OVERLAKE HOSPITAL
OB SEPSIS

Pacific NW Regional Sepsis Conference

ABOUT OVERLAKE

> 349-bed, nonprofit regional medical center offering a full range of advanced medical services to the Puget Sound Region
> Level III Trauma Center
> Approximately 22,000 admissions/year
> Over 45,000 ED visits/year
> Around 3700 Births/year
SPREADING EARLY RECOGNITION AND TREATMENT OF SEPSIS TO THE OB POPULATION

Margie Bridges, DNP, RNC-OB, ARNP-BC
Perinatal Clinical Nurse Specialist
Women and Infant's Services

Betsy Pesek, MN, BSN, RN, CPHQ
Quality Improvement Consultant
Quality Department

NOTHING TO DECLARE
OBJECTIVES

1. Recognize rational for including the OB population into Sepsis Quality Improvement work

2. Name 3 considerations that are unique to the perinatal population

3. Describe a stepwise approach to incorporating inter-professional education on early recognition and management of maternal sepsis


*Note: Number of pregnancy-related deaths per 100,000 live births per year.

MATERNAL MORTALITY U.S.A. VERSUS OTHER DEVELOPED COUNTRIES

SEPSIS IS THE 3RD LEADING CAUSE OF MATERNAL DEATH

CASE FOR CHANGE

> Severe Sepsis is the 3rd leading cause of maternal death
> Incidence of sepsis increasing over the years
> Once Severe Sepsis and Septic Shock develops mortality approaches 60%
> SEP-1 Core measure since 2015

How many of you have included OB in your work?
WHAT’S UNIQUE ABOUT OB?

• Distraction
• Typically Young & Healthy
• Uncommon
• Limited studies
• TWO patients
• SIRS criteria

UNIQUE OB PHYSIOLOGY

• Normal OB physiology mimics SIRS:
  • WBC higher
  • HR increases
  • RR Increases
• Effect of Labor
  • HR, RR: pain and pushing
  • Temp: dehydration, epidural
  • Hypotension with epidural
  • Altered mental status
A STORY THAT MOTIVATES
GROUP A SEPSIS CASE

16 year old Vacuum delivery 1st degree laceration

Postpartum Day 1:

WBC 16.4  T 36.2  BP 118/71 Pulse 115

3 hours later :

WBC=*1.7 repeat 1.6 T: 38.7  HR: 120-156
BP:  95/45- 76/34 RR: 40-47

Mother comments that this is not her typical response to pain or stress

OB CASE CONTINUED

RRT Called Transferred to CCU

Test & Treat: CT Scan, Pulmonary angiogram, Abdominal Ultrasound, Blood & Urine Cultures, IV Unasyn, clindamycin, Vancomycin, fluid volume resuscitation, vasopressor support, respiratory support with intubation

- BP: 68/40  P: 160  SaO2 87% on 6L  Lactate 2.8
- Increasing pulmonary edema/pleural effusions, decreased UO
- Respiratory failure, tachycardia/Hypotension requiring vasopressors.

Major Goals of sepsis management were met: She was treated emergently with fluid resuscitation, antibiotic administration….What else?
**OB CASE CONTINUED**

**Postpartum Day 3:**
**To OR for Surgery:** TAH, APPY, and Abdominal washout. Uterus was “mushy” tissue friable.

- 4 liters of purulent Ascites
- *Positive for GAS*
- Remained ventilated 9 days (ARDS)

**Day 17:** T: 36.5, BP: 127/75  P: 88 RR: 16  Sao2 100%  RA
Discharged: Ambulating, Eating and Breastfeeding!

**QI IS A NEVER ENDING PROCESS**

Where we were, where we are, and where we’re headed

- ED & CCU → Inpatient → OB population
- MEWS to MEWT
- GLOSS Study  *Global Maternal Sepsis Study*
**THE SEPSIS TEAM**

- Medical Director CCU
- Medical Director ED
- Medical Director Quality
- Nurse Managers CCU & ED
- Group Health Urgent Care
- Group Health MD
- Hospitalist MD
- Inpatient Nurse Manager
- ED & CCU RNs
- CCU, ED, OB CNSs
- Inpatient RN Champions
- Epic ASAP
- Epic Liaison
- Pharmacy
- Lab
- MI, VIR

**SEPSIS TIMELINE**

1. **Hospital-wide Sepsis education**
   - Spring 2014

2. **Sepsis Core Measure**
   - Oct 1, 2015

3. **PHASE 2**
   - Mar - May ‘15

4. **Mews for Inpatient**
   - Oct 2016

5. **Sepsis Checklist Mar ’15**
   - ED BPA In Production

6. **BRT Protocols ED Fluid Documentation**
   - Aug 2017

7. **Sepsis Order Set Inpatient Build Provider Education**
   - Dec 2017

8. **MEWT In OB MEWT In EMR**
   - March 2018

9. **RN Sepsis Champion Sepsis Checklist In Progress**
   - Dec 2017

10. **Sepsis Checklist in EMR ALL RN Protocol**
    - March 2018

11. **Sepsis Checklist in EMR April 2018**
    - June 2018

12. **Sepsis Checklist in EMR May 2018**
    - June 2018

13. **Sepsis Checklist in EMR June 2018**
    - June 2018

14. **Sepsis Checklist in EMR July 2018**
    - TBD 2018
BUCKETS OF WORK

TEAM
- Bedside RN Champions
- Paper Checklists
- Policy Protocols

Workflows:
- ED
- CCU
- Inpatient
- OB

Equipment
Order Sets
CCU
ED
Inpatient

EMR→BPA

THERE CAN BE ONLY ONE!

General Population:
Primary sources in ED: Pna, UTI, Abdominal & Wound/skin

OB Population: CHORIOAMNIONITIS... AND Endometritis, Wound, Pyelo, Pna, Necrotizing fasciitis

CHORIO – AND SEPSIS
> Providers & Nurses thinking chorio is different than sepsis
> Not understanding Sepsis is a body’s adverse reaction to ANY infection
> Providers and nurses thinking delivery is cure
> Not thinking more than one infection can be occurring at same time
## OB WORKFLOW

<table>
<thead>
<tr>
<th>Any two SIRS/symptoms below</th>
<th>AND Suspected infection?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR&gt;110</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RR&gt;24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temp &lt; 36 OR &gt;38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBC &gt; 14 OR &lt;4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Change in Mental Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBP &lt;90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANY ISOLATED TEMP of 39°C</td>
<td>Notify MD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Early intervention was implemented for all patients who screen positive for sepsis.
RN champions instrumental
Perinatal staff educated on early recognition and management of maternal sepsis.

## AFTER OB SEPSIS PROTOCOL CASE

**G1P0, 37 weeks gestation, with uneventful pregnancy**

**0300: Admitted to L&D**
- WBC 10,000

**1200: Temp (38°C) Tylenol was administered and …..**
- Maternal and fetal tachycardia
- Shaking
- Change in mental status
- Increased pain
- Temp spiked to 41.1 °C.

**RRT was called & Sepsis Bundle was initiated**
- C-Section because of fetal intolerance
- NICU for chorioamnionitis.
- Mother’s blood cultures positive for E. coli.
- Mom & Baby discharged in stable condition
CHALLENGES & SUCCESSES

Challenges
• Lactate isn’t B.S.
• Paper checklist “ONE MORE THING!!”
• Consistency in application
• Creating a sustainable process

Successes
• Change in culture: OB Hospitalist 24/7
• Engaged, multidisciplinary team
• Improved competence at bedside
• Resource everywhere they can reach – EMR, Department Internet

NEXT STEPS

> MEWT build in Epic
> Checklist build in Epic
> Once hardwired, monitor process
OBJECTIVES

1. The WHY?? Recognize rational for including the OB population in Sepsis Quality Improvement work

2. The WHAT? Name 3 considerations that are unique to the perinatal population

3. The HOW? Describe a step wise approach to incorporating inter-professional education on early recognition and management of maternal sepsis

QUESTIONS?

For more information, contact: Betsy.Pesek@overlakehospital.org or Margie.Bridges@overlakehospital.org
OB Sepsis References


