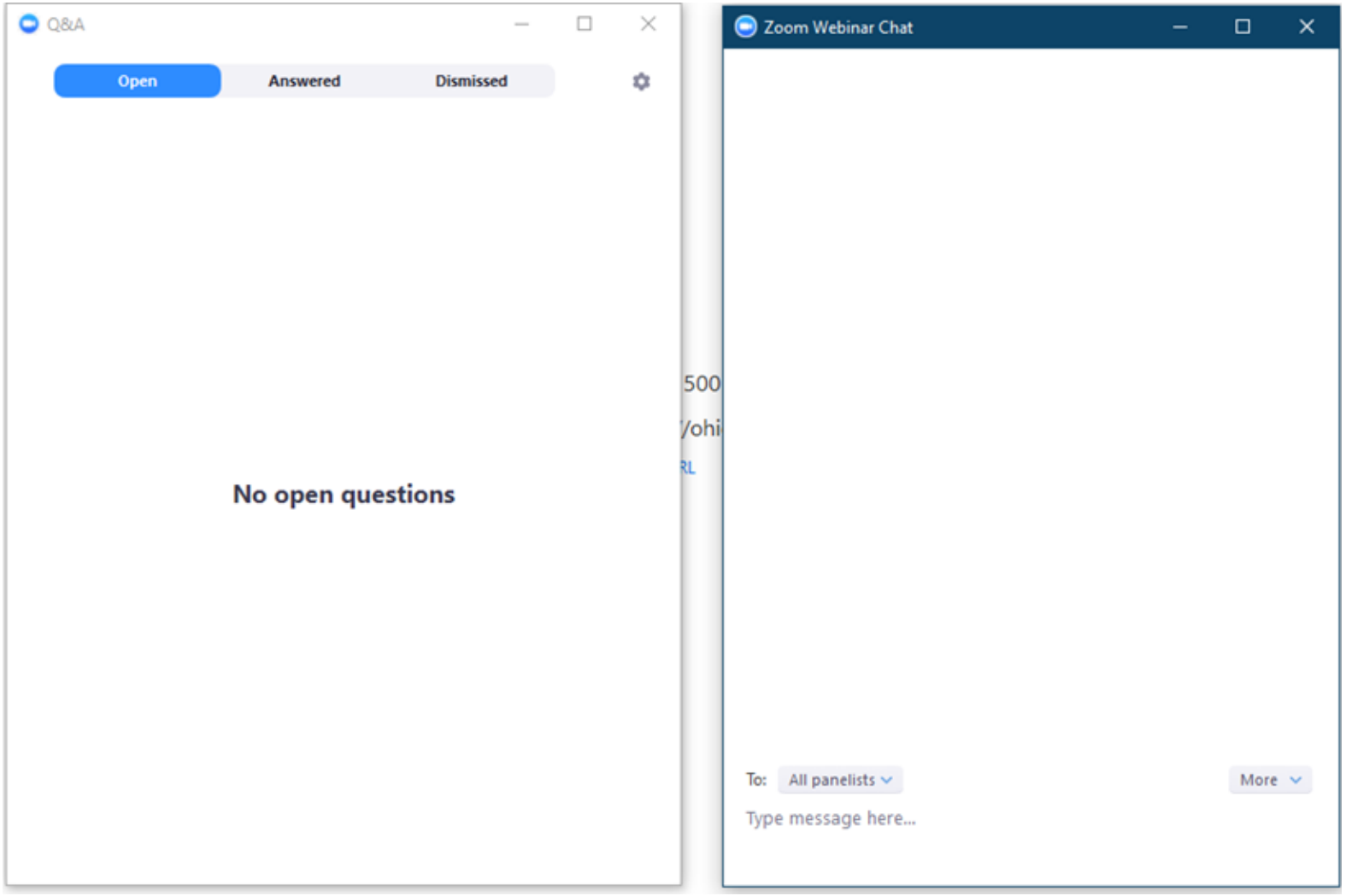
OHIO HOSPITAL ASSOCIATION

A SENDING HOSPITAL'S PERSPECTIVE ON HOSPITAL TRANSFERS OF SEPSIS PATIENTS

January 15, 2020

SUBMITTING QUESTIONS



SEPSIS WEBSITE

ohiohospitals.org/sepsis

CONTINUING EDUCATION

- The link for the evaluation of today's program is: https://www.surveymonkey.com/r/Sepsis-1-15-20

- Please be sure to access the link, complete the evaluation form, and request your certificate. The evaluation process will remain open **two weeks** following the webcast. Your certificate will be emailed to you when the evaluation process closes after the 2 week process.

- If you have any questions please contact Dorothy Aldridge (Dorothy.Aldridge@ohiohospitals.org)

SEPSIS WEBSITE

ohiohospitals.org/sepsis

Sepsis care in a Critical Access Hospital

ProMedica Defiance Regional Hospital

PDRH Overview

- We are part of ProMedica Health Systems
- Located in rural NW Ohio
- Level III Trauma Center
- Critical Access Hospital
  - 9 Bed ER
  - 10 Bed Behavioral Health Unit
  - 10 Bed Women's Center
  - 10 Bed Med/Surg Unit
  - 9 Bed ICU
  - 5 Bed OR
  - 4 Bed Express Care (works out of the back of the ER)

Sepsis Data

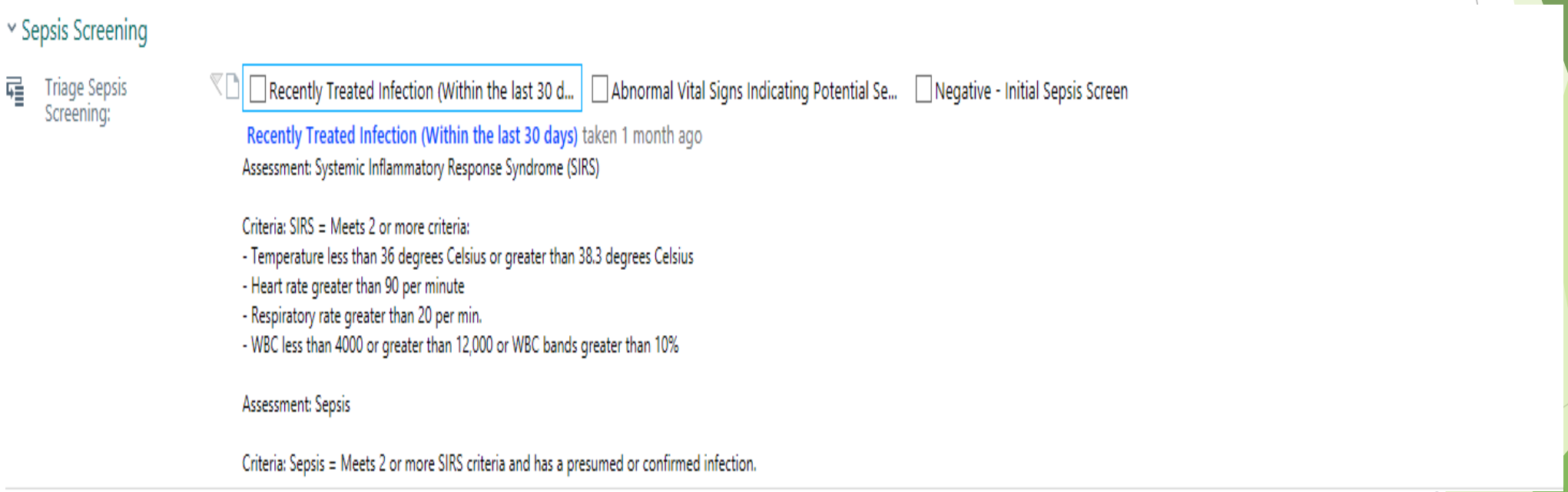
- Average yearly census is 19,000 patients
  - 13,000 in the ER
  - 6,000 in Express Care

- 2019 treated total 17 patients diagnosed with sepsis
  - 7 admitted
  - 10 transferred

Sepsis Screening

- All patients ≥ 18 years old are automatically screened for sepsis
- The screener identifies those patients at a potential risk for sepsis
- Physician is notified of a positive screen
- Screening tool consists of 5 separate components

Sepsis Tool – Screening Criteria



Sepsis Tool – Abnormal Vital Signs

Patient presents with - Choose all that apply

☐ Hyperthermia Temp > 38.3 C ☐ Hypothermia Temp < 36.0 C ☐ Tachycardia Rate > 90 ☐ Tachypnea Rate >20 ☐ SBP < 90 mmHg ☐ MAP < 70 mmHg

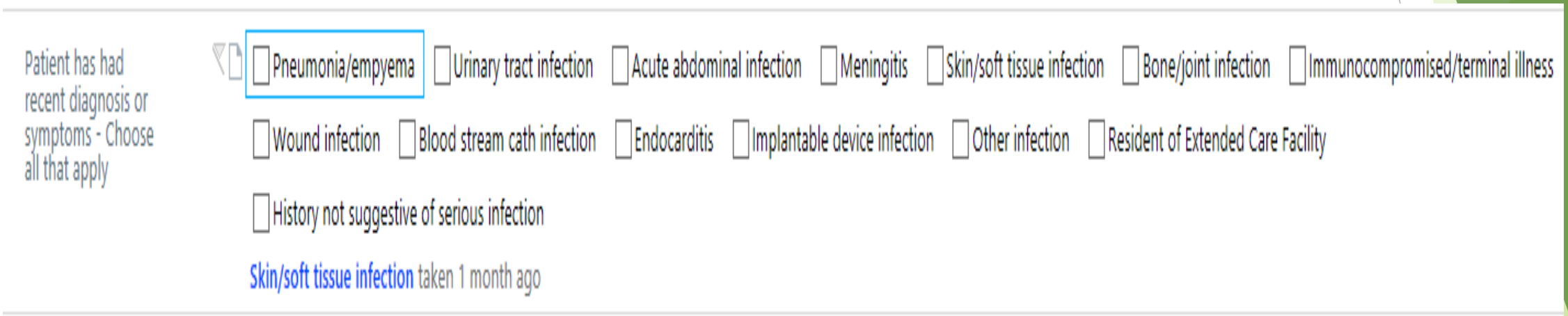
Assessment: Systemic Inflammatory Response Syndrome (SIRS)

Criteria: SIRS = Meets 2 or more criteria:
- Temperature less than 36 degrees Celsius or greater than 38.3 degrees Celsius
- Heart rate greater than 90 per minute
- Respiratory rate greater than 20 per min.
- WBC less than 4000 or greater than 12,000 or WBC bands greater than 10%

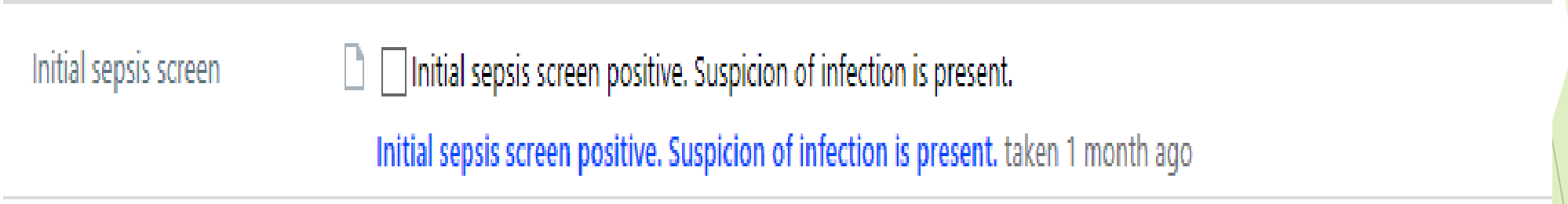
Assessment: Sepsis

Criteria: Sepsis = Meets 2 or more SIRS criteria and has a presumed or confirmed infection.

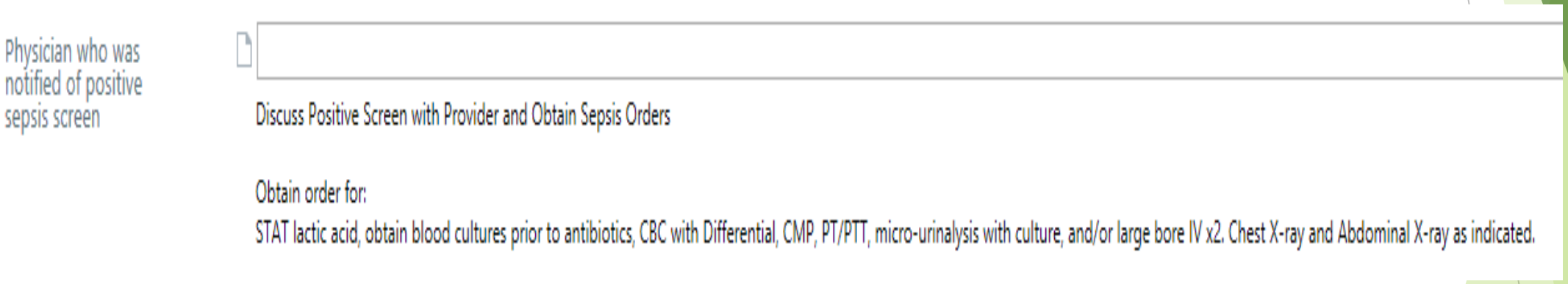
Sepsis Tool – Diagnosis of Infection



Sepsis Tool – Analysis of Criteria



Sepsis Tool – Physician Notification



Sepsis Treatment Plan

Orders

Order Sets

Adult Severe Sepsis Treatment

Personalize

*Note: * See tables A, B, C for additional management recommendations*

To be completed within 3 hours

1. Measure lactate level
2. Obtain all cultures prior to administration of antibiotics
3. Administer broad spectrum antibiotics

4. Administer 30 ml/kg crystalloid for hypotension or lactate ≥ 4 mmol/L (36 mg/dL)

To be completed within 6 hours

5. Apply vasopressors (for hypotension that does not respond to initial fluid resuscitation)

to maintain a mean arterial pressure (MAP) ≥ 65 mm Hg. Patient shall have central venous access.

6. In the event of persistent hypotension after initial fluid administration (MAP < 65 mm Hg) or if initial lactate was ≥ 4 mmol/L, re-assess volume status and tissue perfusion and document findings:

Either: Repeat focused exam (after initial fluid resuscitation) by licensed independent practitioner including vital signs, cardiopulmonary exam, capillary refill evaluation, peripheral pulse, and skin findings.
Or two of the following:

- Measure CVP
- Measure ScvO2
- Bedside cardiovascular ultrasound
- Dynamic assessment of fluid responsiveness with passive leg raise or fluid challenge

7. Re-measure lactate if initial lactate was elevated*

*Targets for quantitative resuscitation included in the guidelines are CVP of ≥ 8-12 mm Hg in non -mechanically ventilated patients, and 12-15 in mechanically ventilated patients and Scvo2 of ≥ 70% and normalization of lactate.

Sepsis Order Set

Orders from Order Sets

Adult Severe Sepsis Treatment

Notify prescriber
Routine, Until discontinued, starting today at 1440, Until Specified
Urine output less than: 0.5 mL/kg/hr
for at least 2 hours after initial fluid resuscitation is completed

Sepsis Protocol Initiated
Order details

Pharmacy Consult to review and adjust all antibiotic doses if needed based on patient's renal function
Routine, Once, First occurrence today at 1440

Blood gas, arterial
STAT, First occurrence today at 1440

Comprehensive metabolic panel
STAT, First occurrence today at 1440

Protime-INR
STAT, First occurrence today at 1440

APTT
STAT, First occurrence today at 1440

Procalcitonin
Every 6 Hours, First occurrence today at 1440, Last occurrence today at 1800, for 2 occurrences

CBC auto differential
STAT, First occurrence today at 1440

Urinalysis
STAT, First occurrence today at 1440

Lactic acid
STAT, First occurrence today at 1440

Lactic acid (time First Occurrence in four hours)
Every 12 Hours starting in 4 Hours, First occurrence today at 1840, Last occurrence on Wed 1/15 at 0640, for 48 hours

X-ray chest 1 view
STAT, 1 time imaging, First occurrence today at 1440
Portable? Yes

Blood culture, peripheral #1
STAT, First occurrence today at 1440

Medication Orders

Medications

Pharmacy Consult

- [x] Pharmacy Consult to review and adjust all antibiotic doses if needed based on patient's renal function
  - Routine, Once, First occurrence today at 1440

Lung Infection

If Lung Infection present, use Adult Pneumonia Order Set to place antibiotic orders

Community Acquired Urinary Tract Infections

- ○ No Allergy: ceftriaxone (ROCEPHIN)
- ○ Beta-lactam Allergy: levofloxacin (LEVAQUIN) and gentamicin

Health-care Associated Urinary Tract Infections

- ○ No Allergy: cefepime
- ○ Beta-lactam Allergy: levofloxacin (LEVAQUIN) and gentamicin

Community Acquired Abdominal/Pelvic Infection

- ○ No Allergy: ceftriaxone (ROCEPHIN) and metronidazole (FLAGYL)
- ○ Beta-lactam Allergy: levofloxacin (LEVAQUIN) and metronidazole (FLAGYL)

Health Care Acquired Abdominal/Pelvic Infection

- ☐ No Allergy - Option 1: cefepime and metronidazole (FLAGYL)
- ☐ No Allergy - Option 2: piperacillin-tazobactam (ZOSYN)
- ☐ Beta-lactam Allergy: aztreonam (AZACTAM), metronidazole (FLAGYL) and vancomycin
- ☐ If Septic Shock, consider the addition of gentamicin
- ☐ If post-operative wound infection consider addition of fluconazole (DIFLUCAN)

Skin/Soft Tissue Cellulitis

- ☐ No Allergy: cefepime or piperacillin-tazobactam (ZOSYN)
- ☐ Beta-lactam Allergy: levofloxacin (LEVAQUIN)
- ☐ If suspecting MRSA, consider addition of vancomycin

Necrotizing Fasciitis

- ○ No Allergy: piperacillin-tazobactam (ZOSYN), clindamycin (CLEOCIN) , and vancomycin
- ○ Beta-lactam Allergy: aztreonam (AZACTAM), clindamycin (CLEOCIN), and vancomycin

Decision for Disposition

- An important element of patient care is knowing who we can admit to our CAH, and who needs tertiary care
- Criteria to consider regarding patient disposition
  - Hemodynamic stability vs instability
  - Potential need for Infectious Disease Specialist
  - Patient co-morbidities
  - Potential need for invasive monitoring
  - Potential need for ventilator support
  - Potential need for specialties or procedures not available at our CAH

Patient Disposition - Admission

- Admission to PDRH
  - Admission under the service of the hospitalist
  - Hand off to receiving unit is a verbal report nurse to nurse
  - Epic allows for one chart throughout the hospital

Patient Disposition - Transfer

- Transferred within ProMedica or outside ProMedica
- Decision concerning facility choice is dependent on patient/family preference, and available resources at accepting facility
- Physician to Physician acceptance
- Hand off to receiving facility is still a verbal report nurse to nurse
- Second hand off (verbal report) between nurse and transport providers

Barriers to sepsis care

- Keeping the nursing staff competent on sepsis care

Ongoing Case Management

SEPSIS FILTERS 2019 Criteria	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
Cases Reviewed	3	0	0	0	3	1	1	4	2	2	2	3	**21**
SEPSIS SCREENING													
Sepsis screening completed	3				3	1	1	3	2	0	2	2	**17**
Sepsis screening coincides with diagnosis	3				2	1	1	2	2	0	1	2	**14**
VS DOCUMENTATION													
Documentation of temperature	3				3	1	1	4	2	2	2	3	**21**
VS hourly if not hypotensive	1				N/A	N/A	N/A	4	2	2	1	1	**11**
VS done Q15-30 minutes if hypotensive	0				2	1	1		N/A	N/A	1	N/A	**5**
LAB STUDIES													
Lactate drawn on admission	3				2	1	1	3	2	2	2	3	**19**
Lactate repeated within 4 hours if elevated	3				2	N/A	1	1	2	2	N/A	1	**12**
Blood cultures drawn prior to antibiotic administration	3				3	1	1	4	2	2	1	3	**20**
TREATMENT													
Antibiotics administered within 3 hours of arrival	3				2	1	1	3	2	2	1	2	**17**
IV fluids given at 30 ml/kg if SBP < 90 or lactate > 4	2				2	0	1	1	2	2	0	N/A	**10**
Vasopressors given if MAP ≥ 65	N/A				1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	**1**

Barriers to sepsis care

- Keeping the nursing staff competent on sepsis care
- Implementation of sepsis order set by physicians
- Bed availability at a tertiary center
- Availability of transport services in a timely manner
- Delivery of evidence based care in the boarded patients

Questions ??

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

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