CLINICAL PATHWAY

Women & Children

TIME: Triple I to Manage Early-Onset Sepsis

CHRISTIANA CARE HEALTH SYSTEM
# TIME: Triple I to Manage Early-Onset Sepsis

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INTRODUCTION

A definitive and timely diagnosis of maternal chorioamnionitis (Chorio) implies the mother and fetus are at increased risk for developing serious infectious consequences. The clinical diagnosis of "Chorio" is inconsistent, resulting in variation in clinical practice and subsequently unnecessary interventions and treatment of mothers and newborns. A new classification system referred to as the “Triple I” uses criteria that takes into account Intrauterine Infection, Inflammation, or both to reduce variation in diagnosis and treatment. Currently the newborn of a mother diagnosed with "Chorio" is admitted to the NICU to r/o early onset sepsis (EOS). The Kaiser Permanente Sepsis Calculator utilizes maternal risk factors and the newborn’s clinical presentation to produce the probability of EOS per 1000 babies. Use of the “Triple I” classification system and “sepsis calculator” can reduce unnecessary testing, treatment and separation of the mother-baby dyad.

Scope of this Pathway

All mothers presenting for delivery at Christiana Care with a 35 week or greater pregnancy who exhibit an elevated temperature of > or = 38 C and her newborn(s).
Pathway Contacts

The content of this pathway is developed and maintained by the Women & Children line of Christiana Care Health System. Questions or feedback about the content may be directed to:

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CLINICAL PATHWAY

TIME - Recognition and Treatment

Assess maternal vital signs, specifically temperature on admission and every 4 hours while in labor, every 2 hours if membranes are ruptured. One elevated fever of 39 C or two consecutive temperatures of 38C take 1/2 hour apart meets criteria of a documented fever.

If documented fever, assess for any of the following symptoms:

- Fetal tachycardia (>160 bpm for 10 minutes)
- Purulent discharge from the cervical os
- Elevated WBC > 15,000

A documented fever in combination with any one of the aforementioned symptoms meets criteria for a diagnosis of suspected Triple I and maternal antibiotics are ordered and administered to reduce the risk of early onset sepsis (EOS) in the newborn.

Early Onset Sepsis - Calculating Risk to the Newborn

After delivery, maternal risk factors (gestational age, highest maternal antepartum temperature, # of hours with ruptured membranes, GBS status, and intrapartum antibiotic administration) are to be entered into the Kaiser Permanente Sepsis Calculator at: [https://www.dor.kaiser.org/external/DORExternal/research/InfectionProbabilityCalculator.aspx](https://www.dor.kaiser.org/external/DORExternal/research/InfectionProbabilityCalculator.aspx)

Follow the calculated clinical recommendations based on the newborn's physical exam.
Well appearing and equivocal (transitioning) newborns not requiring empiric antibiotics are to be observed and evaluated every 30 minutes for four hours after delivery. Clinically ill newborns and newborns requiring empiric antibiotics will be stabilized as needed and transferred to the NICU.
PATHWAY ALGORITHMS

ALGORITHM 1: MOM-1

All well-appearing babies ≥35 weeks born to a mother with an isolated maternal fever of ≥38°C 72 hours prior to delivery are to get Sepsis calculator score completed with 2nd set of Vital signs (30 minutes of IBP). Enter results in Power Chart (PC).

Per protocol. Temp taken q4h until ROM, then q 2h.

Temperature ≥ 38°C?

Notify provider of "fever" & inquire if antibiotic desired

AMS ordered & administered?

Administer Broad Spectrum Antibiotics & continue labor support

Fetal concern?

Call Peds for delivery if fetal tachycardia, NRFMR, or intrapartum risk factor, i.e., forceps

Baby is delivered

Baby well-appearing?

DR Peds assesses newborn and delivers care PRN

Baby placed STS on mom

Baby wellappearing?

Baby is delivered

Call Peds to assess newborn

Peds at Delivery

Yes

No

Baby is delivered

Fetal concern?

Yes

No

Baby is delivered

AMS ordered & administered?

Administer Broad Spectrum Antibiotics & continue labor support

Temperature ≥ 38°C?

Notify provider of "fever" & inquire if antibiotic desired

AMS ordered & administered?

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Administer Broad Spectrum Antibiotics & continue labor support

Temperature ≥ 38°C?

Notify provider of "fever" & inquire if antibiotic desired

AMS ordered & administered?
All well appearing babies ≥35 weeks born to a mother with an isolated maternal fever of >38°C 72 hours prior to delivery are to get Sepsis calculator score completed with 2nd set of Vital signs (30 minutes of life). Enter results in Power Chart (PC).

**ALGORITHM 2: NB-2**

**TIME CPW**
3/27/18

**Page 2A**

- **Well appearing?**
  - Yes: DR Peds provider & RN deliver care PRN
  - No: Equivocal?

**Page 2B**

- **Equivocal?**
  - Yes: Stabilize, transfer, and admit to NICU for empiric antibiotics
  - No: Clinical Illness?

**Page 3A**

- **Clinical Illness?**
  - Yes: Admission to NICU, End, cancel tag on newborn
  - No: Continue care until stable for discharge

**LDR Nurse**

- LDR Nurse opens baby chart in Power Chart to document vitals
- Alert to Nurse to complete SCS
- Nurse obtains Sepsis Calculator Score (SCS) when completing 2nd set of vital signs. Enter clinical recommendations for Well-appearing and equivocal exam in Power Chart
- Notify DR peds provider of SCS, clinical recommendations, & obtain orders if needed for Blood culture
- NB vital signs to be assessed every 30 minutes

**LDR Nurse clicks:**
- Link to PowerForm
- Link to URL
- Complete URL
- Documents findings
- Notifies DRP & documents in PowerForm
- Signs Form

**Go to Page 3A**
ALGORITHM 3: NB-3

TIME CPW 3/27/18

Mother & Newborn (NB) to recover in L&D 2 hours unless NB requires transfer to NICU

Well appearing & Green SCS?

Alert to DRP: Review SCS

DRP opens baby chart

Vitals on arrival, repeat in 1 hour, then q 4 hours for 48 hours on WMWB

PP Nurse & Peds provider open baby chart in PC.

Baby remains stable?

Discharge home with mom, End, resolve tag

NB vital signs to be assessed every 30 minutes

Clinical illness or Red SCS

DRP opens baby chart

Alert displayed on Care Compass for NB at Risk

Peds/DR will contact Primary Pediatrician regarding POC on all NB w/ SCS & document POC in Powerchart.

Baby stable for discharge?

Discharge home

Every 4 hour task for Vitals on NB X 48 hours

Is OBS baby well appearing w/i 4 hours?

Yes

Admit and initiate empiric antibiotics

End, cancel tag on newborn

No

Yes

Mothers born to a mother with a fever 72 hours prior to delivery are to stay 2 48 hours

Is OBS presumpt. or confirmed?

Yes

Continue antibiotics for 7 days?

Baby stable for discharge?

Discharge home

No

No

No

Yes

Discharge home

Every 4 hour task for Vitals on NB

Yes

Baby well appearing at 2 hrs of life?

Transfer to NICU for OBS and/or admission and possible empiric antibiotics

Yes

No

Discharge home with mom, End, resolve tag

Baby stable for transfer or discharge

Alert to DRP: Review SCS

DRP clicks
- Link to new PowerForm
- Reviews RN documentation (pulled forward via Smart Template
- Documents Attending Peds notified

SCS to be integrated into RN handoff report from L&D to PP

Page 3
## Algorithm 4: Clinical Exam Definitions

<table>
<thead>
<tr>
<th>Clinical Exam</th>
<th>Description</th>
</tr>
</thead>
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| **Clinical Illness** | 1. Persistent need for NCPAP / HFNC / mechanical ventilation (outside of the delivery room)  
2. Hemodynamic instability requiring vasoactive drugs  
3. Neonatal encephalopathy / Perinatal depression  
   - Seizure  
   - Apgar Score @ 5 minutes < 5  
4. Need for supplemental $O_2$ ≥ 2 hours to maintain oxygen saturations > 90% (outside of the delivery room) |
| **Equivocal** | 1. Persistent physiologic abnormality ≥ 4 hrs  
   - Tachycardia (HR ≥ 160)  
   - Tachypnea (RR ≥ 60)  
   - Temperature instability (≥ 100.4°F or < 97.5°F)  
   - Respiratory distress (grunting, flaring, or retracting) not requiring supplemental $O_2$  
2. Two or more physiologic abnormalities lasting for ≥ 2 hrs  
   - Tachycardia (HR ≥ 160)  
   - Tachypnea (RR ≥ 60)  
   - Temperature instability (≥ 100.4°F or < 97.5°F)  
   - Respiratory distress (grunting, flaring, or retracting) not requiring supplemental $O_2$  
Note: abnormality can be intermittent |
| **Well Appearing** | No persistent physiologic abnormalities |
HEALTH EQUITY CONSIDERATIONS

Low Health Literacy will be addressed individually when communicating with the mother and significant other(s).
PATIENT EDUCATION MATERIALS

Upon meeting with the focused patient advisory group, it was learned that there are varying degrees of desired information. Some want to know everything and others just wanted to know the basics. It was decided that information will be conveyed with patients verbally based on their desired level of detail. The patient advisory group shared that this information can be conveyed by the nurse as well as the provider. The mother (and significant others) will be integrally included as part of the care team with the caregivers. Parents are to be empowered and included as part of the team to build and foster trust.
CLINICAL EDUCATION MATERIALS

TIME Sepsis Calculator Education Presentation
TIME Private Provider Training Presentation
TIME PPT Education Presentation
TIME LDR Nursing Presentation
REFERENCES


ACKNOWLEDGEMENTS

We would like to acknowledge and thank the following people that have contributed to the development of the TIME Pathway.

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THE CHRISTIANA CARE WAY

We serve our neighbors as respectful, expert, caring partners in their health. We do this by creating innovative, effective, affordable systems of care that our neighbors value.