POSTPARTUM MASTITIS

I. Applicability
   For patients presenting to triage

II. Purpose
   To provide guidelines for the timely identification and management of patients with postpartum mastitis

III. Epidemiology
   A. Definition: inflammatory condition of the breast, which may or may not be infectious.
      a. Uncomplicated: pain, swelling, redness, with or without fever (>38°C), and NO purulent drainage or abscess
      b. Complicated: purulent drainage with or without abscess
   B. Pathogenesis: mastitis occurs after engorgement followed by milk stasis and/or blocked ducts leading to swelling and inflammation. Infection may occur with prolonged blockage of the ducts.
      a. Most common causative organisms: Staphylococcus aureus, coagulase-negative staphylococcus (CoNS), and Streptococcus pyogenes. Less common causative organisms: Escherichia coli, Corynebacterium spp. and Bacteroides spp. MRSA is becoming more prevalent and empiric therapy with activity against MRSA should be considered in select patients as outlined below.
      b. Most common during first 8 weeks postpartum.
   C. Risk factors:
      a. Difficulty with breastfeeding leading to incomplete emptying
      b. Poor milk production
      c. Prolonged period of engorgement
      d. Nipple damage or trauma
      e. Engorgement related to missed feeding without pumping.
      f. Tight, underwire, or ill-fitting bra causing constriction of ducts.
      g. Stress and or fatigue

IV. Standard
   A. Triage Phone Assessment
      1. History
         i. Previous diagnosis of mastitis
         ii. Nipple trauma or damage
         iii. Sudden onset of “flu” like symptoms (fever, chills, body aches)
         iv. Skin changes of breast (red, painful, warm wedge; “milk blister”)
         v. Engorged full breast prior to onset especially if related to skipped feeding.
      2. Uncomplicated mastitis (as described in the table below) may be assessed and treated over the phone with supportive care measures if presenting in the first 12 to 24 hours of symptom onset. If symptoms persist beyond 24 hours, antibiotics may be warranted.
      3. Patients with recurrent episodes of mastitis or severe symptoms with concerns for abscess should be evaluated urgently (either in clinic or in triage).
   B. Evaluation
      1. Early stages: subtle streaks of light pink in a single region may be the only visual abnormality. Later stages: firm, reddened, localized, hot, swollen area on a unilateral breast.
      2. A fluctuant mass is often palpable when an abscess is present.
      3. Pain, intense but localized
      4. Fever usually >38°C, may be accompanied by tachycardia resulting from the fever. Hypotension is uncommon and may be indicative of a septic process.
### V. Guideline

#### A. Treatment Algorithm

<table>
<thead>
<tr>
<th>Clinical Setting</th>
<th>Recommended Therapy</th>
<th>Duration</th>
<th>Comments</th>
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| **Uncomplicated Mastitis**        | Supportive care:                                                                    |              | - Avoid use of sulfamethoxazole-trimethoprim if the breastfeeding neonate is <1 month or has hyperbilirubinemia regardless of gestational age. Doxycycline 200 mg PO x1, then 100 mg PO BID is preferred in these cases.  
                              | - Increased oral fluids                                                             |              | • Consider adjusting dose of sulfamethoxazole-trimethoprim to 800-160 mg PO BID in patients weighing <40 kg.                                                                                           |
|                                  | - Acetaminophen or Ibuprofen for discomfort and/or fever                              |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
| **Mild Non-Purulent Mastitis**    | Supportive care:                                                                    | Until symptoms gone for 24 hours | - Avoid use of sulfamethoxazole-trimethoprim if the breastfeeding neonate is <1 month or has hyperbilirubinemia regardless of gestational age. Doxycycline 200 mg PO x1, then 100 mg PO BID is preferred in these cases.  
                              | - Continue frequent breastfeeding (or pumping if applicable) to empty breast         |              | • Consider adjusting dose of sulfamethoxazole-trimethoprim to 800-160 mg PO BID in patients weighing <40 kg.                                                                                           |
|                                  | - Heat to affected area                                                               |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | - Massage of affected region moving towards nipple while expressing breastmilk       |              | • Consider adjusting dose of sulfamethoxazole-trimethoprim to 800-160 mg PO BID in patients weighing <40 kg.                                                                                           |
|                                  | - Avoid pressure points from bras, especially underwire style.                      |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | - REST                                                                               |              | • Consider adjusting dose of sulfamethoxazole-trimethoprim to 800-160 mg PO BID in patients weighing <40 kg.                                                                                           |
|                                  | - Increased oral fluids                                                              |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | - Acetaminophen or Ibuprofen for discomfort and/or fever                              |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | **Preferred:**                                                                      |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | Supportive care measures as mentioned above                                           |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | + Cephalexin<sup>†</sup> 500 mg PO QID                                              |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | **Preferred in Patients with Risk Factors for MRSA:**                               |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | Cephalexin<sup>†</sup> 500 mg PO QID + Sulfamethoxazole-trimethoprim<sup>*</sup>       |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | 1600-320 mg (2 double strength tablets) PO BID [see comment]                        |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
| **Moderate Non-Purulent Mastitis**| Risk Factors for MRSA:                                                               | 10-14 days   | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | - Mastitis worse after >48 hours of cephalexin or dicloxacillin                      |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | - Prior history of MRSA infection                                                    |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | - Recurrent mastitis                                                                |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | - Known MRSA colonization                                                            |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | **Alternative for patients with life-threatening penicillin or cephalosporin allergy:** |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | Clindamycin 450 mg PO QID                                                           |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | **Recommended Therapy:**                                                             |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | **Duration:**                                                                       |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |
|                                  | **Comments:**                                                                       |              | • Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors). |

<sup>*</sup> Use with caution in patients with a history of asthma, chronic obstructive pulmonary disease, or chronic renal failure.

<sup>†</sup> Doxycycline 200 mg PO x1, then 100 mg PO BID is preferred in these cases.
# Complicated Mastitis

<table>
<thead>
<tr>
<th>Purulent Mastitis without Abscess</th>
<th>10-14 days</th>
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</table>
| (Purulent drainage without a drainable abscess) | *Outpatient clinic visit recommended*  
* Cultures of drainage should be obtained if possible by expressing milk directly into a sterile unit cup  
**Preferred:**  
Supportive care measures as mentioned above  
+ **Sulfamethoxazole-trimethoprim***  
1600-320 mg (2 double strength tablets) PO BID [see comment]  
+ **Cephalexin**†  
500 mg PO QID  
| **Avoid use of sulfamethoxazole-trimethoprim if the breastfeeding neonate is <1 month or has hyperbilirubinemia regardless of gestational age. Doxycycline 200 mg PO x1, then 100 mg PO BID is preferred in these cases.**  
**Consider adjusting dose of sulfamethoxazole-trimethoprim to 800-160 mg PO BID in patients weighing <40 kg.**  
**Use sulfamethoxazole-trimethoprim with caution in patients receiving alternative drug therapy that can cause hyperkalemia (common examples include spironolactone, angiotensin-converting enzyme inhibitors (Lisinopril), angiotensin-II receptor blockers (losartan), and direct renin inhibitors).** |

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<th>Purulent Mastitis with Abscess</th>
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| * Recommend inpatient admission  
* Incision and drainage is recommended if abscess present  
**Preferred, Empiric:** **Vancomycin*** IV (see nomogram, AUC goal 400-600)  
+ Supportive care measures as mentioned above  
Alternative if allergic to vancomycin (NOT red man syndrome): **Linezolid** 600 mg IV/PO BID  
**Therapy may need to be extended based on severity of infection** | **May stepdown to oral antibiotics based on cultures** |

*Dose adjustments necessary in patients with renal insufficiency. Guidance can be found [here](#).  
†Dicloxacillin 500 mg PO QID may be used as an alternative to cephalexin, if it is contraindicated.
VI. **Procedure**
   
   A. Health Education
      
      a. Notify OB provider or call Triage (734) 764-8134 if no improvement within 12-24 hours.
      b. Teach women ways to decrease stress and obtain rest.
      c. Restrict visitors.
      d. Enlist help from relatives and friends with household tasks
      e. Rest in bed with infant close by for frequent feedings.
      f. Take Antibiotic as directed until completely gone.
      g. Take acetaminophen or ibuprofen according to package instructions to control pain and fever.
      h. Refer to Lactation Consultant if nipples are sore or if women are experiencing other difficulties with breastfeeding and/or complete emptying.

VII. **Exhibits**
   
   A. Health Education Handout- Mastitis [http://www.med.umich.edu/1libr/gyn/BirthCenterTriage/mastitis.pdf](http://www.med.umich.edu/1libr/gyn/BirthCenterTriage/mastitis.pdf)

VIII. **References**
      
      
      
      
      The recommendations in this guide are meant to serve as treatment guidelines for use at Michigan Medicine facilities. If you are an individual experiencing a medical emergency, call 911 immediately. These guidelines should not replace a provider’s professional medical advice based on clinical judgment, or be used in lieu of an Infectious Diseases consultation when necessary. As a result of ongoing research, practice guidelines may from time to time change. The authors of these guidelines have made all attempts to ensure the accuracy based on current information, however, due to ongoing research, users of these guidelines are strongly encouraged to confirm the information contained within them through an independent source.