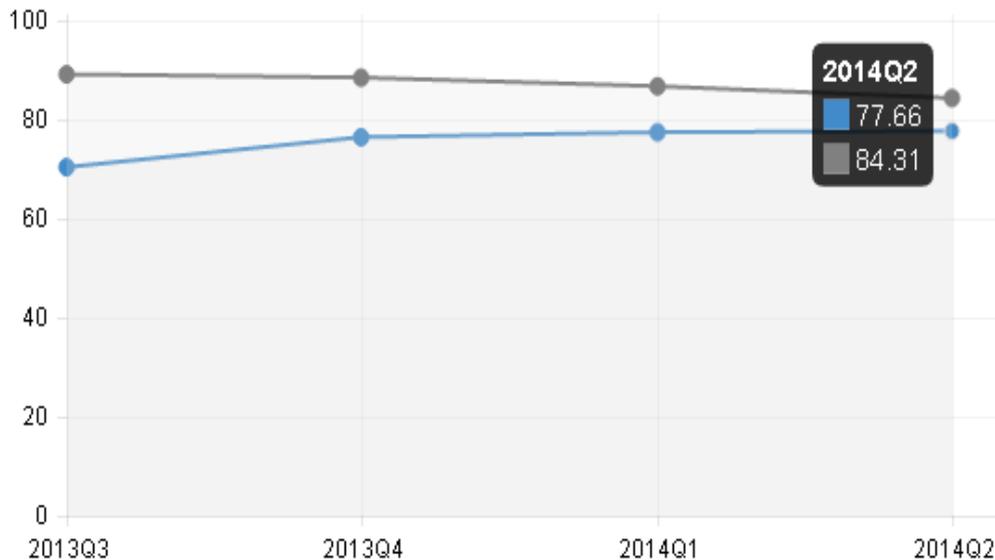


- PERFORMANCE TRENDS
- LOCATIONS
- PROVIDERS
- ALL

PERFORMANCE TRENDS

PERFORMANCE TREND

● PERFORMANCE ● REGISTRY BENCHMARK



QUARTER	ALL	(+)	(-)	%
2014Q2	3347	2822	525	84.31 %
2014Q1	3195	2770	425	86.70 %
2013Q4	3177	2810	367	88.45 %
2013Q3	2645	2357	288	89.11 %



CEDR - Clinical Emergency Data Registry

[Overview](#)

[Advantages](#)

[FAQs](#)

[Resources](#)

[Measures](#)

[News](#)

[Participate](#)

Welcome to ACEP's New Clinical Emergency Data Registry

As part of its ongoing commitment to providing the highest quality of emergency care, ACEP has developed the CEDR registry. This is the first Emergency Medicine specialty-wide registry at a national level, designed to measure and report healthcare quality and outcomes. It will also provide data to identify practice patterns, trends and outcomes in emergency care. CEDR is an evolving registry, which will support emergency physicians' efforts to improve quality and practice in all types of EDs even as practice and payment policies change over the coming years. ACEP has applied to CMS for CEDR to become a "qualified clinical data registry"

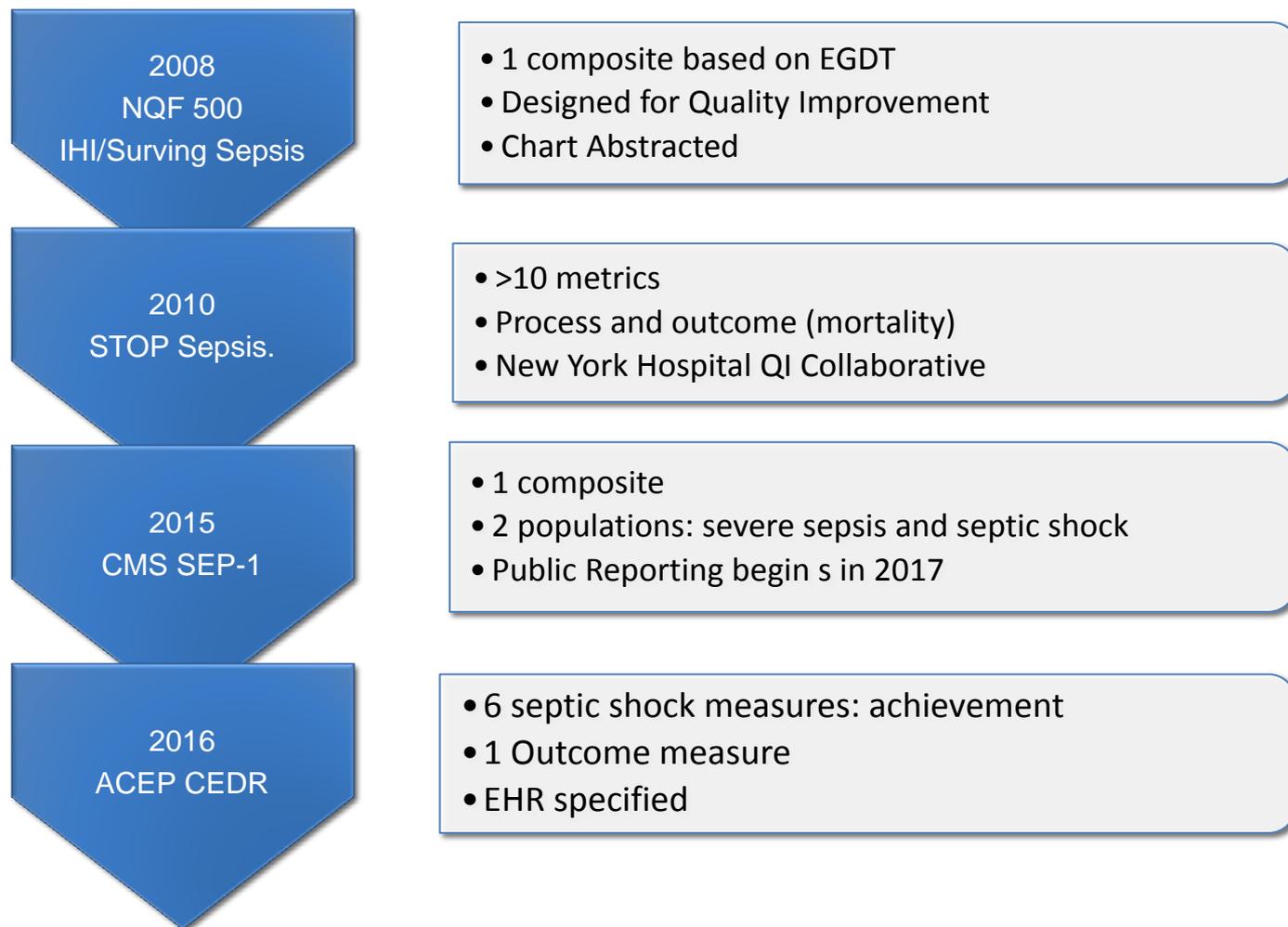


CEDR AND SEPSIS

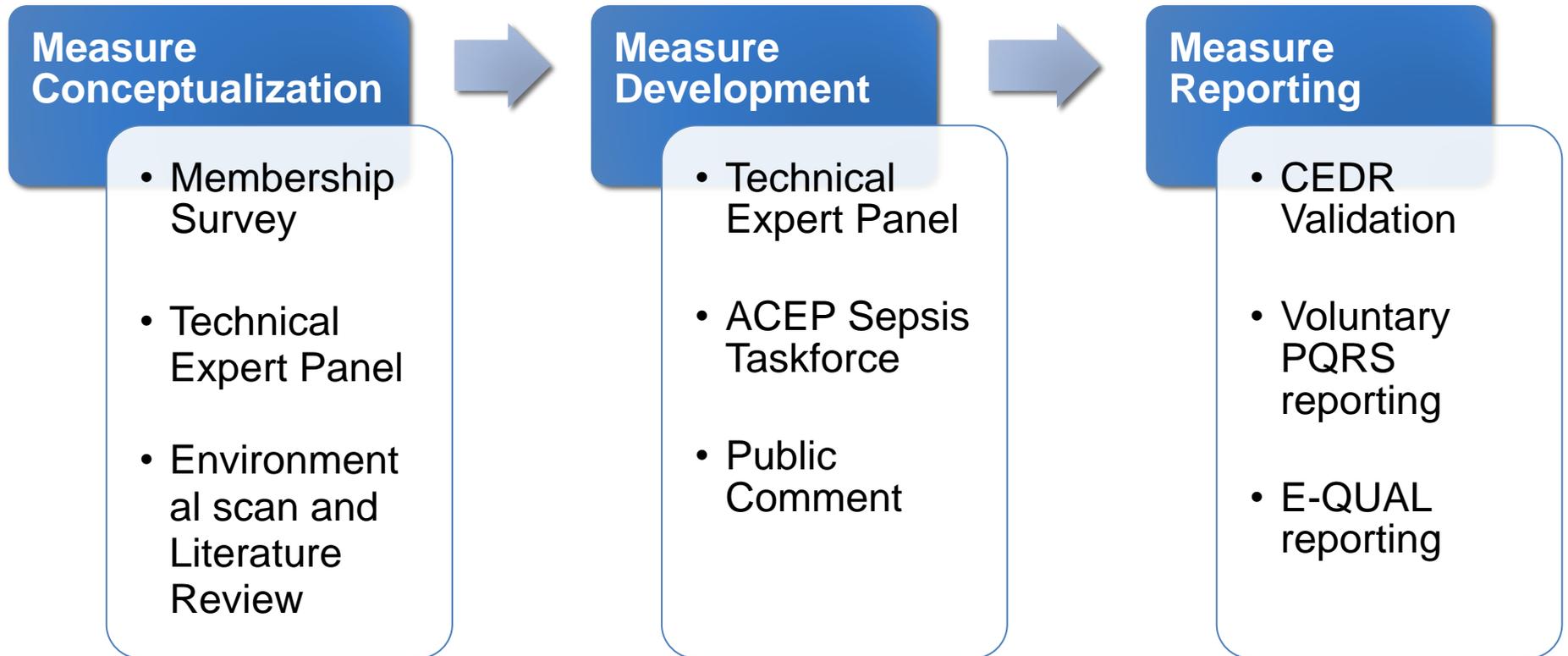
Sepsis Quality Measure Strategy

- CMS requires measure reporting from at least 3 National Quality Strategy measure domains:
 1. Effective Clinical Care
 2. Patient Safety
 3. Person and Caregiver-Centered Experience & Outcomes
 4. Communication and Care Coordination*
 5. Community/Population Health
 6. Efficiency and Cost Reduction
- CMS requires reporting on 9 measures
- Sepsis measure set: **5 measures in the effective care**

History of sepsis quality measures



CEDR Sepsis Measure Development



CEDR SEPSIS METRICS

2016 CEDR Sepsis Measures

CEDR#	Measure Title	NQS Domain
#28	Septic shock: lactate level measurement	Effective Care
#30	Septic shock: Antibiotics ordered	Effective Care
#31	Septic shock: Fluid resuscitation	Effective Care
#32	Septic shock: Repeat lactate level	Effective Care
#33	Septic shock: Lactate clearance rate $\geq 10\%$	Effective Care
QI	Septic Shock: Blood Cultures Ordered	Effective Care

CEDR Sepsis Measure Denominator

- Denominator: **Septic Shock**

- Based on ED diagnosis
 - Septic Shock
 - Sepsis AND hypotension
 - Infection AND hypotension

- Exclusions

- Transferred into ED
- AMA/LWBS/Died
- Acute trauma
- AMI
- Cardiac arrest
- CMO
- Seizure
- Acute pulmonary hemorrhage
- Acute GI hemorrhage
- Acute Ischemic Stroke
- Toxicologic Emergencies
- Severe burns

Septic shock: lactate level measurement

Numerator	ED visits for patients who had a serum lactate ordered during the ED visit <i>Lactate: point of care or central lab</i>
Denominator	All ED visits for patients age 18 years older with septic shock

Septic shock: Antibiotics ordered

Numerator	ED visits for patients who had an order for antibiotics during the ED visit <i>Antibiotics: IV broad spectrum</i>
Denominator	All ED visits for patients age 18 years older with septic shock

Septic shock: Blood Cultures ordered

Numerator	ED visits for patients who had a blood culture order during the ED visit
Denominator	All ED visits for patients age 18 years older with septic shock

Note: QI Measure that cannot be used for PQRS reporting

Septic shock: Fluid resuscitation

Numerator	<p>ED visits for patients who had an order for ≥ 1 Liter of crystalloid during the ED visit</p> <ul style="list-style-type: none">• Crystalloid: NS or LR or “Lytes”
Denominator	<p>All ED visits for patients age 18 years older with septic shock</p>
Additional Exclusions	<ul style="list-style-type: none">• Severe heart failure (ED<30%)• Left Ventricular Assist Device• Acute Pulmonary Edema

Septic shock: Repeat lactate level

Numerator	ED visits for patients with a second serum lactate measurement ordered following the elevated serum lactate result during the ED visit
Denominator	All ED visits for patients age 18 years older with septic shock and an elevated serum lactate result (>2 mmol/L)
Additional Exclusions	<ul style="list-style-type: none">• <2 hours in ED following Lactate #1

Septic shock: Lactate clearance $\geq 10\%$

Numerator	ED visits for patients with a serum lactate clearance rate of $\geq 10\%$ during the ED visit
Denominator	All ED visits for patients age 18 years older with septic shock and an elevated serum lactate result (>2 mmol/L) and a second serum lactate measurement performed in the ED
Additional Exclusions	<ul style="list-style-type: none">• <2 hours in ED following Lactate #1• ED administration of epinephrine• Drug interaction w/ lactate clearance (i.e NRTI)• Acute liver disease• End stage liver disease

CEDR SEPTIC SHOCK

Measure Myths

CEDR Sepsis Measure Myths

- Myth #1: Sepsis difficult to detect
 - Denominator: Septic Shock only
- Myth #2: Our group doesn't have oversight over nurses
 - All process measures are based on "order"
 - TEP support for this initial approach
- Myth #3: these measures remove my clinical judgement
 - Numerous clinical exclusions developed by EPs for each measure

CEDR Sepsis Measure Myths

- Myth #4: Too burdensome to collect
 - Initial denominator is based on ED diagnosis
 - CEDR offers data pull option
- Myth #5: Many factors result in lactates changing
 - CMS requires one outcome measure for PQRS reporting
 - Exclusions remove many alternative etiologies
- Myth #6: Blood culture ordering is not evidence based
 - We Agree! Blood Cx measure is for QI only, not reporting
 - Provides data to show hospitals
 - Enables future study of regarding utility of blood cultures

Reporting Sepsis Makes Sense

- Clinically meaningful and high-visibility to providers
- Ability to report 5 of 9 measures to meet PQRS requirements on one topic
- Access to concurrent QI support via E-QUAL Network and many other hospital and local efforts
- Strong CEDR sepsis measure performance likely to result in strong CMS SEP-1 measure performance

More Information

- TCPI Resources for More Information:

www.acep.org/tcpi

tcpi@acep.org

- Contacts

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