North West Coast Clinical Networks

Psychotropic Medications in the perinatal period

Version 1, March 2022

Contents

This document was developed by the North West Coast Clinical Network for Perinatal Mental Health. With special thanks to Laura Ambridge, Gill Strachan and the members of the Emotional Health and Wellbeing Sub-group for Lancashire and South Cumbria.

Introduction

Prescribing to women in the perinatal period can provoke anxiety in the prescriber, the woman and her family. This guidance aims to give a brief overview to facilitate conversations with women and their families who have been prescribed psychotropic medication whilst pregnant and when breast feeding. Women often receive conflicting advice from professionals, friends, family and the internet. The resources referenced provide additional help for women and professionals to help weigh up the benefits and risks of taking medication during pregnancy, balanced with the risk of illness.

Information contained within these tables were written based on best evidence available at the time. The most up to date medication information must always be sought.

Please refer to the medication tables in this document for further information on psychotropic medications in relation to additional antenatal care, place of birth, neonatal risk, breastfeeding and resources.

NICE 115 (2016) quality statement 3 recommends that 'Pregnant women with a previous severe mental health problem or any current mental health problem are given information at their booking appointment about how their mental health problem and its treatment might affect them or their baby.' The information on the medication tables should be used as part of a discussion with the women to ensure she can make an informed decision to start, stop, continue or alter her medication. Most psychotropic medications do not appear to increase risks to the pregnancy or the foetus above background rates, particularly when the background confounders of mental illness are accounted for, though evidence is from naturalistic studies and there will always remain unknown unknowns. It is important that the limitations of the evidence are acknowledged in conversations with women and their families.

Breast Feeding

NICE guidance is that breast feeding should be supported unless the mother is taking clozapine, carbamazepine, lithium (or valproate). This is for a **healthy term** infant. Premature infants may not be able to metabolise medication, and advice should therefore be sought on an individual basis.

Antipsychotic and Mood Stabilising Medication

In cases where women are taking antipsychotic and/or mood stabilising medication, changes to medication should only be made under direction of the named Consultant Psychiatrist or the prescriber if different. It is recommended that if the prescriber is not a Consultant Psychiatrist with experience of prescribing in the perinatal period, they liaise with a Perinatal Psychiatrist based within their local Specialist Perinatal Mental Health Team.

Anxiolytics/Anti-Anxiety – Indicators: short term relief of severe anxiety; panic disorder resistant to antidepressant therapy; insomnia (short term use); acute behavioural disturbance.

Anxiolytics/Anti-Anxiety	Additional Antenatal Care	Neonatal Risk	Breastfeeding
Benzodiazepines: **Longer acting -** • Diazepam, Nitrazepam, Flurazepam, Alprazolam, Chlordiazepoxide, Clobazam, Clonazepam **Shorter acting -** • Lorazepam, Loprazolam, Lormetazepam, Temazepam, Oxazepam	Consultant Obstetrician led care. Provide link to BUMPS website. Add alert on maternity records.	Monitor for neonatal withdrawal symptoms or 'floppy infant' syndrome. Symptoms reported include hypotonia, CNS depression, apnoea, hyporeflexia, low Apgar scores, hypothermia and hyperbilirubinaemia Monitor for neonatal respiratory depression.	Breast feed with caution. Avoid longer acting drugs if possible, short acting medication such as lorazepam is preferable. Infants receiving breastmilk should be monitored for sedation, poor feeding and adequate weight gain.
'Z' drugs: • Zopiclone, Zolpidem	Consultant Obstetrician led care. Provide link to BUMPS website. Add alert on maternity records.	Apgar score may be lowered. Monitor for hypoglycaemia, neonatal respiratory and CNS complications.	Small amounts present in breast milk. Infants receiving breastmilk should be monitored for drowsiness, poor feeding and adequate weight gain. Promethazine preferable due to limited data.
Sedating Antihistamines Promethazine	Consultant Obstetrician led care. Provide link to BUMPS website. Add alert on maternity records.	Risk of neonatal irritability and excitement if used during the last two weeks of pregnancy.	Extensive experience of safe use in breastfeeding. May interfere with lactation. Infants receiving breastmilk should be monitored for drowsiness, poor feeding and adequate weight gain.

Anxiolytics/Anti-Anxiety – Indicators: short term relief of severe anxiety; panic disorder resistant to antidepressant therapy; insomnia (short term use); acute behavioural disturbance.

Beta Blockers: • Propranolol	Consultant Obstetrician led care. Provide link to BUMPS website. Add alert on maternity records. Serial growth scans required.	Monitor for bradycardia, hypotension and hypoglycaemia in accordance with Trust guidelines. Monitor for respiratory distress.	Small amounts in breastmilk. Does not appear to cause adverse effects in breastfed infants. As a precaution monitor the infant for drowsiness and poor feeding
Anti-epileptic • Pregabalin (licensed for generalized anxiety disorder)	Consultant Obstetrician led care. Provide link to BUMPS website. Add alert on maternity records. Folic acid 5mg recommended during first trimester.	Monitor for symptoms suggestive of poor neonatal adaptation syndrome (PNAS)	Limited data suggests low levels in breastmilk with no discernible adverse effects in breast fed infants.

References:

- Joint Formulary Committee (2021). *British National Formulary* (online) London: BMJ Group and Pharmaceutical Press. Available from: http://www.medicinescomplete. Accessed December 2021]
- McAllister-Williams, R.H., Baldwin, D.S., Cantwell, R., Easter, A., Gilvarry, E., Glover, V., Green, L., Gregoire, A., Howard, L.M., Jones, I., Khalifeh, H., Lingford-Hughes, A., McDonald, E., Micali, N., Pariante, C.M., Peters, L., Roberts, A., Smith, N.C., Taylor, D., Wieck, A., Yates, L.M. and Young, A.H. (2017) British Association for Psychopharmacology consensus guidance on the use of psychotropic medication preconception, in pregnancy and postpartum 2017. *Journal of psychopharmacology (Oxford),* [Online] 31 (5), pp. 519-552 Available from: https://journals.sagepub.com/doi/full/10.1177/0269881117699361. [Accessed December 2021].
- National Institute for Health and Care Excellence. (2014). Antenatal and postnatal mental health: clinical management and service guidance. Clinical *guideline (CG192).* [online] Available from: https://www.nice.org.uk/guidance/cg192 . [Accessed December 2021].
- Sanofi Consumer Health Care. (2021) *Summary of product characteristics: Phenergen 25mg Tablets* [Online] Available from: Phenergan 25 mg tablets - Summary of Product Characteristics (SmPC) - (emc) (medicines.org.uk) [Accessed December 2021].
- Specialist Pharmacy Service. [online] Medicines Q&As: Gabapentin and pregabalin—are they safe whilst breastfeeding? Available from: QA400-3_GabapentinPregabalin-BM-2018_FINAL.pdf (sps.nhs.uk) [Accessed January 2022].
- UK Drugs in Lactation Service. [online] Monographs for Diazepam, promethazine, propranolol, pregabalin, zopiclone. Available from: UK Drugs in Lactation Advisory Service (UKDILAS) – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice [Accessed January 2022]
- UK Teratology Information Service [online] Monographs for Diazepam, promethazine, propranolol, pregabalin, hypnotic benzodiazepine receptor agonists. Available from: UKTIS [Accessed December 2021]

Anxiolytics/Anti-Anxiety – Indicators: short term relief of severe anxiety; panic disorder resistant to antidepressant therapy; insomnia (short term use); acute behavioural disturbance.

- *Drugs and Lactation Database (LactMed)* Monographs for Diazepam, promethazine, pregabalin, propranolol. Available from: Drugs and Lactation Database (LactMed) - NCBI Bookshelf (nih.gov) [Accessed December 2021].

Antidepressants - Indications: depressive illness; panic disorder; generalized anxiety disorder; obsessive compulsive disorder; bulimia nervosa; social anxiety disorder; post-traumatic stress disorder; pain

The Canadian Paediatric Society position statement July 2021 advice to clinicians states:

- Current evidence does not support recommending either routine fetal echocardiogram during pregnancy or routine echocardiogram of newborns exposed to SSRIs during the first trimester of pregnancy. Rather, all newborns being assessed for safe discharge should have received routine pulse oximetry testing to detect critical congenital heart disease (CCHD)
- No specific monitoring is recommended for new-borns or children who were exposed to an SSRI or SNRI in utero or while breastfeeding. Routine discharge planning and later well child visits should be the same as for non-exposed healthy term and late preterm infants.
- Poor neonatal adaptation syndrome (PNAS) occurs in one-third of newborns exposed to SSRIs or SNRIs in utero and is generally mild and self-limiting.
- Women who use an SSRI or SNRI during pregnancy should be counselled that the infant may develop poor neonatal adaptation syndrome, though symptoms are usually mild and transient, and respond to a quiet environment, swaddling, skin-to-skin care, and frequent feeding, and typically resolve within days to 2 weeks post-birth.

Antidepressant	Additional Antenatal Care	Neonatal Risk	Breastfeeding
Selective Serotonin Re-uptake Inhibitors (SSRIs) • Citalopram, Escitalopram, Fluoxetine, Paroxetine, Sertraline, Fluvoxamine	Provide link to BUMPS website. Consultant obstetrician review. Further advice and support can be obtained from the specialist perinatal mental health services, if required.	Be aware of possible poor neonatal adaptation syndrome including central nervous system, motor, respiratory and gastrointestinal symptoms. Be aware of Persistent Pulmonary Hypertension of the Newborn (PPHN). Apgar score may be low.	Be aware of possibility of colic, drowsiness, poor feeding and irritability/restlessness.
Serotonin and Noradrenaline Re-uptake Inhibitors (SNRIs) • Venlafaxine, Duloxetine	Provide link to BUMPS website. Consultant obstetrician review. Further advice and support can be obtained from the specialist perinatal mental health services, if required.	Be aware of possible poor neonatal adaptation syndrome including central nervous system, motor, respiratory and gastrointestinal symptoms. Be aware of Persistent Pulmonary Hypertension of the Newborn (PPHN). (Theoretical) Apgar score may be low. Monitor for respiratory problems.	Infants receiving breast milk should be monitored for drowsiness, poor feeding, adequate weight gain and irritability/behavioural effects.

Antidepressants - Indications: depressive illness; panic disorder; generalized anxiety disorder; obsessive compulsive disorder; bulimia nervosa; social anxiety disorder; post-traumatic stress disorder; pain

Other antidepressants • Mirtazapine	Provide link to BUMPS website. Consultant obstetrician review. Further advice and support can be obtained from the specialist perinatal mental health services, if required.	Be aware of possible poor neonatal adaptation syndrome including central nervous system, motor, respiratory and gastrointestinal symptoms. Be aware of Persistent Pulmonary Hypertension of the Newborn (PPHN). **(Theoretical)** **NB:** Mirtazapine has a long elimination half-life. Due to immature metabolic capabilities, neonatal clearance of mirtazapine following in utero exposure may also be prolonged, and as such neonatal effects may be delayed.	Be aware of possibility of drowsiness, poor feeding and irritability/behavioural effects.
Tricyclic Antidepressants (TCAs) and related • Amitriptyline, Clomipramine, Dosulepin, Doxepin, Imipramine, Lofepramine, Nortriptyline, Trimipramine, Trazodone	Provide link to BUMPS website. Consultant obstetrician review. Further advice and support can be obtained from the specialist perinatal mental health services, if required.	Be aware of possible poor neonatal adaptation syndrome including central nervous system, motor, respiratory and gastrointestinal symptoms.	Infants receiving breast milk should be monitored for drowsiness, poor feeding and irritability/behavioural effects. Avoid **doxepin** due to significant amounts in the breast milk
Other antidepressants: Vortioxetine	Consultant obstetrician review. Further advice and support can be obtained from the specialist perinatal mental health services, if required. **NB:** No BUMPS website leaflets or Toxbase monograph available.	Be aware of possible poor neonatal adaptation syndrome including central nervous system, motor, respiratory and gastrointestinal symptoms. Be aware of Persistent Pulmonary Hypertension of the Newborn (PPHN). **(Theoretical)**	Lack of published data on breastfeeding as this is a newer agent. However, amounts of vortioxetine in milk appear to be low.

Antidepressants - Indications: depressive illness; panic disorder; generalized anxiety disorder; obsessive compulsive disorder; bulimia nervosa; social anxiety disorder; post-traumatic stress disorder; pain

Monoamine Oxidase Inhibitors (MAOIs) rarely prescribed • Phenelzine, Isocarboxazide, Tranylcypromine • Moclobemide (reversible-MAOI)	Consultant obstetrician review Further advice and support can be obtained from the specialist perinatal mental health services, if required. **NB:** No BUMPS website leaflets or Toxbase monograph available. Consider direct discussion with UKTIS if these medications are encountered during pregnancy to establish monitoring plan.		**Reversible MAOI:** Infants receiving breast milk should be monitored for drowsiness, poor feeding and restlessness. **Avoid MAOIs** in breast feeding (limited data and significant food/drug interactions).

References:

- *Drugs and Lactation Database (LactMed)* Monographs for doxepin, amitriptyline, clomipramine, lofepramine, nortriptyline, trimipramine, trazodone, citalopram, escitalopram, sertraline, fluoxetine, paroxetine, mirtazapine, venlafaxine, duloxetine, phenelzine, isocarboxazide, tranylcypromine, moclobemide. Available from: Drugs and Lactation Database (LactMed) - NCBI Bookshelf (nih.gov) [Accessed December 2021].
- Hendson, L., Shah, V. and Trkulja, S. (2021) Selective serotonin reuptake inhibitors or serotonin-norepinephrine reuptake inhibitors in pregnancy: Infant and childhood outcomes. *Paediatrics & child health,* [Online] 26 (5), pp. 321 Available from: Selective serotonin reuptake inhibitors or serotonin-norepinephrine reuptake inhibitors in pregnancy: Infant and childhood outcomes | Canadian Paediatric Society (cps.ca). [Accessed December 2021]
- McAllister-Williams, R.H., Baldwin, D.S., Cantwell, R., Easter, A., Gilvarry, E., Glover, V., Green, L., Gregoire, A., Howard, L.M., Jones, I., Khalifeh, H., Lingford-Hughes, A., McDonald, E., Micali, N., Pariante, C.M., Peters, L., Roberts, A., Smith, N.C., Taylor, D., Wieck, A., Yates, L.M. and Young, A.H. (2017) British Association for Psychopharmacology consensus guidance on the use of psychotropic medication preconception, in pregnancy and postpartum 2017. *Journal of psychopharmacology (Oxford),* [Online] 31 (5), pp. 519-552 Available from: https://journals.sagepub.com/doi/full/10.1177/0269881117699361. [Accessed December 2021].
- UK Drugs in Lactation Service. [online] Monographs for Safety in lactation: antidepressants, doxepin, amitriptyline, clomipramine, lofepramine, dosulepin, nortriptyline, trimipramine, trazodone, citalopram, escitalopram, sertraline, fluoxetine, paroxetine, mirtazapine, venlafaxine, duloxetine, phenelzine, isocarboxazide, tranylcypromine, moclobemide. Available from: UK Drugs in Lactation Advisory Service (UKDILAS) – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice [Accessed December 2021]
- UK Teratology Information Service [online] Monographs for amitriptyline, trazodone, citalopram, escitalopram, sertraline, fluoxetine, paroxetine, mirtazapine, venlafaxine, duloxetine**.** Available from: UKTIS [Accessed December 2021]

Antipsychotic medication – Indicators: Schizophrenia; Psychosis; Mania, Hypomania and Rapid tranquilization

Antipsychotic	Additional Antenatal Care	Neonatal Risk	Breastfeeding
First generation 'typicals' Haloperidol, Chlorpromazine, Flupenthixol, Sulpiride, Zuclopentixol	Provide link to BUMPS website. Consultant Obstetrician review. Birth in consultant lead unit should be planned. Offer referral to Specialist perinatal mental health service. Add alert on maternity records. **NB:** Monitor for gestational diabetes. FGA such as phenothiazine's have been associated with impaired glucose tolerance and diabetes in non-pregnant patients.	Monitor for withdrawal symptoms and/or signs of Poor Neonatal Adaptation Syndrome (PNAS). Monitor for signs of extra pyramidal symptoms (abnormal muscle movements). **For haloperidol:** Monitor infant for Adverse neonatal effects including agitation, hypertonia, hypotonia, tremor, somnolence, respiratory distress and feeding disorders.	Infants receiving breast milk should be monitored for sedation, poor feeding, extrapyramidal symptoms (abnormal muscle movement), behavioural effects (irritability) and developmental milestones.
Second generation 'atypicals' Amisulpride, Aripiprazole, Clozapine, Quetiapine, Olanzapine, Risperidone, Paliperidone, Lurasidone, Asenapine.	Provide link to BUMPS website. Consultant Obstetrician review. Birth in consultant lead unit should be planned. Offer referral to Specialist perinatal mental health service. Monitor for gestational diabetes. Refer women taking a second-generation antipsychotic for a Glucose Tolerance Test. Add alert on maternity record.	Monitor for withdrawal symptoms and/or signs of Poor Neonatal Adaptation Syndrome (PNAS). Monitor for extra pyramidal symptoms (abnormal muscle movements).	Infants receiving breast milk should be monitored for sedation, poor feeding, extrapyramidal symptoms (abnormal muscle movement), behavioural effects (irritability) and developmental milestones. **Aripiprazole** may lower prolactin levels, affecting milk supply. Breastfeeding is **contra-indicated** if a woman is taking **Clozapine**

References:

- McAllister-Williams, R.H., Baldwin, D.S., Cantwell, R., Easter, A., Gilvarry, E., Glover, V., Green, L., Gregoire, A., Howard, L.M., Jones, I., Khalifeh, H., Lingford-Hughes, A., McDonald, E., Micali, N., Pariante, C.M., Peters, L., Roberts, A., Smith, N.C., Taylor, D., Wieck, A., Yates, L.M. and Young, A.H. (2017) British Association for Psychopharmacology consensus guidance on the use of psychotropic medication preconception, in pregnancy and postpartum 2017. *Journal of psychopharmacology (Oxford),* [Online] 31 (5), pp. 519-552 Available from: https://journals.sagepub.com/doi/full/10.1177/0269881117699361. [Accessed December 2021].
- UK Drugs in Lactation Service. [online] Monographs for safety in lactation antipsychotics, haloperidol, flupentixol, zuclopenthixol, chlorpromazine, sulpiride, amisulpride, Aripiprazole, Clozapine, Quetiapine, Olanzapine, Risperidone, Paliperidone, Lurasidone. Available from: UK Drugs in Lactation Advisory Service (UKDILAS) – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice [Accessed December 2021]
- UK Teratology Information Service [online] Monographs for haloperidol, sulpiride, amisulpride aripiprazole, clozapine, quetiapine, olanzapine, risperidone. Available from: UKTIS [Accessed December 2021]
- *Drugs and Lactation Database (LactMed)* Monographs for haloperidol, chlorpromazine, flupentixol, zuclopenthixol, amisulpride, aripiprazole, clozapine, olanzapine, risperidone, paliperidone, lurasidone, quetiapine. Available from: Drugs and Lactation Database (LactMed) - NCBI Bookshelf (nih.gov) [Accessed December 2021].
- Wesseloo, R., Wierdsma, A.I., van Kamp, I.L., Munk-Olsen, T., Hoogendijk, W.J.G., Kushner, S.A. and Bergink, V. (2017) Lithium dosing strategies during pregnancy and the postpartum period. *British journal of psychiatry,* [Online] 211 (1), pp. 31-36 Available from: https://dx.doi.org/10.1192/bjp.bp.116.192799. [Accessed December 2021]

Mood Stabilisers - Indications: treatment and prophylaxis mania; bipolar disorder and re-current depression; aggressive or self-harming behaviour; prevention of depressive episodes associated with bipolar disorder.

MOOD STABILISER	Additional Antenatal Care	Neonatal Risk	Breastfeeding
Lamotrigine (anti-epileptic mood stabiliser)	Provide link to BUMPS website. Consultant led care. Birth in consultant lead unit should be planned. Offer referral to Specialist perinatal service. Recommend Folic Acid 5mg during first trimester Add alert on maternity records. Maternal blood levels may decrease during pregnancy requiring a dose increase. After birth lamotrigine levels may increase rapidly with a risk of dose related adverse events. Consider monitoring maternal serum lamotrigine levels after delivery, adjusting dose as indicated. This is strongly recommended if dose was increased during pregnancy.	Monitor for Rash. Monitor for symptoms suggestive of poor neonatal adaptation syndrome (PNAS). [Recommended for all CNS acting medication].	Significant amounts present in breast milk. Infants receiving breast milk should be monitored for apnoea, drowsiness and poor feeding. Also monitor for signs or symptoms suggestive of toxicity. Plasma levels may be measured if concerns. Monitor platelet count and liver function if symptomatic or other side-effects experienced. **Rash:** If a breastmilk fed infant develops a rash, breastmilk should be withheld until the cause can be established
Carbamazepine (anti-epileptic mood stabiliser)	Provide link to BUMPS website. Consultant led care. Birth in consultant lead unit should be planned. Offer referral to Specialist perinatal service. Recommend Folic Acid 5mg during first trimester.	Monitor for potential neonatal withdrawal syndrome symptoms (including neonatal vomiting, diarrhoea, respiratory depression and seizures) There is a possible increased risk of haemorrhagic disease of the New-born therefore Vitamin K is recommended if clinically indicated.	Significant amounts present in breast milk. Infants receiving breast milk should be monitored for sedation, poor suckling, withdrawal reactions and symptoms of liver dysfunction.

Mood Stabilisers - Indications: treatment and prophylaxis mania; bipolar disorder and re-current depression; aggressive or self-harming behaviour; prevention of depressive episodes associated with bipolar disorder.

	Add alert on maternity records.		
Lithium	Provide link to BUMPS website. Consultant led care. Birth in consultant lead unit should be planned. Offer referral to Specialist perinatal service. Add alert on maternity records. See additional lithium guidance below.	Monitor for potential neonatal complications which may include hypotonia, polyhydramnios, cyanosis, apnea, respiratory distress, goitre, hypoglycaemia, sedation, tachycardia, tremor and jaundice. Infants who are preterm, dehydrated, or have an infection, should receive hydration and be assessed for lithium toxicity.	Previous recommendations advised against breast feeding. More recently, some sources have advised that breast feeding can be supported if lithium levels are monitored in the infant. There are practical difficulties in obtaining, assaying and interpreting lithium levels from infants and expert advice should be sought.
Sodium Valproate	**Should not be prescribed for women planning pregnancy, pregnant or breastfeeding.** Valproate Pregnancy Prevention Programme: actions required now from GPs, specialists, and dispensers - GOV.UK (www.gov.uk)		

Lithium Guidance

Lithium is licensed for the management of acute (hypo)mania and treatment-resistant depression, prophylaxis of bipolar affective disorder (BAD) and control of aggressive behaviour or intentional self-harm. Lithium has a narrow therapeutic index and therefore requires close monitoring of serum-lithium concentration to prevent sub therapeutic levels or toxicity.

During pregnancy:

Lithium levels fluctuate during pregnancy which can present a risk of suboptimal maternal treatment or maternal/neonatal lithium toxicity.

Mood Stabilisers - Indications: treatment and prophylaxis mania; bipolar disorder and re-current depression; aggressive or self-harming behaviour; prevention of depressive episodes associated with bipolar disorder.

Dose requirements may increase during the second and third trimesters, abruptly returning to normal following delivery. Lithium levels should therefore be monitored with the dose adjusted as needed to maintain serum levels within the woman's therapeutic range (aiming for the lowest effective level). Lithium levels should be taken twelve hours after the last dose was administered (trough level).

Maternal dehydration (such as a result of pregnancy sickness) may rapidly increase serum lithium levels. Monitor closely for any signs or symptoms suggestive of toxicity and repeat lithium levels as clinically appropriate.

Thyroid function should be monitored. Lithium can cause the thyroid gland to be underactive (hypothyroidism). There have been cases reported of babies developing a goitre if the mother's hypothyroidism is not treated.

Lithium levels and eGFR should be checked every four weeks in the first two trimesters and weekly from 36 weeks until labour.

There is a small but undefined increased risk of cardiac anomaly for fetus exposure in the first trimester. If the fetus has been exposed to lithium in the first trimester, the obstetrician should screen for cardiovascular anomalies and arrange a fetal cardiac echo.

Intra-partum Advice:

Women taking lithium should birth in hospital and be monitored by the obstetric team during labour and birth.

Fluid balance must be monitored throughout labour, birth and the initial post-partum period as dehydration increases the risk of lithium toxicity

The decision to reduce/withdraw lithium in late pregnancy remains a clinical decision which should only be made following an assessment of the risk of relapse for each individual patient. Current expert opinion does not recommend discontinuing of lithium at the onset of labour.

It is important that all patients exposed to lithium in late pregnancy have their maternal serum lithium levels monitored during labour (12 hours after the last dose). Hydration should be increased if clinically indicated to lower the systemic concentration and therefore the risk of maternal and transient neonatal toxicity.

Avoid potential interacting medication such as NSAIDS that are known to increase blood levels, potentially increasing the risk of toxicity.

Mood Stabilisers - Indications: treatment and prophylaxis mania; bipolar disorder and re-current depression; aggressive or self-harming behaviour; prevention of depressive episodes associated with bipolar disorder.

Post partum advice:

Monitor both mother and newborn for lithium toxicity as clinically indicated. Check lithium levels urgently if there are any concerns regarding lithium toxicity. **UKTIS recommends that all neonates exposed to lithium** *in utero* **should have their serum lithium level measured shortly after birth.**

Signs and symptoms of lithium toxicity in adults may include: increasing gastro-intestinal disturbances (vomiting, diarrhoea), visual disturbances (blurred), fine tremor increasing to coarse tremor, confusion, drowsiness, muscle weakness, lack of coordination, hypernatreamia, renal impairment / failure, electrocardiogram abnormalities, convulsions, coma.

Neonatal goitre, hypoglycaemia and hypothyroidism may occur in newborns exposed to lithium in-utero. Monitor as appropriate and treat as clinically indicated.

To reduce the risk of maternal mental health relapse consider (re-) initiating lithium as soon as possible after birth. If levels are within therapeutic range, restart lithium and check the level again after 5-7 days.

Lithium excretion into breastmilk and concentrations in infant serum are highly variable. Relative infant doses (RID) of up to 42% have been documented. Many sources (including the manufactures of lithium) specifically contraindicate breastfeeding. Other sources however do not consider it an absolute contraindication, especially in infants over 2 months of age and during lithium monotherapy. Ensure a comprehensive discussion occurs considering benefits versus risks with the woman.

References

- Joint Formulary Committee (2021). *British National Formulary* (online) London: BMJ Group and Pharmaceutical Press. Available from: http://www.medicinescomplete. Accessed December 2021]
- GlaxoSmithKline (2021) *Summary of product characteristics: Lamictal Tablets* [Online] Available from: https://www.medicines.org.uk/emc/medicine/4228 [Accessed December 2021].
- McAllister-Williams, R.H., Baldwin, D.S., Cantwell, R., Easter, A., Gilvarry, E., Glover, V., Green, L., Gregoire, A., Howard, L.M., Jones, I., Khalifeh, H., Lingford-Hughes, A., McDonald, E., Micali, N., Pariante, C.M., Peters, L., Roberts, A., Smith, N.C., Taylor, D., Wieck, A., Yates, L.M. and Young, A.H. (2017) British Association for Psychopharmacology consensus guidance on the use of psychotropic medication preconception, in pregnancy and postpartum 2017. *Journal of psychopharmacology (Oxford),* [Online] 31 (5), pp. 519-552 Available from: https://journals.sagepub.com/doi/full/10.1177/0269881117699361. [Accessed December 2021].
- National Institute for Health and Care Excellence. (2014). Antenatal and postnatal mental health: clinical management and service guidance. Clinical *guideline (CG192).* [online] Available from: https://www.nice.org.uk/guidance/cg192 . [Accessed December 2021].

Mood Stabilisers - Indications: treatment and prophylaxis mania; bipolar disorder and re-current depression; aggressive or self-harming behaviour; prevention of depressive episodes associated with bipolar disorder.

- UK Drugs in Lactation Service. [online] Monographs for lithium, carbamazepine and lamotrigine. Available from: UK Drugs in Lactation Advisory Service (UKDILAS) – SPS - Specialist Pharmacy Service – The first stop for professional medicines advice [Accessed December 2021]
- UK Teratology Information Service [online] Monographs for lithium, carbamazepine and lamotrigine. Available from: UKTIS [Accessed December 2021]
- *Drugs and Lactation Database (LactMed)* Monographs for lithium, carbamazepine and lamotrigine. Available from: Drugs and Lactation Database (LactMed) - NCBI Bookshelf (nih.gov) [Accessed December 2021].
- Wesseloo, R., Wierdsma, A.I., van Kamp, I.L., Munk-Olsen, T., Hoogendijk, W.J.G., Kushner, S.A. and Bergink, V. (2017) Lithium dosing strategies during pregnancy and the postpartum period. *British journal of psychiatry,* [Online] 211 (1), pp. 31-36 Available from: https://dx.doi.org/10.1192/bjp.bp.116.192799. [Accessed December 2021]

Additional Information and Comments

Prescribers should ensure that the history includes medicines reconciliation and prescribed medication is reviewed for any potential drug interactions. This includes any drugs which may be administered during the perinatal period or obtained via alternate routes (e.g. 'over the counter' medication). Please note that the incidence and severity of poor neonatal adaptation syndrome (PNAS) may be increased when there is concomitant use of centrally acting drugs/polypharmacy.

Information contained within these tables was written based on best evidence available at the time. The most up to date medication information must always be sought.

Normal monitoring and new born checks should occur as they would in babies not exposed to maternal psychotropic medication unless there is clinical concern. Any additional monitoring requirements are contained within the tables.

Babies presenting with symptoms such as lethargy, irritability and poor feeding should have physical causes investigated and excluded. It must not be assumed that the baby's symptoms are solely related to maternal psychiatric medication exposure.

NICE guidance is that breast feeding should be supported unless the mother is taking clozapine, carbamazepine, lithium (or valproate). This is for a **healthy term** infant. Premature infants may not be able to metabolise medication, and advice should therefore be sought on an individual basis.

Caution should be exercised in decisions around maternal psychotropic prescribing for breastfed premature or sick infants, and/or if the mother is prescribed polypharmacy.

Monitoring will be undertaken by staff whilst a hospital inpatient then the community midwife following discharge. The mother/ parents/ carers should be provided with information regarding any monitoring required of the baby when home including any warning signs and actions to be taken if needed.

Information leaflets for mothers and their families containing up to date, reliable and evidence based information can be accessed via the 'Best Use of Medicines in Pregnancy (BUMPS) website (www.medicinesinpregnancy.org). Additional resources include the websites mothertobaby.org and e-lactancia.org which provide further information for breast feeding. Mental Health trusts also have access to choiceandmedication.org containing patient information leaflets for pregnant and breast feeding women (local contacts to provide Trust log in details).

Poor neonatal adaptation syndrome (PNAS)

- Use of any centrally acting drug throughout pregnancy or near delivery may potentially be associated with withdrawal symptoms in the neonate and/or poor neonatal adaptation syndrome (PNAS).
- PNAS may occur in approximately one-third of newborns who are exposed to SSRIs or SNRIs in utero, particularly during the third trimester.
- Symptoms of PNAS are generally mild and self-limiting and may include: poor muscle tone, tremors, jitteriness, irritability, feeding difficulties, sleep disturbances, hypoglycemia, and respiratory distress.
- Symptoms usually begin shortly after birth and generally resolve within days to 2 weeks.
- PNAS does not usually require pharmacological treatment and responsive parenting should be supported.

Persistent pulmonary hypertension of the newborn (PPHN)

- SSRIs taken after 20 weeks gestation have been associated with an increased risk for PPHN, although the absolute risk is low. Due to their mechanism of action, there are theoretical concerns that exposure to other antidepressants such as SNRIs and mirtazapine, could also result in PPHN. Although there are no published data which identify an association, data are insufficient to disprove this theory and an increased risk can not be excluded.
- Infants with PPHN may present with a wide range of breathing difficulties, from mild respiratory distress to respiratory failure.
- All newborns should receive routine pulse oximetry testing and any concerns acted upon.

References:

- Grigoriadis, S., VonderPorten, E.H., Mamisashvili, L., Tomlinson, G., Dennis, C., Koren, G., Steiner, M., Mousmanis, P., Cheung, A. and Ross, L.E. (2014) Prenatal exposure to antidepressants and persistent pulmonary hypertension of the newborn: systematic review and meta-analysis. *BMJ : British Medical Journal,* [Online] 348 (jan14 7), pp. f6932 Available from: http://dx.doi.org/10.1136/bmj.f6932. [Accessed December 2021]
- Hendson, L., Shah, V. and Trkulja, S. (2021) Selective serotonin reuptake inhibitors or serotonin-norepinephrine reuptake inhibitors in pregnancy: Infant and childhood outcomes. *Paediatrics & child health,* [Online] 26 (5), pp. 321 Available from: Selective serotonin reuptake inhibitors or serotonin-norepinephrine reuptake inhibitors in pregnancy: Infant and childhood outcomes | Canadian Paediatric Society (cps.ca). [Accessed December 2021]

- UK Teratology Information Service [online] Monographs for sertraline, SSRIs**.** Available from: UKTIS [Accessed December 2021]

Suggested letter to parents and community healthcare practitioners:

Baby's details
Name:
NHS number:
Hosp Number:
DOB:
Discharge address and phone number:
Looked after child: yes/no

Mother's details
Name:
NHS number:
Hosp Number:
DOB:
Discharge address and phone number:

Main carer (if not mother):
Name:
DOB:
Discharge address and phone number:

Baby…….has been exposed during the pregnancy to the following psychotropic Medication:

1.
2.
3.

Breastfeeding is/ not contraindicated

The following signs may be observed and the baby will need to be supported with skin to skin care, gentle swaddling etc.

1.
2.
3.

If at any time the baby appears unwell, drowsy or has feeding difficulties they should be referred to the local paediatric team for rapid assessment.

Professionals involved:

Follow up plans: