Toolbox: Psychotropic use in pregnancy and lactation

Kathryn N. Freeland, PharmD, BCPP[1]
Kayce M. Shealy, PharmD, BCPS, BCACP[2]

[1]Assistant Professor, Department of Pharmacy Practice
Presbyterian College School of Pharmacy
Clinton, South Carolina
[2]Assistant Professor, Department of Pharmacy Practice
Presbyterian College School of Pharmacy
Clinton, South Carolina

When designing treatment regimens for patients with psychiatric illness, recommendations for treatment of pregnant or breastfeeding women can be particularly complicated. Safe and appropriate medication use in this patient population may vary based on the patient's stage of pregnancy and whether or not she plans to breastfeed. The pharmacist is often asked to help guide these decisions and to recommend medications that will minimize toxicity to the fetus or newborn child while also ensuring efficacy and control of the patient's psychiatric symptoms. The appendices on the following pages were designed to help the psychiatric pharmacist quickly review the FDA's pregnancy categories as well as current data regarding the use of psychiatric medications in a pregnant or breastfeeding patient. The appendices include:

- Psychotropic use in pregnancy and lactation: pregnancy categories
- Psychotropic use in pregnancy and lactation: lactation categories

REFERENCES

Pregnancy Category References

1. FDA Pregnancy Categories. Food and Drug Administration. Federal Register 1980;44:37434-67.
2. Briggs GG, Freeman RK, Yaffe SJ. Drugs in pregnancy and lactation, 9th edition [medical app] DxPregLac9; version 14.0.5/2012.02.06 May 2013 Lippincott Williams & Wilkins; 2011.
3. Data extracted from Lexi-Comp Online. Lexi-Comp OnlineTM, Hudson, Ohio: Lexi-Comp, Inc.; May 17, 2013.
4. Gracious BL, Wisner KL. Phenelzine use throughout pregnancy and the puerperium: case report, review of the literature, and management recommendations. Depress Anxiety. 1997;6(3):124-8. PubMed PMID: 9442987.
5. Nath SP, Miller DA, Muraskas JK. Severe rhinorrhea and respiratory distress in a neonate exposed to fluphenazine hydrochloride prenatally. Ann Pharmacother. 1996 Jan;30(1):35-7.
6. Vince DJ. Congenital malformations following phenothiazine administration during pregnancy. CMAJ. 1969;100(4):223.
7. Werremeyer A. Ziprasidone and citalopram use in pregnancy and lactation in a woman with psychotic depression. Am J Psychiatry. 2009;166(11):1298. DOI: 10.1176/appi.ajp.2009.09060765. PubMed PMID: 19884241.
8. Serreau R, Komiha M, Blanc F, Guillot F, Jacqz-Aigrain E. Neonatal seizures associated with maternal hydroxyzine hydrochloride in late pregnancy. Reprod Toxicol. 2005;20(4):573-4. DOI: 10.1016/j.reprotox.2005.03.005. PubMed PMID: 16199350.

Lactation Category References

1. Hale TW. Medications and mother's milk 2012: a manual of lactational pharmacology. 15th ed. Amarillo, TX: Hale Publishing; 2012.
2. Texas Tech University health sciences center (InfantRisk Center) [medical app]. InfantRisk; Version 1.0/17 May 2013. Available at: http://www.infantrisk.com.
3. Briggs GG, Freeman RK, Yaffe SJ. Drugs in pregnancy and lactation, 9th edition [medical app] DxPregLac9; version 14.0.5/2012.02.06 May 2013 Lippincott Williams & Wilkins; 2011.
4. Data extracted from Lexi-Comp Online. Lexi-Comp OnlineTM, Hudson, Ohio: Lexi-Comp, Inc.; May 17, 2013.
5. Lanza di Scalea T, Wisner KL. Antidepressant medication use during breastfeeding. Clin Obstet Gynecol. 2009;52(3):483-97. DOI: 10.1097/GRF.0b013e3181b52bd6. PubMed PMID: 19661763.
6. Gilad O, Merlob P, Stahl B, Klinger G. Outcome of infants exposed to olanzapine during breastfeeding. Breastfeed Med. 2011;6(2):55-8. DOI: 10.1089/bfm.2010.0027. PubMed PMID: 21034242.
7. Werremeyer A. Ziprasidone and citalopram use in pregnancy and lactation in a woman with psychotic depression. Am J Psychiatry. 2009;166(11):1298. DOI: 10.1176/appi.ajp.2009.09060765. PubMed PMID: 19884241.

How to cite this editor-reviewed article
Freeland KN, Shealy KM. Toolbox: Psychotropic Use in Pregnancy and Lactation. Ment Health Clin [Internet]. 2013;3(2):45-57. Available from: http://dx.doi.org/10.9740/mhc.n164620

APPENDIX A. PSYCHOTROPIC USE IN PREGNANCY AND LACTATION: PREGNANCY CATEGORIES

Medication	Brand Name(s)	Pregnancy Category[1,2] FDA rating (Briggs' rating)	Comments
Selective Serotonin Reuptake Inhibitors			
Citalopram	Celexa®	C (risk in 3rd trimester)*	**All SSRIs** have been associated with an increased risk of persistent pulmonary hypertension in the newborn when used after 20 weeks gestation. Use of an SSRI is also associated with neonatal withdrawal, which includes increased crying, poor feeding, hyperreflexia, hyper/hypotonia, irritability, and cyanosis when used in the third trimester of pregnancy. **Paroxetine**: Changed to category D due to possible increased risk of cardiovascular defects associated with use; however, new data suggests safety that may result in reclassification to category B
Escitalopram	Lexapro®	C (risk in 3rd trimester)*	
Fluoxetine	Prozac®	C (risk in 3rd trimester)*	
Paroxetine	Paxil®, Paxil CR®	D (risk)*	
Sertraline	Zoloft®	C (risk in 3rd trimester)*	
Serotonin and Norepinephrine Reuptake Inhibitors			
Desvenlafaxine	Pristiq®	C	**All SNRIs** are associated with neonatal side effects and/or withdrawal symptoms, which may include increased crying, poor feeding, hyperreflexia, hyper/hypotonia, irritability, and cyanosis when used in the third trimester of pregnancy.
Duloxetine	Cymbalta®	C (risk in 3rd trimester)*	
Venlafaxine	Effexor®, Effexor XR®	C (risk in 3rd trimester)*	
Atypical Antidepressants			
Bupropion	Wellbutrin®, Wellbutrin SR®, Wellbutrin XL®, Forfiveo XL®, Aplenzin®	C (low)*	Limited and inconsistent data regarding a potential risk of cardiac malformations
Mirtazapine	Remeron®	C (moderate)*	Limited studies show similar rates of malformations to the general population
Nefazodone	Serzone®	C (moderate)*	No adverse effects noted in limited studies
Trazodone	Desyrel®	C (low)*	No adverse effects noted in limited studies
Vilazodone	Viibryd®	C	No published human data regarding use in pregnancy

Medication	Brand Name(s)	Pregnancy Category[1,2] FDA rating (Briggs' rating)	Comments
Tricyclic Antidepressants			
Amitriptyline	Elavil®	C (low)*	CNS effects and developmental delays seen in small case reports
Desipramine	Norpramin®	C (low)*	Small studies failed to show risk associated with use
Doxepin	Sinequan®, Silenor®	C (low)*	No well-controlled studies assessing use of doxepin in pregnancy are currently available.
Imipramine	Tofranil®	C (low)*	Very limited data available; no reports of birth defects, but some reports of withdrawal symptoms in newborns
Nortriptyline	Pamelor®	C (low)*	Very limited data available; may cause birth defects. Benefit of drug must outweigh risks to fetus.
Monoamine Oxidase Inhibitors			
Phenelzine	Nardil®	C (moderate)**	One case report of use did not demonstrate harm to the newborn; due to limited data, recommended to be used only when benefit outweighs risks[4]
Selegiline transdermal	Emsam®	C(low)**	One case report with oral use throughout gestation with no indication of teratogenicity; significant neurochanges were noted in animal studies
Tranylcypromine	Parnate®	C	Use in pregnancy not recommended due to lack of published data
Benzodiazepines			
Alprazolam	Xanax®	D (risk)*	**All agents** have been associated with low birth weight and premature birth as well as floppy baby syndrome and neonatal withdrawal symptoms when used routinely in the third trimester.
Chlordiazepoxide	Librium®	D Risk in 1st/3rd trimesters*	
Clonazepam	Klonopin®	D (low)*	
Diazepam	Valium®	D (risk in 1st/3rd trimesters)*	
Lorazepam	Ativan®	D (risk in 1st/3rd trimesters)*	
Midazolam	Versed®	D (low)**	
Oxazepam	Serax®	D (risk in 1st/3rd trimesters)*	
Non-benzodiazepine Anxiolytics			
Buspirone	BuSpar®	B (low)**	Very limited human data available; no harm indicated in small studies and case reports
Mood Stabilizers			
Carbamazepine	Tegretol®	D (compatible if maternal benefit>>fetal risk)	Associated with an increased risk of spina bifida, cardiac malformations, and craniofacial defects
Lamotrigine	Lamictal®	C (risk)*	Small but increased risk of cleft palate and/or lip
Lithium	Lithobid®, Eskalith®	D (risk)*	Risk of congenital heart disease (such as Epstein's anomaly) if used in first trimester. May require frequent monitoring of lithium levels due to fluid shifts associated with pregnancy

Medication	Brand Name(s)	Pregnancy Category[1,2] FDA rating (Briggs' rating)	Comments
Mood Stabilizers (continued)			
Oxcarbazepine	Trileptal®	C (risk)**	Classification comes from animal data and data extrapolated from carbamazepine literature; no human pregnancy data currently available. Serum concentrations may decrease in pregnancy, requiring close monitoring of patient and associated symptoms.
Valproic acid, Divalproex	Depakene® Depakote®, Depakote® ER, Depakote® Sprinkles, Stavzor™	D (risk)* X (migraine prophylaxis)	Associated with neural tube defects as well as cardiac and craniofacial abnormalities
First Generation Antipsychotics			
Chlorpromazine	Thorazine®	Uncategorized (compatible)	Case reports of jaundice, EPS, hyperreflexia or hyporeflexia in babies born to mothers on phenothiazines, but no published data on birth defects. Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn.
Fluphenazine	Prolixin®	C (risk in 3rd trimester)*	One report of respiratory distress and rhinorrhea in a neonate exposed to fluphenazine in utero.[5] Case reports of jaundice, EPS, hyperreflexia or hyporeflexia in babies born to mothers on phenothiazines, but no published data on birth defects. Lowest effective doses should be used to avoid extrapyramidal symptoms and/or withdrawal in the newborn.
Haloperidol	Haldol®	C (moderate risk)**	Case reports of limb malformation exist for infants whose mothers were taking haloperidol in combination with other medications. Lowest effective doses should be used to avoid extrapyramidal symptoms in the newborn.
Loxapine	Loxitane®	C (risk)**	No well-controlled trials in pregnancy; Lowest effective doses should be used to avoid extrapyramidal symptoms and/or withdrawal in the newborn.
Perphenazine	Trilafon®	C	Case reports of jaundice, EPS, hyperreflexia or hyporeflexia in babies born to mothers on phenothiazines, but no published data on birth defects. Lowest effective doses should be used to avoid extrapyramidal symptoms in the newborn.

Medication	Brand Name(s)	Pregnancy Category[1,2] FDA rating (Briggs' rating)	Comments
First Generation Antipsychotics (continued)			
Thioridazine	Mellaril®	C	Case reports of jaundice, EPS, hyperreflexia or hyporeflexia in babies born to mothers on phenothiazines. One case report of a congenital heart defect in an infant whose mother used thioridazine and trifluoroperazine.[6] Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms.
Thiothixene	Navane®	C (low)**	Human studies of use in pregnancy not published; animal studies did not show harm.
Trifluoroperazine	Stelazine®	C	One case report of a congenital heart defect in an infant whose mother used thioridazine and trifluoroperazine.[6] Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn.
Second Generation (Atypical) Antipsychotics			
Aripiprazole	Abilify®	C (risk)**	Developmental toxicities seen in animal models, but case reports in human infants do not indicate this risk. Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn.
Asenapine	Saphris®	C (risk)**	No published data regarding use in pregnancy
Clozapine	Clozaril®	B (low)**	Case reports and small studies demonstrate successful use and normal infant births in small patient population. Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn.
Iloperidone	Fanapt®	C (moderate risk)**	No published data regarding use in pregnancy
Lurasidone	Latuda®	B	No published data regarding use in pregnancy; animal studies did not demonstrate harm
Olanzapine	Zyprexa®	C (low)*	Small studies and case reports have not demonstrated risk of birth defects or toxicities. Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn.
Paliperidone	Invega®	C (low)**	Available data is derived from risperidone studies; small studies indicate safe use in pregnancy. Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn.
Quetiapine	Seroquel®	C (risk)**	Congenital malformations have not been seen in limited data available. Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn

Medication	Brand Name(s)	Pregnancy Category[1,2] FDA rating (Briggs' rating)	Comments
Second Generation (Atypical) Antipsychotics (continued)			
Risperidone	Risperdal®	C (moderate)**	Small studies indicate safe use in pregnancy. Lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn
Ziprasidone	Geodon®	C (risk)**	One case report describing successful use of ziprasidone in pregnancy[7]; lowest effective doses should be used to avoid extrapyramidal and/or withdrawal symptoms in the newborn
Anticholinergics			
Benztropine	Cogentin®	C (Probably compatible)	No published data on the use of benztropine in pregnancy
Diphenhydramine	Benadryl®	B (compatible)	Data analyzed from large registry databases indicate diphenhydramine is safe for use in pregnancy
Hydroxyzine pamoate	Vistaril®	C (low)*	One case report of withdrawal seizures in a newborn exposed to chronic use of hydroxyzine while in utero[8]; no reports of birth defects.
Trihexyphenidyl	Artane®	C (Probably compatible)	Very limited human and animal data; no adverse effects reported in case reports

*human data

**animal data

Explanation of FDA Pregnancy Categories and Inclusion of Briggs Criteria

The FDA pregnancy categories were first implemented in 1979 and required all marketed drugs be assigned to one of 5 categories, A, B, C, D or X depending on risk of reproductive or developmental adverse effects.[1] In 1997, the FDA held a public hearing to obtain feedback on the practicality and utility of the pregnancy categories. Due to concerns raised at this forum about the effectiveness and utility of the categories, the FDA decided to revise the labeling for use in pregnancy and lactation to more accurately convey the actual risks associated with exposure. The new format is to include a clinical management statement, risk assessment summary, and discussion of available data. While the proposed changes and format were announced in 2008, they have yet to be fully implemented.

Briggs' Pregnancy and Lactation reference, currently in its 9th edition, no longer cites the FDA pregnancy letter categories. Beginning with the 7th edition, printed in 2005, the authors began assigning recommendations of risk for use in pregnancy and lactation for each drug included in the reference in addition to the pregnancy letter categories. The authors felt that the letter categories were insufficient in defining the potential risks and were poorly written. For instance, risks associated for category C and D drugs in particular may be the same as those labeled category X, but have more benefit for use in certain situations. However, as currently written, one might conclude incorrectly that risk proportionately increases from category A to X or that all drugs labeled in a given category share the same risks. Thus, both FDA pregnancy categories and Briggs recommendations of risk are included in this table to further explain where risk truly lies in the face of currently existing data.

FDA Pregnancy Classifications[1]

- **Category A** – Adequate and well-controlled studies have failed to demonstrate a risk to the fetus in the first trimester of pregnancy (and there is no evidence of risk in later trimesters).
- **Category B** – Animal reproduction studies have failed to demonstrate a risk to the fetus and there are no adequate and well-controlled studies in pregnant women.
- **Category C** – Animal reproduction studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks.
- **Category D** – There is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience or studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks.
- **Category X** – Studies in animals or humans have demonstrated fetal abnormalities and/or there is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience, and the risks involved in use of the drug in pregnant women clearly outweigh potential benefits

Brigg's Pregnancy Ratings[2]:

- **Compatible**—Human pregnancy data is sufficient to demonstrate risk to the embryo/fetus is very low or nonexistent; animal reproduction data are not relevant.
- **No (limited) human data-Probably compatible**—Human pregnancy data may or may not exist, but characteristics of the drug suggest there is not significant risk to the embryo/fetus; animal reproduction data are not relevant.
- **Compatible if maternal benefit>>embryo/fetal risk**—Human pregnancy data may or may not exist, but the potential maternal benefit outweighs the known or unknown embryo/fetal risk; animal reproduction data are not relevant.
- **Human data suggest low risk**—Limited human pregnancy data suggests that the drug does not represent a significant risk of developmental toxicity at any time in pregnancy; limited human pregnancy data outweighs animal reproduction data.
- **Animal data suggest low risk**—Either no human pregnancy data or few human pregnancy exposures have not been associated with developmental toxicity and the drug does not cause developmental toxicity in all animal species studied at ≤10 times the human dose based on body surface area (BSA) or AUC.
- **Animal data suggest moderate risk**—Either no human pregnancy data or few human pregnancy exposures have not been associated with developmental toxicity but the drug causes developmental toxicity in one animal species studied at ≤10 times the human dose based on BSA or AUC.
- **Animal data suggest risk**--Either no human pregnancy data or few human pregnancy exposures have not been associated with developmental toxicity but the drug causes developmental toxicity in two animal species studied at ≤10 times the human dose based on BSA or AUC.
- **Animal data suggest high risk**--Either no human pregnancy experience or few human pregnancy exposures have not been associated with developmental toxicity but the drug causes developmental toxicity in three or more animal species studied at ≤10 times the human dose based on BSA or AUC.
- **Contraindicated—1st trimester**—Human exposures in the 1st trimester, either to the drug itself or similar drugs, have been associated with developmental toxicity; the drug should be avoided.
- **Contraindicated—2nd/3rd trimesters**—Human exposures in the 2nd and 3rd trimesters, either to the drug itself or similar drugs, have been associated with developmental toxicity; the drug should be avoided.
- **Contraindicated**—Human exposures at any time during pregnancy, either to the drug itself or similar drugs, have been associated with developmental toxicity. Animal reproduction data, if available, confirm the risk and the drug should not be used in pregnancy.
- **Human data suggest risk in 1st/3rd trimester**-- Evidence for the drug or similar drugs suggests there may be fetal risk for developmental toxicity in the 1st and 3rd trimester or close to delivery but not in the 2nd trimester.
- **Human data suggest risk in the 2nd/3rd trimester**-- Evidence for the drug or similar drugs suggests there may be fetal risk for developmental toxicity in the 2nd and 3rd trimester or close to delivery but not in the 1st trimester.
- **Human data suggest risk in 3rd trimester**—Evidence for the drug or similar drugs suggests there may be fetal risk for developmental toxicity in the 3rd trimester or close to delivery but not in the 1st and 2nd trimesters.
- **Human (and animal) data suggest risk**—Human data for the drug or similar drugs suggest there may be risk for developmental toxicity throughout pregnancy. Use in pregnancy should be avoided unless the maternal condition requires the drug.

APPENDIX B. PSYCHOTROPIC USE IN PREGNANCY AND LACTATION: LACTATION CATEGORIES

Medication	Brand Name	Hale's Lactation Category[1,2]	Brigg's Lactation Category[3]	Comments[4]
Selective Serotonin Reuptake Inhibitors				
Citalopram	Celexa®	L2	Potential toxicity[a]	Infants exposed to SSRIs may experience irritability, restlessness; no evidence to show developmental delays; may impair lactation **Sertraline and paroxetine**: Favored in breastfeeding due to low rates of excretion into breast milk and low rates of adverse effects in the newborn.[5]
Escitalopram	Lexapro®	L2	Potential toxicity[b]	
Fluoxetine	Prozac®	L2	Potential toxicity[a]	
Paroxetine	Paxil®, Paxil CR®	L2	Potential toxicity[a]	
Sertraline	Zoloft®	L2	Potential toxicity[a]	
Vilazodone	Viibryd®	L3	--	No published human data regarding use of vilazodone in pregnancy
Serotonin and Norepinephrine Reuptake Inhibitors				
Desvenlafaxine	Pristiq®	L3	--	Studies indicate desvenlafaxine is transmitted via breast milk, but no side effects have been reported for exposed infants
Duloxetine	Cymbalta®	L3	Potential toxicity[a]	Duloxetine has been demonstrated to pass into breast milk, leading to detectable serum concentrations in the infant. Breastfeeding is not recommended per the manufacturer
Venlafaxine	Effexor®, Effexor XR®	L3	Potential toxicity[a]	Studies indicate desvenlafaxine is transmitted via breast milk, but no side effects have been reported for exposed infants
Atypical Antidepressants				
Bupropion	Wellbutrin®, Wellbutrin SR®, Wellbutrin XL®, Forfiveo XL®, Aplenzin®	L3	Potential toxicity[a]	Bupropion and metabolites excreted in breast milk; seizures reported in one breastfeeding infant
Mirtazapine	Remeron®	L3	Potential toxicity[a]	No adverse effects seen in nursing infants; long-term effects unknown
Nefazodone	Serzone®	L4	Potential toxicity[a]	Drowsiness, lethargy, poor temperature control, and failure to thrive reported in one infant
Trazodone	Desyrel®	L2	Potential toxicity[a]	Trazodone is excreted into breast milk; limited studies have failed to show adverse effects from use while breastfeeding
Vilazodone	Viibryd®	L3	---	No published human data regarding use of vilazodone in pregnancy

Medication	Brand Name	Hale's Lactation Category[1,2]	Brigg's Lactation Category[3]	Comments[4]
Tricyclic Antidepressants				
Amitriptyline	Elavil®	L2	Potential toxicity[a]	Small amount may pass into breast milk, but no adverse effects reported in newborn case reports
Desipramine	Norpramin®	L2	Potential toxicity[a]	Limited data available; individual case reports do not demonstrate risk
Doxepin	Sinequan®, Silenor®	L5	Potential toxicity[a]	Avoid use in breastfeeding. Significant amount of drug secreted in milk and absorbed by the infant. Adverse effects including jaundice, drowsiness, and vomiting reported in 1 nursing infant
Imipramine	Tofranil®	L2	Potential toxicity[a]	Imipramine passes into breast milk and may be measured in the infant. No adverse effects seen in nursing infants; long-term effects unknown
Nortriptyline	Pamelor®	L2	Potential toxicity[a]	No adverse effects seen in nursing infants; long-term effects unknown
Monoamine Oxidase Inhibitors				
Phenelzine	Nardil®	--	Potential toxicity[b]	Excretion in breast milk has not been studied; safety has not been documented
Selegiline Transdermal	Emsam®	--	Potential toxicity[b]	Excretion in breast milk is likely; animal data suggest significant neurotoxicity
Tranylcypromine	Parnate®	--	Potential toxicity[b]	Excreted in breast milk; safety in breastfeeding has not been documented
Benzodiazepines				
Alprazolam	Xanax®	L3	Potential toxicity[a]	**All agents** enter breast milk; limit use to short-term or intermittent dosing and time doses around feedings; use lowest effective doses to minimize exposure. Monitor infant for sedation, poor feeding, or withdrawal symptoms. **Alprazolam, lorazepam**: May be preferred over other benzodiazepines due to shorter half life. **Midazolam**: Redistributes from plasma to other tissues quickly, so milk levels believed to be low; recommended to restart breastfeeding after 4 hours
Chlordiazepoxide	Librium®	L3	Potential toxicity[b]	
Clonazepam	Klonopin®	L3	Potential toxicity[a]	
Diazepam	Valium®	L3	Potential toxicity[a]	
Lorazepam	Ativan®	L3	Potential toxicity[a]	
Midazolam	Versed®	L2	Potential toxicity[a]	
Oxazepam	Serax®	L3	Potential toxicity[b]	
Non-benzodiazepine Anxiolytics				
Buspirone	BuSpar®	L3	Potential toxicity[a]	Breastfeeding is not recommended per the manufacturer due to lack of data; no published literature demonstrating harm from use of buspirone in breastfeeding

Medication	Brand Name	Hale's Lactation Category[1,2]	Brigg's Lactation Category[3]	Comments[4]
Mood Stabilizers				
Carbamazepine	Tegretol®	L2	Compatible	Carbamazepine and active metabolite found in breast milk and may be detected in serum of infant. Newborn should be monitored for GI upset, sedation, and poor feedings
Lamotrigine	Lamictal®	L3	Potential toxicity[a]	Passes into breast milk and can be found at measurable concentrations in the newborn; severe apnea noted in one infant whose mother was receiving supratherapeutic doses of lamotrigine
Lithium	Lithobid®, Eskalith®	L3	Potential toxicity[a]	Excreted into breast milk and detectable in serum of the newborn at concentrations up to 40-50% of the mother's level; close monitoring of infant and serum concentrations required if used in breastfeeding
Oxcarbazepine	Trileptal®	L3	Probably compatible[a]	Oxcarbazepine and active metabolite pass into breast milk and may be detected in small amounts in the infant; side effects have not been reported
Valproic acid, Divalproex	Depakene® Depakote®, Depakote® ER, Depakote® Sprinkles, Stavzor™	L3	Potential toxicity[a]	Considered compatible by American Academy of Pediatrics and InfantRisk group. A small concentration of valproate is secreted into breast milk; platelets and hepatic function of infant should be monitored
First Generation Antipsychotics				
Chlorpromazine	Thorazine®	L3	Potential toxicity[a]	Detected in breast milk and may occur at serum concentrations higher than mothers; due to long half-life and sedating properties, breastfeeding is not recommended
Fluphenazine	Prolixin®	L3	Potential toxicity[b]	No published data on the use of fluphenazine in breastfeeding
Haloperidol	Haldol®	L3	Potential toxicity[a]	Haloperidol passes into breast milk and is detectable in infant serum. Development delays have been reported in infants on combination therapy, but no reported defects in infants on haloperidol monotherapy
Loxapine	Loxitane®	L4	Potential toxicity[b]	Not recommended for use in breast feeding due to a lack of published data.
Perphenazine	Trilafon®	L3	Potential toxicity[a]	Case reports indicate ~0.1% of maternal dose may be passed to infant; no adverse effects reported in nursing infants

Medication	Brand Name	Hale's Lactation Category[1,2]	Brigg's Lactation Category[3]	Comments[4]
First Generation Antipsychotics (continued)				
Thioridazine	Mellaril®	L4	Potential toxicity[b]	Concern for neonatal apnea; not recommended for use in breastfeeding
Thiothixene	Navane®	L4	Potential toxicity[b]	Due to long half-life and risk of lowering of seizure threshold, breastfeeding is not recommended
Trifluoperazine	Stelazine®	L3	Potential toxicity[b]	No measurable drug in milk of 2 mothers using while breastfeeding
Second Generation Antipsychotics				
Aripiprazole	Abilify®	L3	Potential toxicity[b]	Passes into breast milk and may be detected in infant plasma; may cause somnolence in the newborn
Asenapine	Saphris®	L3	Potential toxicity[b]	No published case reports or trials of use in lactation; excretion unknown
Clozapine	Clozaril®	L3	Potential toxicity[a]	Passes into breast milk and may accumulate at higher concentrations in infant plasma than maternal
Iloperidone	Fanapt®	L3	Potential toxicity[b]	No published case reports or trials of use in lactation; excretion unknown. Manufacturer recommends against breastfeeding with use of iloperidone.
Lurasidone	Latuda®	L3	excreted in breast milk in rats; no human data	No published case reports or trials of use in lactation
Olanzapine	Zyprexa®	L2	Potential toxicity[a]	Passes into breast milk; sedation and prolonged half-life reported in some nursing infants. A prospective study of 22 breastfed infants did not find evidence of harm when compared to placebo.[6]
Paliperidone	Invega®	L3	Potential toxicity[a]	Risperidone studies indicate paliperidone is excreted in breast milk at low concentrations; no adverse effects reported in nursing infants
Quetiapine	Seroquel®	L2	Potential toxicity[a]	May pass into breast milk to a small degree (<0.5% of mother's dose); no adverse effects reported in case reports of nursing infants
Risperidone	Risperdal®	L3	Potential toxicity[a]	Risperidone is excreted in breast milk at low concentrations; no adverse effects reported in nursing infants
Ziprasidone	Geodon®	L2	Potential toxicity[b]	One case report describing successful use of ziprasidone in a breastfeeding mother[7]; manufacturer recommends against breastfeeding with use of ziprasidone due to limited data.

Medication	Brand Name	Hale's Lactation Category[1,2]	Brigg's Lactation Category[3]	Comments[4]
Anticholinergics				
Benztropine	Cogentin®	L3	Probably compatible[b]	No published case reports or trials of use in lactation; excretion unknown
Diphenhydramine	Benadryl®	L2	Probably compatible[a]	Contraindicated per the manufacturer due to risk of sedation; considered safe by InfantRisk Group and Briggs. Timing dosing to use after feedings may minimize effects to newborn.
Hydroxyzine pamoate	Vistaril®	L1	Probably compatible[b]	No published case reports or trials of use in lactation; excretion unknown
Trihexyphenidyl	Artane®	L3	Probably compatible[b]	No published case reports or trials of use in lactation; excretion unknown

Dr. Thomas Hale's Lactation Categories[1]

- **L1 – Safest** – Drug has been taken by many breastfeeding women without evidence of adverse effects in nursing infants OR controlled studies have failed to show evidence of risk.
- **L2 – Safer** – Drug has been studied in a limited number of breastfeeding women without evidence of adverse effects in nursing infants.
- **L3 – Moderately Safe** – Studies in breastfeeding have shown evidence for mild non-threatening adverse effects OR there are no studies in breastfeeding for a drug with possible adverse effects.
- **L4 – Possibly Hazardous** – Studies have shown evidence for risk to a nursing infant, but in some circumstances the drug may be used during breastfeeding.
- **L5 – Contraindicated** – Studies have shown significant risk to nursing infants. The drug should NOT be used during breastfeeding.

Brigg's Lactation

[a]limited human data
[b]no human data