Appendix L

Lactation Safety of Antimicrobials Used for Treatment of Sepsis

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For detailed information on the safety and use of antibiotics during pregnancy, we recommend the publicly accessible database LactMed.

With use of many antibiotics, there can occasionally be disruption of the infant's gastrointestinal and oral flora, resulting in diarrhea or thrush candidiasis.

Safety Summary of Medications for Use During Lactation

Medication	*Breastfeeding category*	Comments (taken directly from https://toxnet.nlm.nih.gov)
Ampicillin	Safe	
Ampicillin-sulbactam	Likely safe (but limited information)	
Azithromycin	Safe	
Aztreonam	Likely safe (but limited information)	
Caspofungin	No information	No information is available on the clinical use of caspofungin during breastfeeding. Caspofungin is indicated for use in infants over 3 months of age and it is poorly absorbed orally, so it is not likely to reach the bloodstream of the infant or cause any adverse effects in breastfed infants. However, no published experience exists with caspofungin during breastfeeding, therefore an alternate drug may be preferred especially while nursing a newborn or preterm infant.
Cefazolin	Likely safe (but limited information)	
Cefepime	Likely safe (but limited information)	
Cefotetan	Safe	
Cefoxitin	Safe	
Ceftriaxone	Likely safe (but limited information)	
Clindamycin	**Concern – use should be individualized**	**Clindamycin** has the potential to cause adverse effects on the breastfed infant's gastrointestinal flora. If oral or intravenous **clindamycin** is required by a nursing mother, it is not a reason to discontinue breastfeeding, but an alternate drug may be preferred. Monitor the infant for possible effects on the gastrointestinal flora, such as diarrhea, candidiasis (thrush, diaper rash) or rarely, blood in the stool indicating possible antibiotic-associated colitis.
Daptomycin	Likely safe (but limited information)	Limited and somewhat inconsistent information indicates that **daptomycin** produces very low levels in milk and it would not be expected to cause any adverse effects in breastfed infants. No special precautions are required.
Doripenem	No information	

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Medication	*Breastfeeding category*	Comments (taken directly from https://toxnet.nlm.nih.gov)
Doxycycline	**Contraindicated**	A number of reviews have stated that tetracyclines are contraindicated during breastfeeding because of possible staining of infants' dental enamel or bone deposition of tetracyclines. However, a close examination of available literature indicates that there is not likely to be harm in short-term use of **doxycycline** during lactation because milk levels are low and absorption by the infant is inhibited by the calcium in breastmilk. Short-term use of **doxycycline** is acceptable in nursing mothers. As a theoretical precaution, avoid prolonged or repeat courses during nursing. Monitor the infant for rash and for possible effects on the gastrointestinal flora, such as diarrhea or candidiasis (thrush, diaper rash).
Ertapenem	Likely safe (but limited information)	
Gentamicin	Likely safe (but limited information)	**Gentamicin** is poorly excreted into breastmilk. Newborn infants apparently absorb small amounts of **gentamicin**, but serum levels with typical three times/day dosages are far below those attained when treating newborn infections and systemic effects of **gentamicin** are unlikely. Older infants would be expected to absorb even less **gentamicin**. Because there is little variability in the milk **gentamicin** levels during multiple daily dose regimens, timing breastfeeding with respect to the dose is of little or no benefit in reducing infant exposure. Data are not available with single daily dose regimens. Monitor the infant for possible effects on the gastrointestinal flora, such as diarrhea, candidiasis (e.g., thrush, diaper rash) or rarely, blood in the stool indicating possible antibiotic-associated colitis.
Imipenem	Likely safe (but limited information)	
Linezolid	No information	**Linezolid** is excreted into breastmilk in concentration likely to be effective against staphylococcal strains found in mastitis. Limited data indicate that the maximum dose an infant would receive through breastmilk would be much less than the standard infant dose and that resulting infant serum levels are trivial. If **linezolid** is required by the mother, it is not a reason to discontinue breastfeeding. Monitor the infant for possible effects on the gastrointestinal tract, such as diarrhea, vomiting, and candidiasis (e.g., thrush, diaper rash). However, because there is no published experience with **linezolid** during breastfeeding, an alternate drug may be preferred, especially while nursing a newborn or preterm infant.
Meropenem	No information (but others in same class safe)	Although no information is available on the use of **meropenem** during breastfeeding, milk levels appear to be low and beta-lactams are generally not expected to cause adverse effects in breastfed infants. Occasionally disruption of the infant's gastrointestinal flora, resulting in diarrhea or candidiasis have been reported with beta-lactams, but these effects have not been adequately evaluated. Vaborbactam, which is available in the combination product Vabomere, has not been studied in nursing mothers, but the combination is expected to have similar concerns as with **meropenem** alone.

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Medication	*Breastfeeding category*	Comments (taken directly from https://toxnet.nlm.nih.gov)
Metronidazole	**Opinions vary about the use during breastfeeding**	With maternal intravenous and oral therapy, breastfed infants receive **metronidazole** in doses that are less than those used to treat infections in infants, although the active metabolite adds to the total infant exposure. Plasma levels of the drug and metabolite are measurable, but less than maternal plasma levels. Case reports of candidal infections and diarrhea have been reported, and a comparative trial suggested that oral and rectal colonization with *Candida* might be more common in infants exposed to **metronidazole**. Because of the well demonstrated genotoxicity and mutagenicity in bacteria, carcinogenicity in animals, and possible mutagenicity in humans, concern has been raised about exposure of healthy infants to **metronidazole** via breastmilk. The relevance of these findings has been questioned and no definitive study has yet been performed in humans. Opinions vary among experts on the advisability of using **metronidazole** during longer-term therapy while breastfeeding, but some sources recommend discontinuing breastfeeding for 12 to 24 hours after single-dose maternal treatment. Other drugs are available for some conditions that **metronidazole** is used to treat.
Oseltamivir	Likely safe (but limited information)	
Penicillin	Likely safe (but limited information)	
Piperacillin/tazobactam	Likely safe (but limited information)	Limited information indicates that piperacillin produces low levels in milk that are not expected to cause adverse effects in breastfed infants. Tazobactam has not been studied in nursing mothers. Occasionally disruption of the infant's gastrointestinal flora, resulting in diarrhea or candidiasis, have been reported with penicillins, but these effects have not been adequately evaluated.
Vancomycin	Likely safe (but limited information)	Limited information indicates that **vancomycin** produces low levels in milk and because **vancomycin** is poorly absorbed orally, it is not likely to reach the bloodstream of the infant or cause any adverse effects in breastfed infants. No special precautions are required.