



Title: <b>Intra-Amniotic Infection and/or Inflammation (Triple I)</b>				<b>Guideline</b>	
<b>Patient Age Group:</b>	<input type="checkbox"/> N/A	<input type="checkbox"/> All Ages	<input type="checkbox"/> Newborns	<input type="checkbox"/> Pediatric	<input checked="" type="checkbox"/> Adult

## OVERVIEW

Intraamniotic infection, also known as chorioamnionitis, is an infection/inflammation of any combination of the amniotic fluid, placenta, fetus, fetal membranes, or decidua. Timely maternal management will facilitate proper evaluation and antibiotic treatment when indicated (ACOG, 2017).

## AREAS OF RESPONSIBILITY

*Labor and Delivery, Mother Baby Unit, Women's Special Care*

## PROCEDURES

### Risk factors:

- Longer length of labor and length of ruptured membranes
- Multiple digital vaginal examinations (especially with ruptured membranes)
  - An increasing number of digital examinations may be a consequence of longer labor rather than an independent risk factor, particularly prior to membrane rupture.
- Cervical insufficiency, nulliparity, meconium-stained amniotic fluid, internal fetal or uterine monitoring, presence of genital tract pathogens (e.g., STIs, GBS, BV), alcohol and tobacco use, and previous history of intra-amniotic infection
- Maternal chronic disease, maternal nutritional status, and emotional stress (may increase susceptibility to infection by effects on immune system)

### Triple I Presentation:

Most commonly with PROM, but can occur with intact membranes. Key clinical findings include:

- Fever
- Maternal leukocytosis (variously defined as white blood cell count 12,000/mm<sup>3</sup> or >15,000/mm<sup>3</sup>)
- Maternal tachycardia >100/min
- Fetal tachycardia >160/min
- Uterine tenderness
- Bacteremia (most common when associated with GBS or E coli infection)
- Purulent or malodorous amniotic fluid.

### Presumptive Diagnosis:

- Isolated maternal fever is maternal temperature  $\geq 39.0^{\circ}\text{C}$  on one occasion **OR**  $\geq 38.0^{\circ}\text{C}$  but  $< 39.0^{\circ}\text{C}$  on two occasions 30 minutes apart without a clear alternate source. Treat empirically for Triple I in the case of isolated maternal fever.

- Suspected Triple I: While the use of antibiotics should be initiated with isolated maternal fever, the suspected diagnosis of Triple I relies on fever (per above definition) **IN ADDITION TO** one of the following:
  - Fetal tachycardia >160 for  $\geq 10$  minutes (excluding accelerations, decelerations, or periods of marked variability)
  - Maternal white cell count >15,000 in the absence of corticosteroids
  - Purulent-appearing fluid coming from the cervical os
  - Note: these criteria de-emphasize maternal tachycardia and fundal tenderness for clinical diagnosis
- Confirmed Triple I: Diagnosis can be confirmed with amniotic fluid laboratory findings which are rarely obtained or postpartum from placental pathology. The definitive diagnosis is important for research or clinical case reviews but won't affect maternal or newborn management

### Management:

- For women with isolated maternal fever, suspected, and/or confirmed triple I, start broad spectrum antibiotics during labor:
  - For vaginal delivery:
    - Ampicillin 2 g IV q6 hours AND
    - Gentamicin 5 mg/kg once daily
      - A single daily Gentamicin dose is equally or more effective and more convenient than three times a day dosing, is safe when used intrapartum or postpartum, and is our recommended Gentamicin dosing
  - Ampicillin is preferred over PCN for broader coverage, thus GBS+ women receiving PCN prophylaxis, can be switched to ampicillin and **PCN can be discontinued**
  - For women with PCN allergy:
    - Cefazolin 2 g intravenously every 8 hours can be substituted for women with mild (no history of anaphylaxis, hives or angioedema) PCN allergy
    - Clindamycin 900 mg intravenously every 8 hours OR Vancomycin 1 g intravenously every 12 hours can be substituted for ampicillin if history of severe (anaphylactic) PCN allergy
    - Vancomycin should be used for colonization with GBS resistant to either clindamycin or erythromycin (unless clindamycin-inducible resistance testing is available and is negative) or for GBS colonization without antibiotic sensitivities available.
- Continuous fetal monitoring
- Consider IUPC prn and possible oxytocin augmentation as needed to expedite birth
- Antipyretics: Begin acetaminophen (immediately after diagnosis or with isolated fever and no symptoms) to reduce maternal fever
  - Oral: 1000 mg every 6 hours; maximum daily dose: 3000 mg daily
  - Rectal: 650 mg every 4 to 6 hours; maximum daily dose: 3900 mg daily
- Pediatric evaluation of newborn: recommend having peds/NICU team at delivery for potential resuscitation
- Placenta
  - Send to Pathology with USURG order placed as well as paper requisition completed.
- Postpartum care:
  - Following vaginal delivery:
    - No additional doses of antibiotic are indicated

- Following delivery by cesarean:
  - Continue 24 hour antibiotics post delivery.
  - Add: Clindamycin 900 mg intravenously every 8 hours OR metronidazole 500 mg intravenously every 8 hours for anaerobic coverage
  - Note that Azithromycin does NOT need to be given intra-operatively or added to postpartum orders since broad coverage with antibiotics already achieved
  - Since Gentamicin is given as a daily dose, if more than 12 hours from time of delivery have passed since the last dose of Gentamicin, an additional dose of Gentamicin should be given postpartum at the appropriate 24 hour time frame
  - If Gentamicin has been given less than 12 hours from time of delivery, then an additional dose of Gentamicin is not needed
- If persistent postpartum fever and/or pelvic pain - evaluate for endometritis

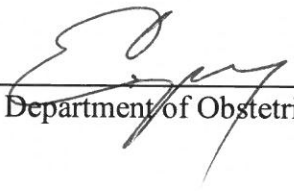
## REFERENCES

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## APPROVAL

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Approval:   
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10/3/2018  
Date

SOP # / Version #	Effective Date	Supersedes	Review Date	Summary of Change(s)
Version 2	10/3/2018	Version 1	10/3/2018	Updated to align with ACOG guidelines