



# OHA STATEWIDE SEPSIS INITIATIVE COACHING CALL

January 18, 2017

# Collaborating for a Healthy Ohio



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## Coaching Call

- I. Overview of Data Reports
- II. Effective Practices
  - Salem Regional Medical Center
  - Cleveland Clinic Lodi Hospital
- I. Question/Answer Opportunity

# DATA PROGRAM BACKGROUND

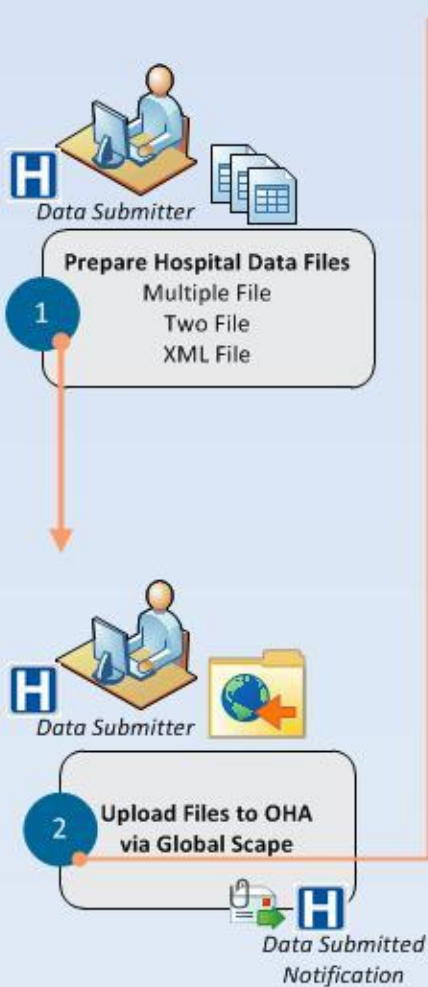
- Proprietary Data owned by OHA Member Hospitals.
- A Voluntary Program Launched in 1998. Full member participation since 2007.
- All Inpatient and Outpatient Encounters
- Patient level, encounter-based Information
- Clinical and Financial Data
- Primary use – Regional Market Analysis, State Comparative Benchmarking, Multi-year Trending, Quality Analysis

# DATA USE AGREEMENTS

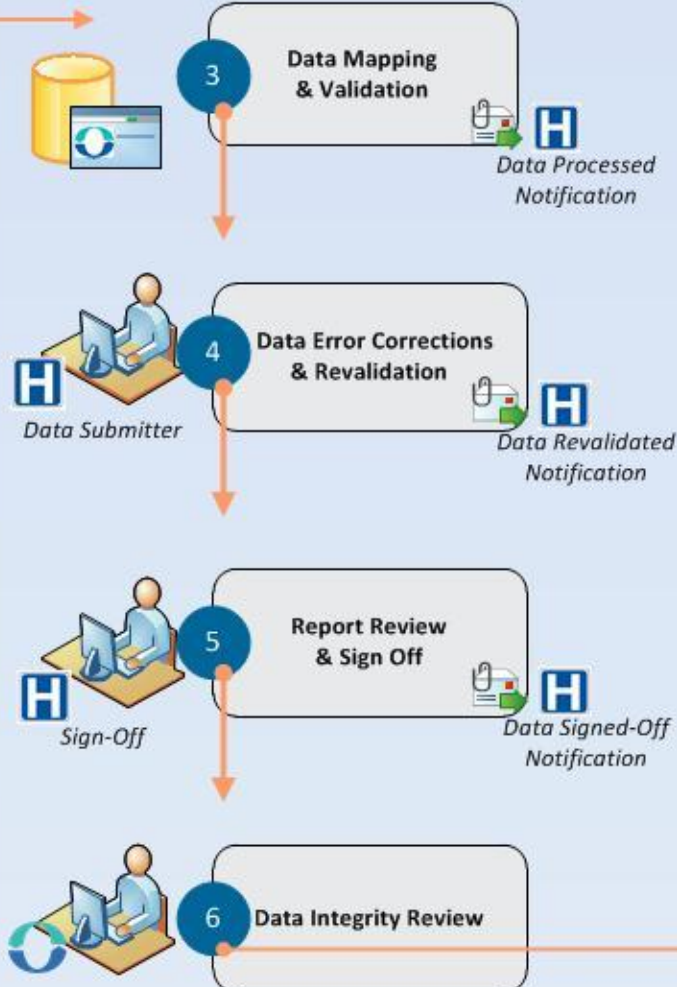
- OHA maintains current Agreements for Release of and Access to Hospital Data and Business Associate Agreements with all participating hospitals.
- OHA is permitted to utilize de-identified, aggregated data for:
  - Advocacy
  - Public Health
  - Quality Assurance, or
  - Other purposes authorized by the OHA Board of Trustees
- The Executive Committee of the OHA Board may also approve the release of aggregate data for research and public policy making purposes.
- The HIPAA minimum necessary standard applies to all uses and disclosures by OHA.

# OHA Discharge Data Collection and Reporting Process

## Data Collection



## Data Validation



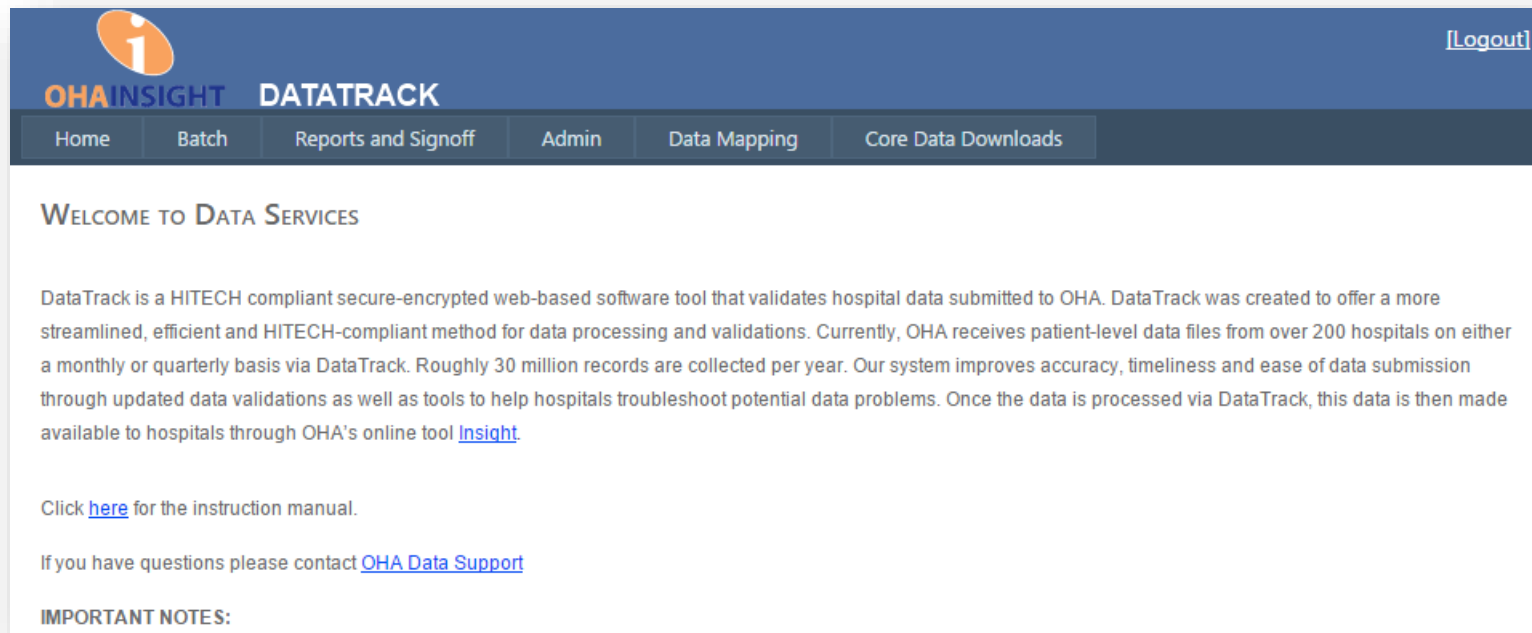
## Data Reporting



- OHA Discharge Data Uses:**
- OHA Applications**
    - Insight
    - Wayfinder
    - Patient Origin Study (POS) Files
  - Annual Hospital Disclosure Reporting**
    - Price Disclosure Reporting
    - HB 197 Reporting (Quality Measures)
    - HB 315 Reporting (NAS)
  - Quality & Patient Safety**
    - Collaborative Reports
    - Partnership for Patients Grant
    - LEAPT Grant
  - Public Health**
    - HCUP
    - ODH Programs Data

# DATA COLLECTION

- OHA DataTrack is a Web-based application used by OHA to validate hospital data. The application allows hospitals users to view, correct, and approve patient-level data



The screenshot shows the OHA DataTrack web application interface. At the top left is the OHA Insight logo, featuring a stylized 'i' in a circle. To its right is the text 'OHA INSIGHT DATATRACK'. In the top right corner, there is a '[Logout]' link. Below the header is a navigation menu with the following items: 'Home', 'Batch', 'Reports and Signoff', 'Admin', 'Data Mapping', and 'Core Data Downloads'. The main content area begins with the heading 'WELCOME TO DATA SERVICES'. Below this is a paragraph of text: 'DataTrack is a HITECH compliant secure-encrypted web-based software tool that validates hospital data submitted to OHA. DataTrack was created to offer a more streamlined, efficient and HITECH-compliant method for data processing and validations. Currently, OHA receives patient-level data files from over 200 hospitals on either a monthly or quarterly basis via DataTrack. Roughly 30 million records are collected per year. Our system improves accuracy, timeliness and ease of data submission through updated data validations as well as tools to help hospitals troubleshoot potential data problems. Once the data is processed via DataTrack, this data is then made available to hospitals through OHA's online tool [Insight](#).' Below the paragraph is a line of text: 'Click [here](#) for the instruction manual.' This is followed by another line: 'If you have questions please contact [OHA Data Support](#)'. At the bottom of the visible content is the heading 'IMPORTANT NOTES:'.

# DATA COLLECTION

- Collected Quarterly
- Due to be completed by hospitals within 75 days from the close of each quarter

Quarter of Data	Submission Due on or Before:	Data Signed-off on or Before:
1st Quarter (Jan-Mar)	May 15th	June 15th
2nd Quarter (Apr-Jun)	August 15th	September 15th
3rd Quarter (Jul-Sep)	November 15th	December 15th
4th Quarter (Oct-Dec)	February 15th	March 15th



# DATA VALIDATION

- Over 110 different validations
- Validation Examples:
  - Discharge Date is a required field.
  - Admission Source does not correspond to accepted values.
  - Primary Procedure is required when Secondary Procedures are present.
  - Primary Diagnosis is newborn specific; this patient does not meet the age requirement.
    - 779.31 - Feeding problems in newborn
    - V30.00 - Single live born, born in hospital, delivered without mention of cesarean delivery
- Data Sign-off and Integrity Reports

# DATA REPORTING

- OHA Member Applications
  - Insight
  - Wayfinder
- Required Hospital Reporting
  - Annual Price Disclosure Data
  - Neonatal Abstinence Syndrome (HB315)
- OHA Reports
  - Collaborative
  - Quality Benchmark Report
- Quality & Patient Safety
  - HIIN
  - Sepsis Initiative
- Public Health
  - Healthcare Cost and Utilization Project (HCUP)
  - Ohio Department of Health

# INTENDED USES OF THE REPORTS

This report contains confidential and proprietary information of the Ohio Hospital Association (OHA).

Hospital agrees to:

- (i) keep and hold information in confidence;
- (ii) not disclose information to any other party without the written consent of OHA;
- (iii) use the information only for the internal business purposes of the hospital;  
and
- (iv) not use information in any marketing activities.

To the extent this report contains a limited data set, as defined by the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”), Hospital shall comply with the applicable requirements of HIPAA regarding the privacy and security of such information

# CONSIDERATIONS

- ✓ (WHAT) What is the report showing?
- ✓ (WHEN) What time period is included in the report?
- ✓ (WHO) Who needs to view the report?

# CONSIDERATIONS

- ✓ (WHERE) What clinical areas are represented in the report?
- ✓ (WHY) What are the implications for clinical practice?
- ✓ (HOW) What focused efforts should be taken?

# OHA collaborates with member hospitals and health systems to ensure a healthy Ohio

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HelpingOhioHospitals



@OhioHospitals



[www.youtube.com/user/OHA1915](http://www.youtube.com/user/OHA1915)



# SALEM REGIONAL MEDICAL CENTER



## Sepsis Management Journey

Presented by:  
**Maria Ryhal, MD**  
CQI Physician Liaison  
&  
**Lyn Pethtel, BS, SM(ASCP), RN,**  
CIC  
Director Quality Improvement &  
Infection Control  
**JANUARY 27, 2017**







# SALEM REGIONAL MEDICAL CENTER

- **Founded in 1913**
- **199 registered beds**
- **Private, not-for-profit, independent hospital**

**FACILITIES: SRMC Main Campus**



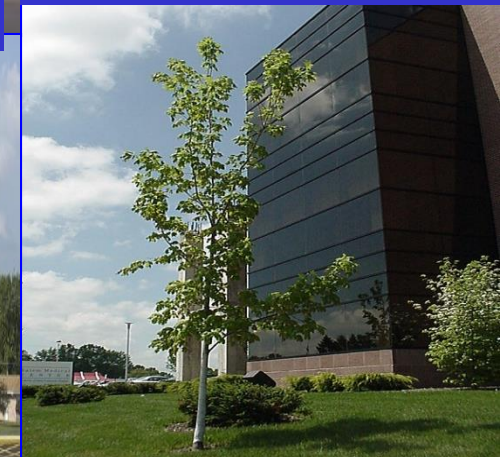
**Salem Home Medical**

**Central Plant**



**Columbiana Medical Center**

**SRMC Professional Services Building**



## FY 2016

<b>Patient Days</b>	<b>22,644</b>
<b>Discharges</b>	<b>4,142</b>
<b>ED visits</b>	<b>28,806</b>
<b>Total Surgeries</b>	<b>3,570</b>
<b>Births</b>	<b>408</b>
<b>Net Patient Revenue</b>	<b>\$111.2 million</b>
<b>Total Revenue</b>	<b>\$115.6 million</b>





## Sepsis Bundle Interventions

- Nursing education (multiple venues)
- Physician Education (Department of Medicine, General Medical Staff Meeting)
- Developed Emergency Department screening tool and initial order set (March 2014)
- Developed paper order set for ICU patients
- Sepsis added to Rapid Response Team order set
- **Joined OHA Partnership for Patients to share Sepsis Bundle best practices September 2014**
- Developed Electronic Nursing Sepsis Alert
- Procalcitonin Test available by end of December

**NEW**

# 2014 FMEA: Sepsis Bundle Update

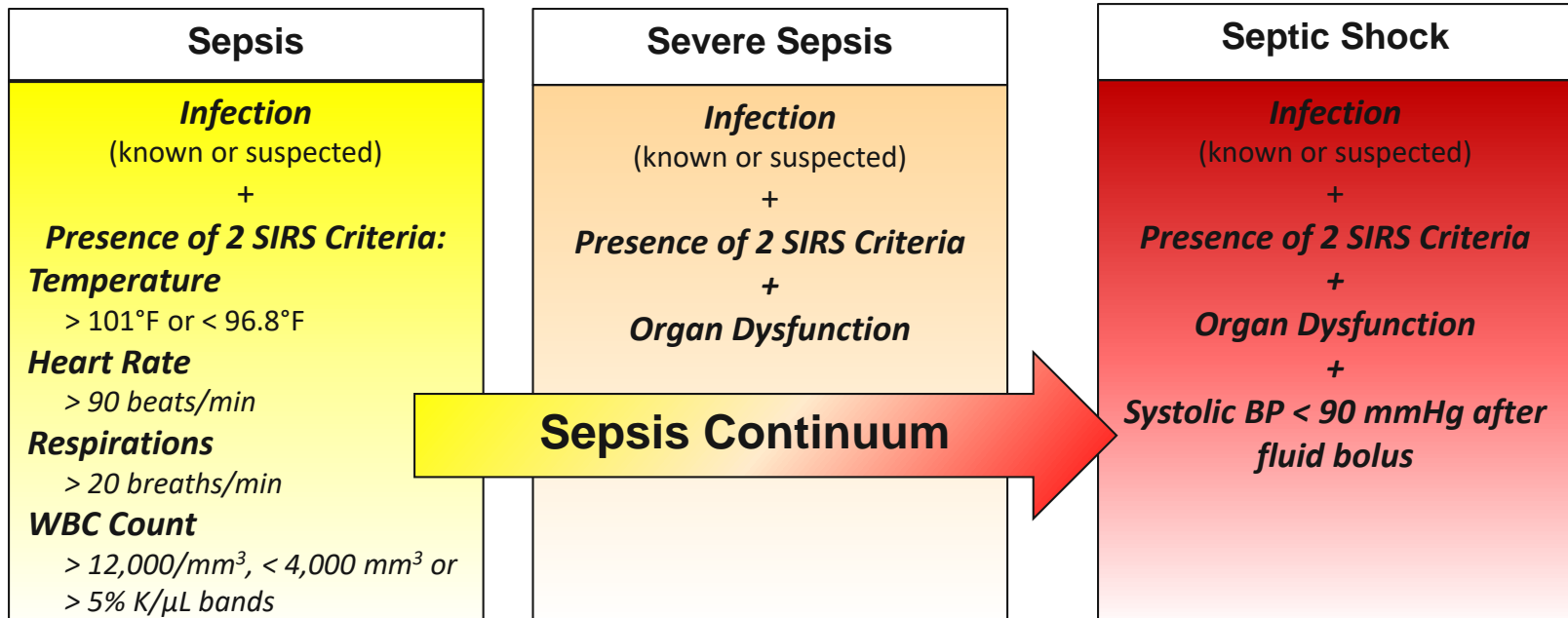
## Electronic Sepsis Alert:

**Go-Live Sept. 2014**

- Electronic clinical decision support tool to guide nursing staff action and document the plan of care
- The alert will “fire” if a patient develops:
  - 2 abnormal vital signs or 1 abnormal vital sign plus an abnormal white blood cell count

*And*

  - 1 lab value indicating end organ failure



# 2014 FMEA: Sepsis Bundle Update

Patient: NONBLONDE, FOUR  
Age: 69 yr Gender: F  
Diagnosis: (W) Anodontia (520.0), (A) Anodontia (520.0)  
Attending: GARDNER, JAMES G. Service: INTENSIVE CARE  
Fac - Dept: SCH - ICU Rm-Bed: 1013-1  
DOB: 06/24/1944 Admit Dt: 07/18/14

Alerts list includes: 7 days back Display: All New Alerts

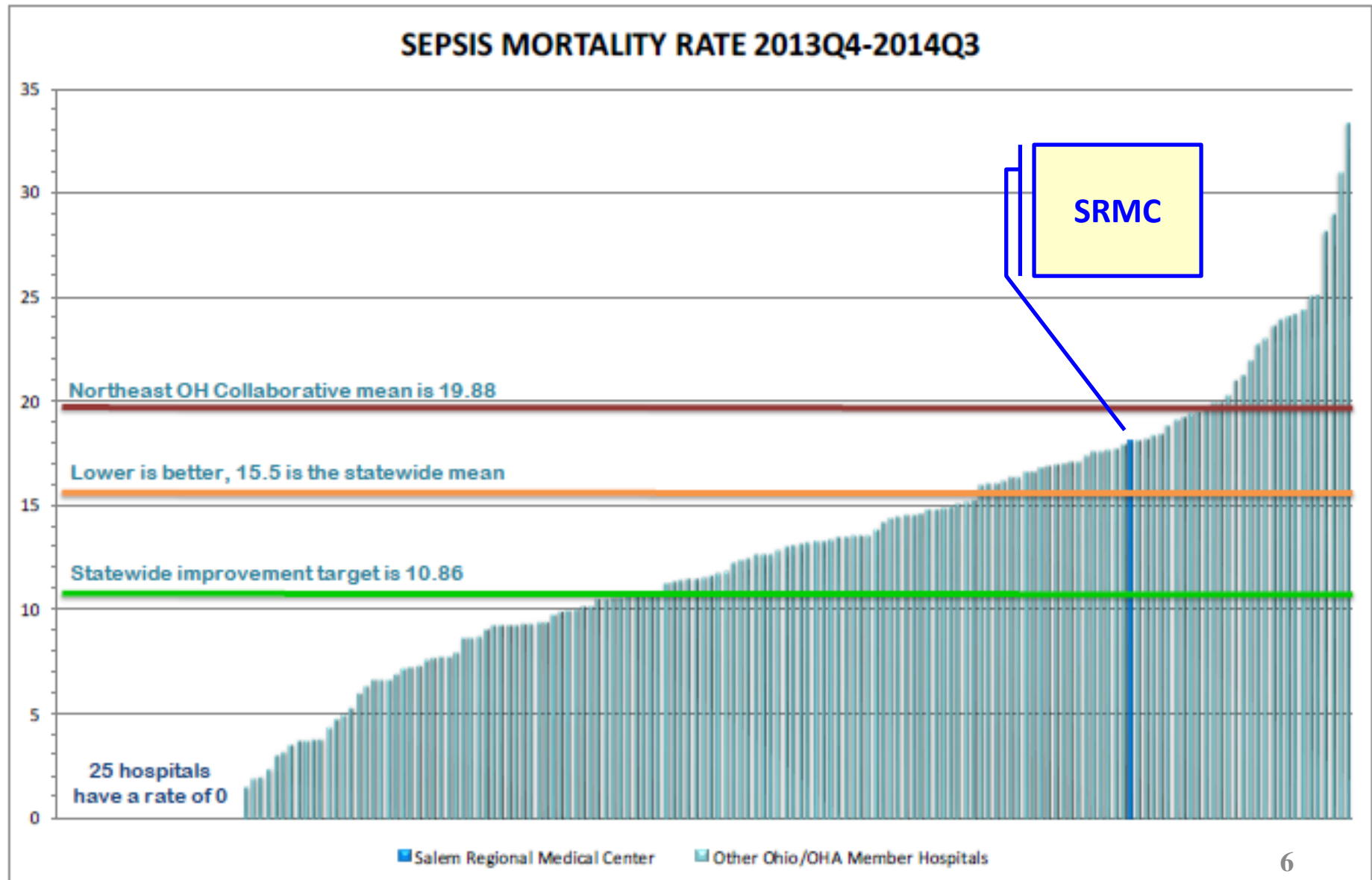
Time of Alert	Name of Alert	Reviewers	Action Taken	Notes	Launch
08/19/2014 10:07:19	SRMC Severe Sepsis Alert Severe Sepsis Alert - PLEASE COMPLETE SCREEN IN HED Temp: 104.2 time: 08/19/14 10:05, Heart Rate: 148.0 time: 08/19/14 10:05, SBP: 72.0 time: 08/19/14 10:05,				

- The electronic record scans the data every 4 hours
- Nursing then completes a sepsis screen with instructions on how to proceed
- Patients excluded from the alert: < 18 yrs, hospice, DNR-Comfort Care



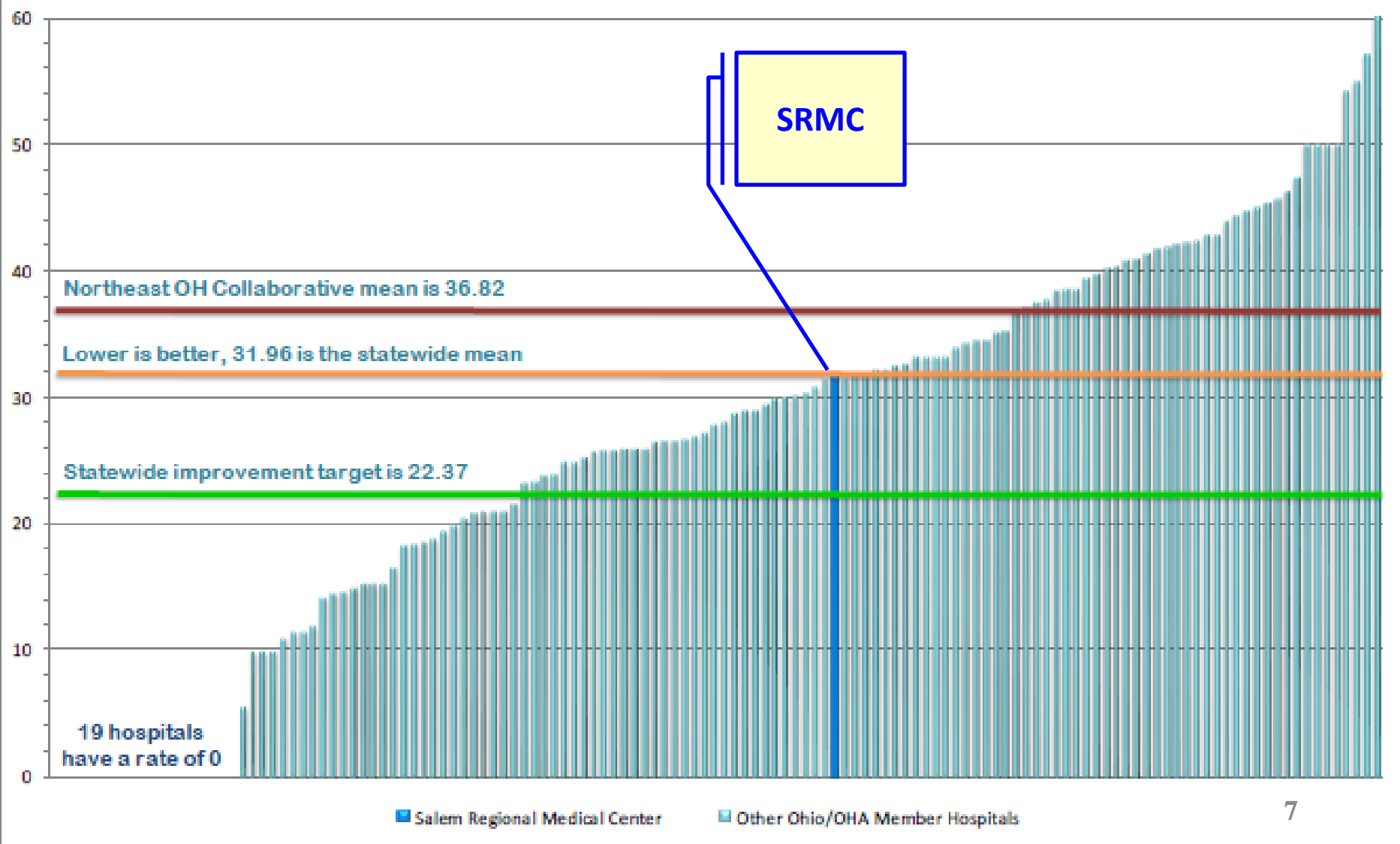
**Infection Control Department Goal:**  
Develop an Electronic physician order set

# SRMC Sepsis Mortality



# SRMC Sepsis Mortality: Sepsis not Present On Admission

## SEPSIS NOT POA MORTALITY RATE 2013Q4-2014Q3



# OHA Sepsis Initiative 2015



Sept 2015 Data:	SRMC				Collaborative Sept 2015
	Sept 2015	Aug 2015	Jul 2015	Jun 2015	
<ul style="list-style-type: none"> <li>SRMC = 21 Cases</li> <li>Collaborative = 300 Cases</li> </ul>					
Mortality Rate	0	0	5	4	2.7
Initial Lactate Level Collection	29	50	25	35	60
Blood Culture Collection	95	83	71	83	88
Broad Spectrum Antibiotic within 3 hours	86	100	58	57	86
Crystalloid 30 ml/kg for Septic Shock	0 (one case)	N/A	0	0	35

**SRMC Action: SEPSIS SHOCK CLOCK CHECKLIST**  
 To facilitate timely recognition of Severe Sepsis and implementation of the Sepsis Bundle



**Sepsis Shock Clock Checklist**

Severe Sepsis - Does the patient have THREE of the following?  
 Suspected infection plus any two of the following:  
 T > 38.3 C/101 F or < 36.0 C/96.8 F  
 HR > 90  
 RR > 20 per minute  
 WBC > 12,000 or < 4,000 or > 10% bands  
 And one of the following:  
 SpO<sub>2</sub> < 90 or MAP < 65  
 SBP decrease of more than 40 points from normal baseline  
 Cr > 2 mg/dL or urine output < 0.5 mL/kg/hour for 2 hours  
 Bilirubin > 2 mg/dL  
 Platelets count < 100,000  
 INR > 1.5 or PTT > 60 sec  
 Lactic acid > 2 mmol/L  
 Procalcitonin > 2 ng/ml

Time Zero: \_\_\_\_\_  
 Patient weight: \_\_\_\_\_

**Within 3 hrs. From Time Zero:**  
 Lactic acid  
 Blood culture before antibiotic started  
 Broad spectrum antibiotic  
 Fluid administration of 30 ml/kg for hypotension MAP < 65, SBP < 90 or lactic acid > 4 mmol/L

**Within 6 hrs. From Time Zero:**  
 Repeat lactic acid if initial level is > 2  
 Vasopressors if hypotension (MAP < 65, SBP < 90) not responding to entire fluid bolus  
 Physician or other Repeat focused exam to include:  
 • vital signs  
 • cardiopulmonary exam  
 • capillary refill  
 • pulse checks  
 • skin findings

- Nursing Instructions:**
- Complete Severe Sepsis Screen
  - Mark time zero in box
  - Administer antibiotics and weight based fluid resuscitation per MD order.
  - Report time zero to inpatient SMC
  - Inpatient RN facilitate MD reassessment by 6 hours from time zero

Legend	
	Same/better than project wide
	Within 5 min/% of project wide
	> 5 min/% worse than project wide

# SRMC Sepsis Initiatives: Procalcitonin

## Procalcitonin

- Availability added
- Education provided

Table 5: Sepsis Initial Antibiotic Use Algorithm

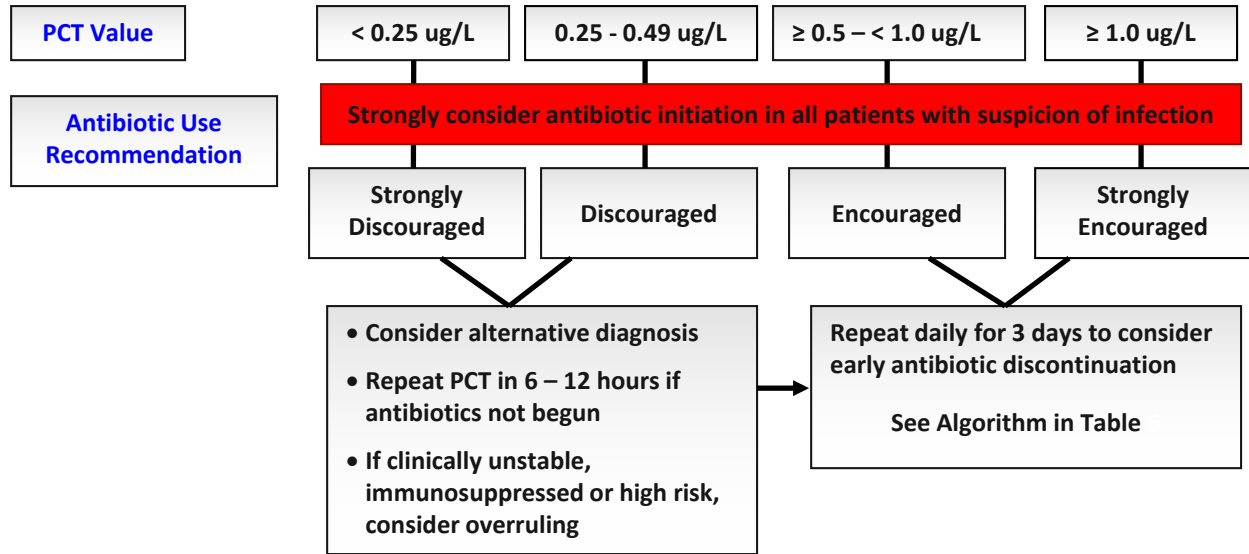
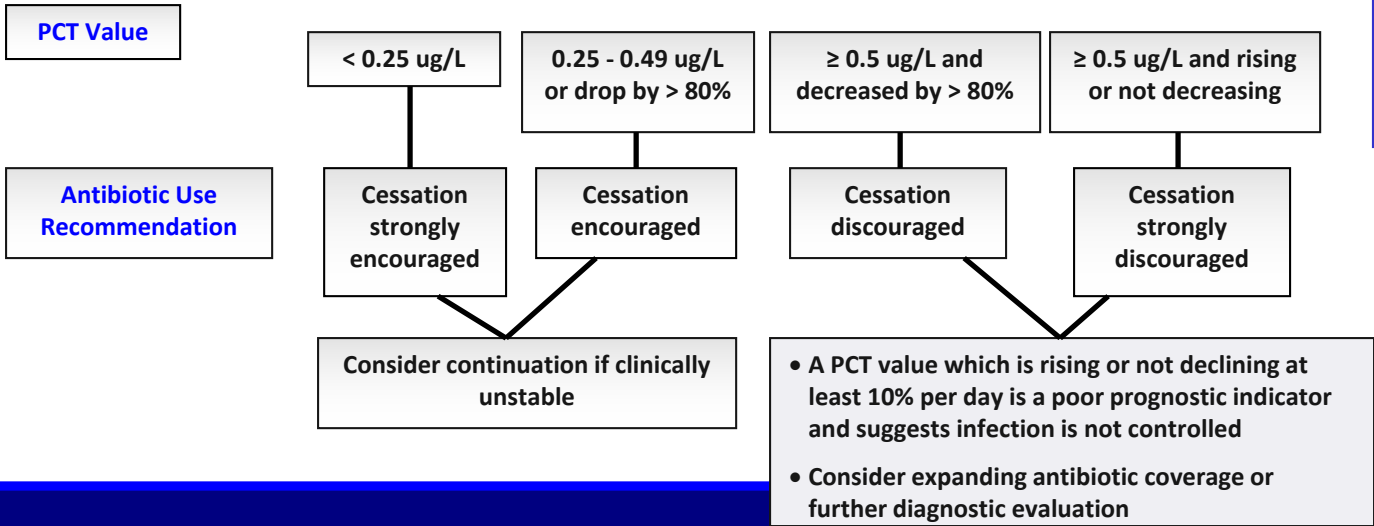


Table 6: Sepsis Follow Up PCT Antibiotic Use Algorithm



**SALEM REGIONAL MEDICAL CENTER** **PHYSICIAN NEWS**  
 Doctor-driven healthcare. Volume 13, Issue 1 January 2015

Procalcitonin (PCT) is a prohormone of calcitonin that is released in large quantities by many tissues in response to severe systemic inflammation, in particular, bacterial infection. The short half-life of PCT (24-30 hours), coupled with its virtual absence in healthy individuals and specificity for bacterial infections, has led to its increasing use as a marker of sepsis. PCT is a more sensitive and specific marker for sepsis than lactate acid and CRP.

In mid-December, SRMC introduced PCT testing to assist physicians with the diagnosis and treatment of potentially septic patients.

**Why is PCT useful in diagnosing and treating sepsis?**

PCT levels increase within 2-4 hours of a triggering event, and peak within 12-24 hours, which may aid in the early diagnosis of sepsis. PCT secretion ceases parallel to the severity of the inflammatory event with higher levels associated with more severe illness. Levels also decline with resolution of the illness.

**What else may cause an increase in PCT?**

- Newborns (48-72 hours after 72 hours interpret levels as usual)
- Massive stress (severe trauma, surgery, cardiac shock, burns)
- In absence of infection, PCT levels trend down after triggering event
- Treatment with agents which stimulate cytokines (G-CSF, anti-lymphocyte globulin, simeplizumab, i.v. granulocyte transfusion)
- Malaria and some fungal infections
- Prolonged, severe cardiogenic shock or organ perfusion abnormalities
- Some forms of sarcoidosis and acute graft vs. host disease
- Paraneoplastic syndromes due to mediastinal thyroid and small cell lung cancer
- Significantly compromised renal function, especially ESRD/hemodialysis (PCT levels should normalize after 3 hemodialysis treatments)

**When should PCT be ordered?**

Procalcitonin can be used to assist clinicians in the diagnosis of serious infection and to support antimicrobial therapy decisions. Decisions regarding antimicrobial therapy should NOT be based solely on procalcitonin levels. PCT should be placed into the clinical context of each patient scenario considering the site of possible infection, the likelihood of bacterial infection, the severity of illness, and any other pertinent clinical data. It should be noted that PCT levels may not rise with localized infections (e.g. otitis media, localized abscess, etc.) and a negative PCT should not be considered to rule out a localized infection. (See Tables 1 and 2 on page 2 for algorithms regarding PCT use in Sepsis.)

• **Initial Evaluation:** PCT can be used in the initial evaluation of a seriously ill patient when sepsis is a concern based on symptoms suggestive of a severe or systemic bacterial infection. If levels are < 0.5 ug/L and sepsis is suspected, PCT can be repeated in 6 hours.

• **Response to Treatment:** PCT levels can be periodically monitored to guide treatment of severe systemic infection. Daily testing is not indicated since the half-life is 24-30 hours. Serial testing may be useful every 48 hours to guide selection and duration of antibiotic treatment.

• **Distinguishing Viral vs. Bacterial:** PCT may also be helpful in differentiating viral from bacterial pneumonia and meningitis.

**In This Issue:**

- Procalcitonin for Sepsis
- BNP Testing in Heart Failure
- Blood Transfusion Guidelines
- Influenza Vaccine and Masking



# SRMC Sepsis Initiatives: Core Measure Education

General Medical Staff September 2015

## Systemic Inflammatory Response (SIRS) due to Infection:

SIRS includes at least 2 of the following:

- **Fever** (T > 101°F) or **Hypothermia** (T < 96.8°F)
- **WBC** > 12,000 or < 4,000 or bands > 10%
- **Tachycardia** (HR > 90) not due to another condition
- **Tachypnea** (RR > 20) not due to another condition

Other diagnostic criteria:

- **Lactate** > 2
- **Procalcitonin** elevated
- **CRP** elevated
- Altered **Mental Status**
- **Mottling** of skin
- **Hypotension**

SEP-1

First National Core  
Measure on Sepsis

Begins with October 2015  
Discharges

SEPSIS: A deadly toll

Kills 1 in 6  
of those it strikes

Affects more  
Hospital  
Patients than  
Any other  
diagnosis

HALF of all in-  
hospital deaths  
involve it

Kills more people than AIDS, 10  
breast cancer & prostate cancer **COMBINED**



## TO BE COMPLETED WITHIN **3** HOURS OF TIME OF PRESENTATION



- **LACTATE:** Measure lactate level
- **BLOOD CULTURES:** Obtain blood cultures prior to administration of antibiotics
- **ANTIBIOTICS:** Administer broad spectrum antibiotics
- **FLUIDS:** Administer **30ml/kg crystalloid** for hypotension or

**Begins with October 2015 discharges**

# SRMC Sepsis Initiatives: Core Measure Education

## TO BE COMPLETED WITHIN **6** HOURS OF TIME OF PRESENTATION:

Begins with October 2015 Discharges

- **VASOPRESSORS:** For hypotension that does not respond to initial fluid resuscitation to maintain MAP  $\geq$  65mmHg
- **DOCUMENT REASSESSMENT OF VOLUME STATUS:** If persistent hypotension after initial fluid administration (MAP < 65 mm Hg) or if initial lactate was  $\geq$ 4 mmol/L, **re-assess volume status and tissue perfusion and document** findings by:
  - **Repeat Physical Exam – 5 elements** (*next slide*)
  - Or 2 of the following:
    - CVP goal 8-12 mm Hg
    - ScvO<sub>2</sub> > 65/70%
    - Bedside Cardiovascular Ultrasound
    - Passive Leg Raise 10% increase in pulse pressure
- **LACTATE FOLLOW-UP:** Re-measure if initial finding was elevated

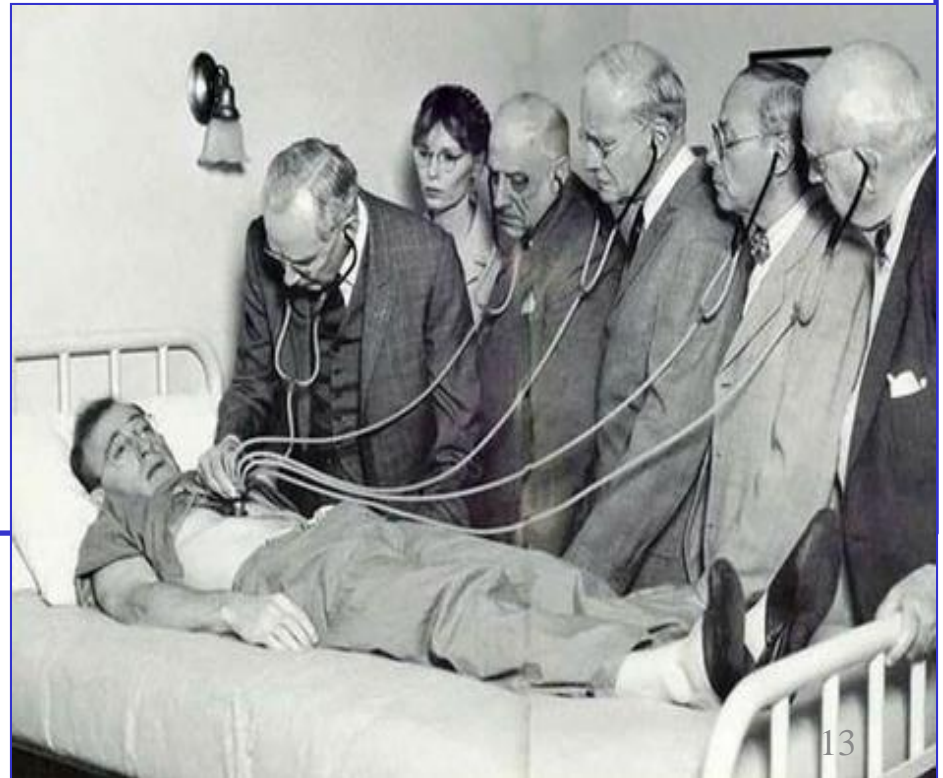


# SRMC Sepsis Initiatives: Core Measure Education

## Document Reassessment of Volume Status and Tissue Perfusion:

**Repeat focused exam (after initial fluid resuscitation) by licensed independent practitioner including:**

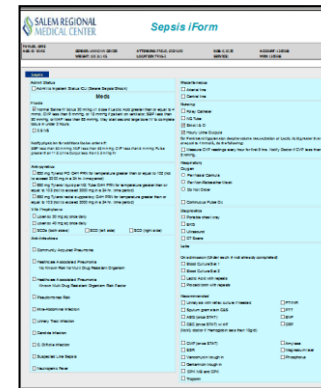
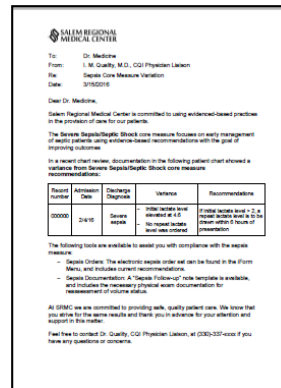
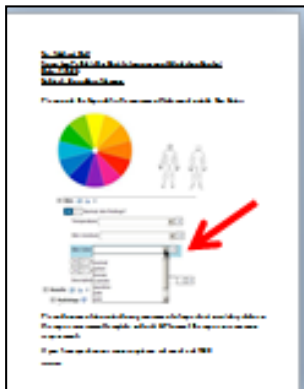
- Vital Signs
- Cardiopulmonary exam
- Capillary refill
- Pulse
- Skin findings



# SRMC Sepsis Initiatives: Initial Interventions

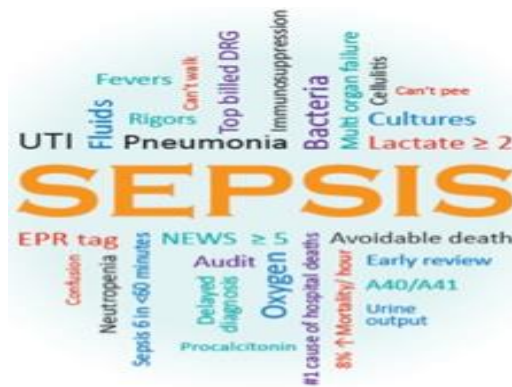


Date	Action
Dec. 2014	Mandatory RN & LPN Sepsis education with CE
Sep. 2014	Post-acute group education and sample screening tools provided
Dec. 2015	Electronic H&P template revised to include 6 hour reassessment note
Jan. 2016	Electronic sepsis order form implemented and Empiric Antibiotic Selection Guide revised
Mar. 2016	Initiated compliance letters to physicians regarding core measure variation
Aug. 2016	In response to changes in Sepsis data abstraction requirements, memo sent to physicians to advise documentation of skin color as part of 6 hour reassessment



# SRMC Sepsis Initiatives: Additional Interventions

Date	Action
Apr. 2016	Hospitalist presented Sepsis Early Recognition & Treatment inservice to Department of Medicine
May 2016	Medical Staff approved Lactic Acid > 2 as Panic Value (previous panic value = 4)
Jun. 2016	Positive feedback letters to physicians and nurses completing Sepsis Shock Clock Checklist and meeting all core measure elements
Sep. 2016	Reviewed Rapid Response cases related to sepsis and presented findings to Critical Care and Case & Procedure (M&M) Committees
Nov. 2016	SRMC partnered with Post-Acute Workgroup to form a Post-Acute Sepsis Task Force to work on decreasing readmissions to acute care and sepsis mortality



# Sepsis: OHA Sepsis Initiative

## Individual measure results for the Sepsis 3-Hour Bundle

	2016										2015			OHA Sep 2016
	Sep	Aug	Jul	June	May	Apr	Mar	Feb	Jan	Dec	Nov	Oct	Sep	
Initial Lactate Level Collection	100	100	100	76	92	93	100	93	86	89	86	71	29	78
Blood Culture Collection	86	100	100	85	100	93	100	93	93	94	86	84	95	80
Broad Spectrum Antibiotic w/in 3 hours	100	100	88	92	92	86	90	93	100	83	93	81	86	80
Crystalloid 30 ml/kg for Septic Shock	100	89	88	NP	100	100	NP	67	100	100	67	67	0	61

	Same or better than project wide
	Within 5 percent of project wide
	> 5 percent worse than project wide

Data Reviewed at the Sept. 2016  
General Medical Staff Meeting

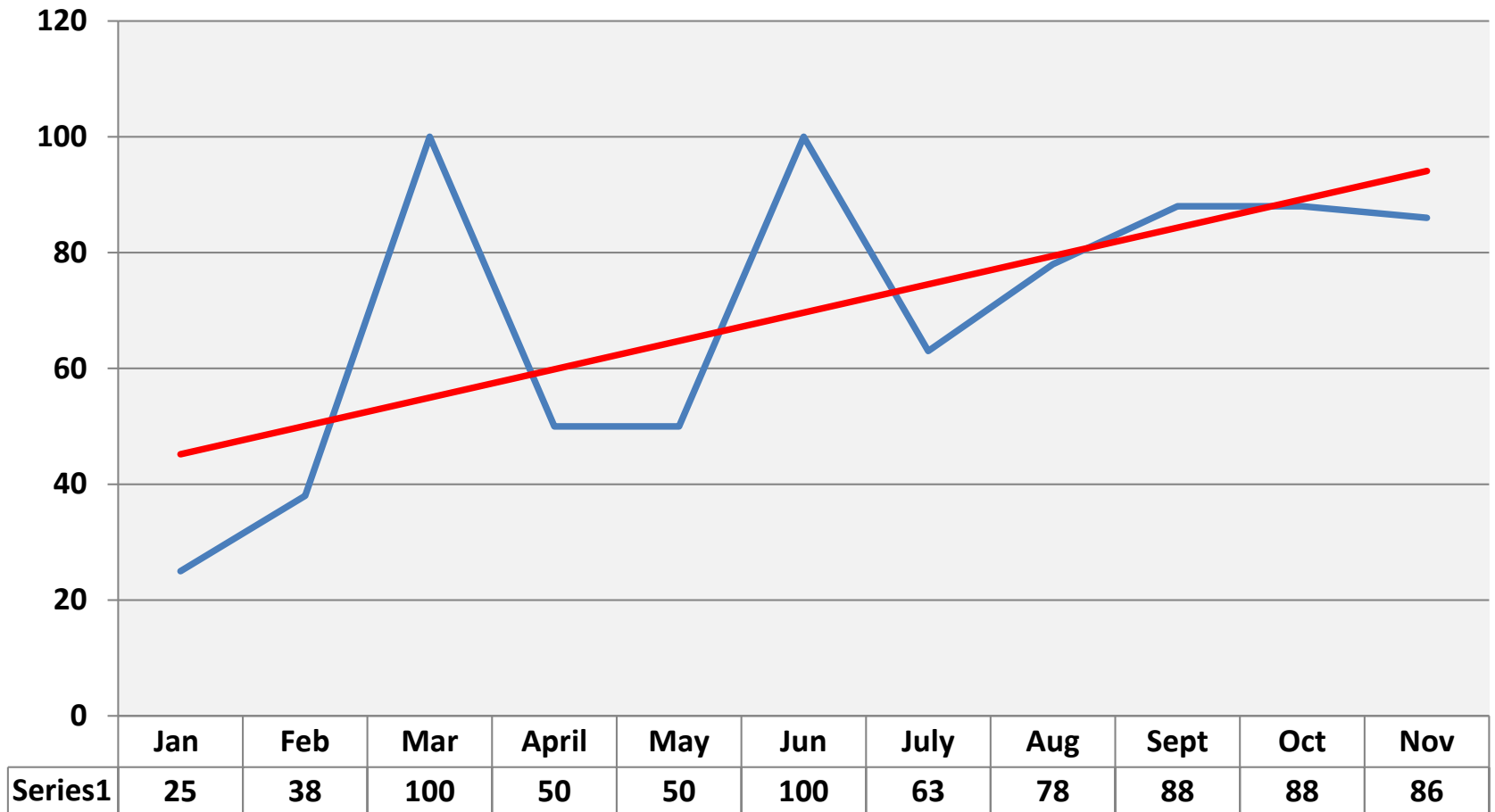
# Sepsis: Core Measure

		<b>Composite Score</b>								
		% of patients for whom <u>all</u> measures met								
		2016								
Nov	Oct	Sep	Aug	Jul	Jun	May	Apr	Mar	Feb	Jan
<b>86</b> 1/7	<b>88</b> 1/7	<b>88</b> 7/8	<b>78</b> 7/9	<b>63</b> 5/8	<b>74</b> 3/4	<b>100</b>	<b>50</b> 3/6	<b>50</b> 3/6	<b>38</b> 3/8	<b>25</b> 2/8
1 failed repeat lactic acid > 6 hrs	1 failed repeat lactic acid > 6 hrs	1 failed antibiotic before culture	1 failed fluid volume 1 failed vasopressor	1 failed fluid volume 1 failed focus exam	1 failed repeat lactate		3 no repeat lactate	1 failed lactate > 6 hrs 1 no repeat lactate	2 failed repeat lactate > 6 hrs 1 lactate not done	2 failed repeat lactate > 6 hrs

<b>Sepsis Bundle Measures</b>	
<b>Complete within 3 Hours</b>	<b>Complete within 6 Hours</b>
<ul style="list-style-type: none"> <li>-Lactate</li> <li>-Blood Cultures before antibiotics</li> <li>-Broad spectrum antibiotics</li> <li>-Fluids 30 ml/kg if hypotension or elevated lactate</li> <li>-Vasopressors if persistent low BP</li> </ul>	<ul style="list-style-type: none"> <li>-Reassess volume/perfusion w/in 6 hours and document</li> <li>-Lactate remeasured w/in 6 hours if initial level &gt; 2</li> </ul>

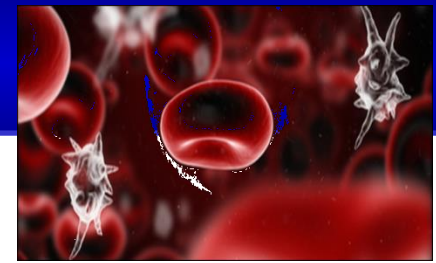
# Sepsis: Core Measure

**Composite Score: Jan. – Nov. 2016**  
**% of Patients All Measures Met**

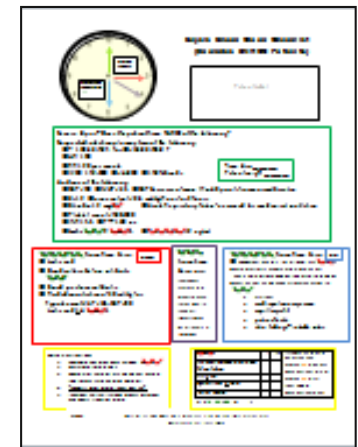




# Sepsis: Next Steps



- Meet Quarterly with the Post-Acute Sepsis Taskforce
- Build Sepsis protocol/orders in new EMR system to include empiric antibiotic treatment by suspected site of infection
- Implement a “reflex order” to repeat all Lactic acid results  $>2$  in new EMR
- Revise the Sepsis Shock Clock Checklist to include use of qSOFA as a patient placement tool (ICU or “Step Down”)
- Focus on capturing fluids amount administered prior to transfers
- Explore use of SEPSIS alerts/messaging system for Physicians with new EMR or other vendor
- Explore continuous infusion beta lactam therapy\*
- Provide sepsis education to area EMTs



\* Ref. :Roberts JA et al. Am J Respir Crit Care Med 2016 Sept 15

# **Sepsis: Summary/Goals**

- **Meet OHA Goal of Reducing Sepsis Mortality** by 30% (est. 34,000 patients) in Ohio
- **Achieve High Reliability**
  - SRMC defines High Reliability as sustained performance above project wide or at goal for  $\geq 24$  months
- **Ultimate Goal: Save Lives at SRMC**
  - approximately 550 patients a year require care for sepsis at SRMC, with approximately 140 requiring emergent care for severe sepsis/septic shock

**QUESTIONS?**



**Cleveland Clinic**

**Akron General**

**Lodi Hospital**

# **Lodi Hospital Sepsis Strategy**

**January 18, 2017**

**Diane Cartwright, RN, BSN, CCM**

**Quality and Accreditation**

# Early Identification

## Tools for Success

- Minimal information required to get patient in the system – name and date of birth
- Patients are immediately roomed
- Sepsis screening by nurses – when sepsis is suspected nurses have physician see patient even quicker.

# Early Identification

**Short Door to Physician time**

**door to doc average < 10 min**

**Physicians have a Fever/Sepsis order set to assist in ordering.**

# **Treat And Transfer**

## **Tools for Success**

### **Lactic Acid**

**Change to run lactic acid in-house**

**Full range of Antibiotics options available in the ED**

**One call for transfers**



**Cleveland Clinic**

**Every life deserves world class care.**