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**Reproductive Mental Health Guideline 4**  
**MENTAL ILLNESS DURING THE PERINATAL PERIOD:**  
**MAJOR DEPRESSION**

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***INTRODUCTION***

Epidemiological surveys worldwide indicate that the lifetime prevalence of major depressive disorder (MDD) is two times higher in adult women than in men, and this value is maintained across ethnic groups.<sup>1,2</sup> The effects of untreated maternal depression during the beginning years of a child's life have been documented in several studies. Clinical data have shown that untreated postpartum depression has a moderate to severe negative effect on maternal-infant bonding during the first year of life,<sup>3</sup> and that exposure to postpartum depression has a significant adverse effect on the cognitive and emotional development of school-aged children.<sup>4</sup>

The childbearing years are a time of increased vulnerability to the onset of major depression in women. During pregnancy, depressive symptoms such as changes in sleep and appetite are often difficult to distinguish from the normal experiences of pregnancy.<sup>5</sup> Up to 70% of women report experiencing depressive symptoms during pregnancy, while the prevalence of Major Depression as pregnant women is between 10 and 16%.<sup>6</sup> The course of depression varies throughout pregnancy: most researchers report a symptom peak during the first trimester, improvement during the second trimester, and an increase again during the third trimester.<sup>1,7</sup>

The prevalence of depression during the postpartum period has been more systematically studied. It is reported in controlled studies that 12-16% of women experience a major depressive episode,<sup>8</sup> and this figure rises to as high as 26% in adolescent mothers.<sup>9</sup>

***RISK FACTORS FOR DEPRESSION DURING THE PERINATAL PERIOD***

**I. MAJOR FACTORS**

- Previous history of postpartum depression – these women are at a 50-62% increased risk of recurrent episodes with subsequent pregnancies<sup>6</sup>
- Previous history of depression – as many as 30% of women who have a history of major depression before conception will experience postpartum depression<sup>10</sup>
- Family history (blood relatives) of depression, especially postpartum depression<sup>7,8,10</sup>

**II. CONTRIBUTING FACTORS**

- Poor social support - social isolation, poverty
- Adverse life events<sup>10</sup>
- Marital instability<sup>7,10,11</sup>
- Younger maternal age<sup>9</sup>
- Infants with health problems or perceived difficult temperaments
- Unwanted pregnancy/ ambivalence towards pregnancy<sup>7</sup>

## *Mental Health Illness during the Perinatal Period: Major Depression*

- Abuse, violence
- Chronic/acute maternal health problems, poor coping styles

### ***SIGNS AND SYMPTOMS OF MAJOR DEPRESSION IN THE PERINATAL PERIOD***

The symptom profile of major depression in the perinatal period resembles that of depression occurring at other times in life. The essential feature of major depressive disorder, according to the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders<sup>12</sup> (DSM-IV), is “a clinical course that is characterized by one or more Major Depressive Episodes” (see Table 1).

**TABLE 1: Summary of Criteria for a Major Depressive Episode  
Adapted from DSM-IV, American Psychiatric Association, 1994**

<p>A. Five or more of the following symptoms must be present daily or almost daily for at least two consecutive weeks:</p> <ul style="list-style-type: none"><li>*1. Depressed mood</li><li>*2. Loss of interest or pleasure</li><li>3. Significant increases or decreases in appetite</li><li>4. Insomnia or hypersomnia</li><li>5. Psychomotor agitation or retardation</li><li>6. Fatigue or loss of energy</li><li>7. Feelings of worthlessness or guilt</li><li>8. Diminished concentration</li><li>9. Recurrent thoughts of suicide or death</li></ul> <p><b>*At least one of the five symptoms must be #1 or #2</b></p> <p>B. The symptoms do not meet the criteria for other psychiatric conditions.</p> <p>C. The symptoms cause significant impairment in usual functioning at work, school, and social activities.</p> <p>D. The symptoms are not due to the direct effects of a substance or a general medical condition.</p> <p>E. The symptoms are not better accounted for by bereavement due to the loss of a loved one.</p>
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In addition to these criteria, the DSM-IV includes a specifier for Postpartum Onset, stating that the onset of the disorder must occur within 4 weeks after giving birth. However, our clinical experience in British Columbia has been that symptoms can appear up to one year postpartum.

### ***ASSESSMENT TOOLS***

The introduction of several screening tools has helped to increase the awareness of healthcare providers, as well as aided in the early detection and diagnosis of depression during pregnancy and the postpartum period. It is important to note that the scores on the various assessment tools described below should not substitute for clinical judgment, and a complete clinical assessment should always be conducted to confirm a diagnosis.

## **I. EDINBURGH POSTNATAL DEPRESSION INVENTORY (EPDS)**

The EPDS is a 10-item self-report questionnaire developed by Cox and colleagues in 1987, and is used specifically for the detection of depression in the postpartum period. For each question, mothers are instructed to choose 1 of 4 possible replies that is closest to how they have been feeling over the past 7 days. Responses are scored 0, 1, 2, or 3, giving a maximum score of 30. A minimum score of 12 or 13 has been found to identify most women with a diagnosis of postpartum depression.<sup>13</sup> The EPDS has been used in pregnancy<sup>14</sup> and early postpartum but more typically at 6-8 weeks and up to 6 months postpartum. In Guideline 3, Table 1 the Early Identification Guide suggests utilizing the EPDS in the third trimester of pregnancy, 1-2 weeks postpartum and as necessary e.g. 2, 4 and 6 months postpartum. The EPDS is a validated<sup>15,16</sup> screening tool. It is computerised,<sup>17</sup> and translated into more than 12 languages worldwide. This scale can be copied and used free of charge, and has been included in Appendix A.

## **II. MINI-INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW (M.I.N.I., VERSION 5.0.0)**

The M.I.N.I. is a short, structured, clinician-rated scale that is based on the criterion of the psychiatric disorders described in both the DSM-IV (Canada and USA) and the ICD-10 (Europe).<sup>18</sup> Module A of the M.I.N.I. focuses specifically on the presence or absence of a current major depressive episode, and it is used to *establish* a diagnosis of major depressive disorder. The scale has been translated into 30 languages, and both reliability and validity have been demonstrated in several studies.<sup>18</sup> A copy of the M.I.N.I. can be found in the Journal of Clinical Psychiatry, 1998; 59(Suppl 20): 34-57.

## **III. HAMILTON DEPRESSION SCALE (HAM-D)**

The HAM-D is a clinician-rated scale that measures the *severity* of depression once a diagnosis has already been established.<sup>19</sup> Though many shorter versions of the HAM-D exist, the most common is the 21-item scale, which includes 21 symptoms of depressive states that are rated on either 5-point or 3-point scales. A higher score indicates a more depressed patient, and improvement is thus measured by a decrease in the score. A score of 18 is used as a cutoff between mild and moderate depression. The HAM-D is the most widely used assessment instrument for major depression; it has been translated into almost all European languages, and is used throughout the world.

## **IV. BECK DEPRESSIVE INVENTORY (BDI)**

The BDI was originally developed as an instrument to measure depressive symptoms in general adult populations,<sup>20</sup> but is now widely used in research of depressed women during the perinatal period.<sup>21-23</sup> The BDI is a 21-item self-report scale that is used to measure both the presence and intensity of depressive symptoms. The BDI has also been validated and translated into a number of languages. In addition, the BDI has been used in combination with the EPDS in several recent cross-cultural studies of perinatal depression, and the results indicated moderate concordance between the two scales, indicating that they may have complementary uses for screening and assessment of perinatal depression.<sup>24</sup>

**V. MONTGOMERY-ASBERG DEPRESSION RATING SCALE (MADRS)**

The MADRS is a clinician-rated scale used to assess the *severity* of depression, particularly in response to a specific treatment over time.<sup>25</sup> The MADRS is based on a standard clinical interview, and consists of 10 items that focus on sadness, sleep, appetite, concentration, and thought patterns. Each item is scored on a 7-point scale, with 0 corresponding to an absence of the symptom, and 6 corresponding to the presence of the symptom in the most severe form.

**VI. POSTPARTUM DEPRESSION SCREENING SCALE (PDSS)**

The PDSS is a 35-item self-report instrument recently developed by Beck and colleagues to help clinicians identify and respond to postpartum depression as early as possible.<sup>26</sup> Depressive symptoms are rated on a 5-point scale, and the total score is used to determine the overall severity of depressive symptoms. The PDSS inquires how a woman has felt “over the past 2 weeks”.<sup>27</sup> Higher scores on the PDSS correspond to higher levels of symptomatology, and indicate that the woman should be referred for further evaluation. The authors note that the PDSS should be used for screening purposes only. The PDSS was developed by screening women from 2 weeks to 6 months postpartum.<sup>26</sup> In Guideline 3, Table 1 the Early Identification Guide suggests utilizing the PDSS starting at 2 weeks postpartum and as necessary, e.g. 2, 4 and 6 months postpartum. The PDSS and the corresponding manual can be obtained through Western Psychological Services, 12031 Wilshire Boulevard, Los Angeles, CA, 90025 USA.

***MANAGEMENT OF MAJOR DEPRESSION DURING THE PERINATAL PERIOD***

The ideal model of management, treatment, and interventions for a pregnant or postpartum depressed woman involves a bio-psychosocial approach. Treatment will vary depending on the severity of the symptoms (see Table 2 on page 5).

**TABLE 2: Treatment Modalities for Major Depression during the Perinatal Period**

SYMPTOMS	TREATMENT
Mild to Moderate	I. Psychosocial Therapies A. Cognitive Behavioural Therapy B. Interpersonal Psychotherapy C. Group Therapy D. Family and Marital Therapy E. Psychoeducation F. Supportive Psychotherapy II. Light Therapy
Moderate to Severe or At High Risk of Relapse	III. Pharmacotherapy (used in conjunction with Psychosocial Therapies)
Suicide Risk or Cannot Tolerate/ does not Respond to Medication	IV. Electroconvulsive Therapy (ECT)

**I. PSYCHOSOCIAL THERAPIES**

**A. Cognitive Behavioral Therapy**

Cognitive behavioral therapy (CBT) is a drug-free model of treatment that focuses on the interrelationships between thoughts, feelings, behavior, physical reactions, and the environment. The treatment consists of educational, thought pattern analysis, and behavior change components.

CBT has been found to be highly effective in treating a variety of problems such as depression, anxiety and panic, obsessive-compulsive disorder, and eating disorders,<sup>28-30</sup> with a reported success rate of 60-80%.<sup>31</sup> Several controlled studies have shown that:

- 1) CBT is at least as effective as antidepressant medication for mild to moderate depression
- 2) CBT administered in combination with an antidepressant medication yields more enduring results than does either treatment alone
- 3) long-term CBT treatment has a similar protective effect to long-term medication treatment for recurrent depression and anxiety disorders.<sup>32-36</sup>

A preliminary study examining short-term “cognitive behavioral counseling” for postpartum depression found that women who received 6 sessions of such counseling showed the same degree of improvement in functioning when compared to a group of women receiving the

antidepressant medication fluoxetine. Both groups showed significant improvement in functioning when compared to a placebo medication group.<sup>37</sup> CBT is a very structured form of treatment, requires motivated individuals to complete weekly homework assignments, and is usually administered by a trained psychologist, psychiatrist, or psychotherapist.

## **B. Interpersonal Psychotherapy**

Interpersonal Psychotherapy (IPT) is a short-term therapy that has been used successfully to treat mild-to-moderate depression. The focus of IPT in depressed patients is on one or more of 4 problem areas: role transitions, interpersonal disputes, interpersonal deficits, and grief.<sup>38</sup> In pregnant and postpartum women, the focus of IPT is on role transitions and the acquisition of new skills applicable to motherhood. A technique of IPT that is particularly useful for pregnant and postpartum depressed women is psychoeducation.<sup>38</sup> Psychoeducation for these patients involves providing information on the nature and course of depression during or after pregnancy, as well as providing information about child care and child development.

Preliminary studies of IPT in pregnant and postpartum women have produced encouraging results.<sup>38,39</sup> A recent controlled study of 99 women further confirmed that IPT is effective in decreasing depressive symptoms and increasing social adjustment in women with moderate postpartum depression.<sup>40</sup>

## **C. Group Psychotherapy**

Group psychotherapy for pregnant or postpartum depressed women has been described in two pilot studies. In one of these studies,<sup>41</sup> therapy consisted of a 10-week program with the following components:

- social and emotional support from other women who were undergoing similar experiences
- education about postpartum depression
- a cognitive-behavioural component to target irrational beliefs
- exploration of resources within the community
- improvement of communication, self-assertion, and problem-solving skills
- involvement of the spouse in group sessions
- homework tasks in order to reinforce techniques learned in the group sessions

Participants in this group met once a week for 1.5 hours. Results from this pilot study indicate that group therapy is effective in reducing the degree of depression in pregnant and postpartum women.

The other pilot study involved postnatally “distressed” women and their partners.<sup>42</sup> These women attended an 8-week long program, with their spouses attending 3 of these sessions. Women who attended this program demonstrated a decrease in maternal distress and an increase in self-esteem over the duration of the 8 weeks.

The benefits of group psychotherapy for pregnant and postpartum women include: it is cost-effective, it encourages social interaction, and it encourages partner involvement in the treatment plan.

#### **D. Family and Marital Therapy**

Marital and family problems are common in the course of mood disorders, and even more common when dealing specifically with perinatal mood disorders. After the birth of the baby, the husband or partner also goes through an adjustment period. In some couples, a baby strengthens their relationship, which leads to a supportive environment for the infant's growth. The roles of the partner and family become even more crucial if the mother is afflicted with a mood disorder. A stable marital relationship helps new parents adapt to the competing demands of marriage, the infant, and the family. In contrast, a poor marital relationship is the most consistent psychosocial predictor of perinatal depression and anxiety.<sup>21,43</sup> Many women experience a great deal of stress in attempting to handle both maternal and marital roles.<sup>44</sup> The presence of a mood disorder in the mother can cause significant complications in both marital and family relationships, and a troubled environment can heighten existing depression during the postpartum period.<sup>45,46</sup>

Techniques for marital and family therapy most often involve behavioral approaches and psychoeducation. Several studies of marital therapy have reported that it is an effective treatment strategy, either as a primary or adjunctive treatment, for reducing symptoms of mood and anxiety disorders, as well as reducing the risk for relapse.<sup>47,48</sup> The efficacy of marital and family counseling relative to other psychosocial treatments will depend on whether marital and family distresses are actually present in the patient.

#### **E. Psychoeducation**

Education for women with mood disorders and their families is a critical component to all treatment programs, regardless of whether they are psychosocial interventions, pharmacological interventions, or a combination. The main goal of psychoeducation is to help the patient and her family understand the disorder, available treatment options, and strategies to manage the disorder effectively.

#### **F. Supportive Psychotherapy**

Supportive psychotherapy involves offering support, reassurance, and psychoeducation to patients and their families. This type of therapy is used to augment other psychosocial interventions and/or pharmacotherapy. Supportive psychotherapy may be the only treatment a woman receives if she is not functioning at a high enough level to engage in Cognitive-Behavioural Therapy or Interpersonal Psychotherapy, or if she refused pharmacotherapy. Supportive group therapy has also been suggested to be effective in the treatment of depression and anxiety disorders.<sup>49</sup>

## II. LIGHT THERAPY

The use of light therapy as an alternative to pharmacotherapy in pregnant and postpartum mothers has only been minimally studied or reported in the literature. General research on the use of light therapy for major depression indicates that it is an effective form of treatment with a favourable side effect profile.<sup>50</sup> Light therapy is widely used to treat seasonal affective disorder (SAD), as well as non-seasonal depression and premenstrual dysphoric disorder (PMDD). One report of pregnant depressed women and another of postpartum depressed women, all treated with morning bright light therapy, provide preliminary support for the hypothesis that light therapy may have an antidepressant effect in these special populations.<sup>51,52</sup>

## III. PHARMACOTHERAPY

When pharmacotherapy is indicated for women who are planning to conceive, pregnant, or postpartum, the risks for harmful drug effects on the baby must be weighed against the risks of untreated depression in the mother. All psychotropic medications cross the placenta and cause **in utero** exposure to the developing fetus. In addition, these medications are found in breast milk in varying amounts, and thus are passed on to the nursing infant. Potential risks to the baby from **in utero** medication exposure may include congenital anomalies, drug toxicity, and neonatal withdrawal syndrome. Potential risks to the baby from exposure to medications through breast milk may include drug toxicity and undetermined long-term effects on neurobehavioural development.

The most commonly used medications to treat depression in pregnancy and the postpartum period are the selective serotonin reuptake inhibitor (SSRI) class of antidepressants and the tricyclic antidepressants (TCAs). The Monoamine Oxidase Inhibitor (MAOI) class of medications are not recommended for use in perinatal women because their use can exacerbate hypertension, and they have extensive interaction profiles with food and other medications, which can lead to complications in treatment.<sup>53</sup>

The selection of an antidepressant in pregnancy and/or lactation should be based on:

- Patient's prior response to antidepressants<sup>54</sup>
- Anticipated efficacy and response of the individual patient<sup>53</sup>
- Side effect profile in each individual patient<sup>54</sup>
- Concurrent medications and risk of interactions
- Potential adverse effects of the medication for the pregnant woman and her fetus, or for the mother and her nursing infant<sup>53,55</sup>

Maternal, fetal, and neonatal systems of drug absorption, distribution, metabolism, and elimination are all constantly changing throughout pregnancy and the postpartum period. Some of these variations require an increased or decreased dose of a specific medication, thus potentially increasing or decreasing drug exposure to the fetus or nursing infant. In pregnancy, the changes in dosing can be complex depending on the trimester of exposure. The effectiveness of a particular medication should therefore be monitored throughout the entire pregnancy and

## ***Mental Health Illness during the Perinatal Period: Major Depression***

into the postpartum period in order to achieve the lowest possible dose that provides adequate control of the major depressive disorder.<sup>53</sup>

Table 4 on the following pages lists dosing information for antidepressants, as well as the risks involved with the use of these medications during pregnancy and breastfeeding. Data for many of the newer agents is very limited, and the long-term effects on infants exposed to these agents are undetermined. Strategies to minimize drug exposure during the most sensitive period of gestation and during breastfeeding should be considered. Such strategies may include:

- Use the lowest possible dose of medication that will give a therapeutic response
- When possible, use a medication that is known to result in lower fetal/neonatal exposure, either through lower accumulation in breast milk, and/or through lower documented accumulation in fetal/neonatal serum or one which has a reduced side effect profile in the fetus and newborn
- The use of recently released medications in the perinatal period should be discouraged until more information is available regarding the effects of the medication

The American Food and Drug Administration (FDA) has provided 5 categories to classify which medications, when used during gestation, are associated with congenital defects in the developing fetus.<sup>56</sup> Although it doesn't provide information on the effects of the medication during a specific trimester, the FDA classification system is useful for ascertaining possible risks throughout the entire pregnancy, and is widely used. The FDA categories are on page 10.

**TABLE 3a: American Food and Drug Administration Pregnancy Risk Categories**

A	Adequate, well-controlled studies in pregnant women have failed to demonstrate a risk to the developing fetus.
B	Either animal studies show a risk, but human studies do not; or, if no adequate studies have been conducted in pregnant women, then animal studies have not demonstrated a risk.
C	Human studies are lacking, and animal studies have either produced adverse effects or are also lacking. Therefore, the risk of medication exposure in the fetus cannot be ruled out. Medications should be used in pregnancy only when potential benefits outweigh potential risk.
D	Positive evidence of fetal risk has been demonstrated in humans. However, the potential benefits of use in pregnant women may outweigh the potential risks, thus decisions must be made on an individual basis.
X	The medication is contraindicated in women who are or may become pregnant. The fetal risk of medication exposure clearly outweighs any potential benefits to the mother.

**Table 3b: Lactation Risk Categories**

L1	The medication has been taken by a large number of breastfeeding mothers without any documented adverse effects in their nursing infants. Controlled studies have been conducted and have not identified an increased risk to infants.
L2	The medication has been studied in a limited number of breastfeeding women, and no adverse effects have been documented in their infants.
L3	No controlled studies of the medication have been conducted in breastfeeding women. The medication should be used only when the potential benefits to the mother outweigh the potential risks of infant exposure.
L4	There is documented evidence of risk to infants exposed to this medication through breast milk. However, the potential benefits of use of the medication in women may outweigh the potential risk to the nursing infants, so the decision must be made on an individual basis.
L5	This medication is contraindicated in mothers who are breastfeeding. Human studies have clearly demonstrated risk to exposed infants, and this risk outweighs any potential benefits.

The lactation risk classification system has been developed by Hale, and is described in detail in his publication *Medications in Mothers' Milk, 9<sup>th</sup> edition* (2000)<sup>57</sup>. The 5 categories closely follow the pregnancy risk categories of the FDA, and they outline the infants' risk of medication exposure through breast milk.

**Table 4: Pharmacologic Treatment of Major Depression During the Perinatal Period.<sup>a</sup>**

Drug Class	Start Daily Dose at (mg) <sup>b</sup>	Max Daily Dose at (mg)	FDA Pregnancy Risk Category <sup>c</sup>	Fetal Risks <sup>d</sup>	Hale's Lactation Risk Category <sup>e</sup>	Breastfeeding <sup>f</sup>
<b>Tricyclic Antidepressants (TCAs)</b>						
<b>amitriptyline (Elavil®)</b> Ref: 56	25-75	300	D	Data analysis has shown that TCA exposure in pregnancy does not increase the incidence of teratogenic effect in humans. Neonatal withdrawal symptoms have been associated with clomipramine, desipramine, and imipramine exposure in pregnancy. Nortriptyline and desipramine may be preferred due to less sedation and GI/cardiac/ hypotensive side effects.	L2	All TCAs are excreted into human breast milk in low concentrations. The active metabolite of doxepin has a long half-life (37 hrs) and can be hazardous due to documented high accumulations in nursing infants. There are no reports of trimipramine exposure during breastfeeding.
<b>clomipramine (Anafranil®)</b> Ref: 57-59	25-75	300	C		L2	
<b>desipramine (Norpramin®)</b> Ref: 60	25-75	300	C		L2	
<b>doxepin (Sinequan®)</b> Ref: 61, 62	25-75	300	C		L5	
<b>imipramine (Tofranil®)</b>	25-75	300	D		L2	
<b>nortriptyline (Aventyl®)</b> Ref: 63, 64	10-40	200	D		L2	
<b>trimipramine (Surmontil®)</b>	25-75	300	C		L3	

a. Doses adapted from the *Clinical Handbook of Psychotropic Drugs, 10th revised edition (2000)*. Starting doses of medications are lower for pregnant and postpartum women than for the general adult population. Bezchlibnyk-Butler KZ, Jeffries JJ, Editors. Toronto, Hogrefe & Huber Publishers, 2000.

b. Monograph doses are guidelines only. Doses must be individualised for each patient.

c. Adapted from the *Food and Drug Administration (FDA, 1979)*. See Table 3a.

d. Comments adapted from GG Briggs et al., (1998), *Drugs in Pregnancy and Lactation, 5<sup>th</sup> edition*, as well as TW Hale (2000), *Medications in Mothers' Milk, 9<sup>th</sup> edition*. Refer to referenced articles for specific details.

e. Adapted from TW Hale (2000). *Medications in Mothers' Milk, 9<sup>th</sup> edition*. See Table 3b.

f. Comments adapted from GG Briggs et al., (1998), *Drugs in Pregnancy and Lactation, 5<sup>th</sup> edition*, as well as TW Hale (2000), *Medications in Mothers' Milk, 9<sup>th</sup> edition*. Refer to referenced articles for specific details.

Drug Class	Start Daily Dose at (mg) <sup>g</sup>	Max Daily Dose at (mg)	FDA Pregnancy Risk Category <sup>h</sup>	Fetal Risks <sup>i</sup>	Hale's Lactation Risk Category <sup>j</sup>	Breastfeeding <sup>k</sup>
<b>Selective Serotonin Reuptake Inhibitors (SSRIs)<sup>l</sup></b>						
fluoxetine (Prozac®) Ref: 65-72	10	80	B	Fluoxetine exposure in pregnancy is not associated with increased teratogenic effects in humans, but perinatal effects of 3 <sup>rd</sup> trimester exposure have been reported. A study of 55 preschool children exposed to fluoxetine <i>in utero</i> reported no long-term adverse effects with respect to IQ, language, or behaviour.	L3 for neonates L2 for older infants	Norfluoxetine, the active metabolite of fluoxetine, has a very long half-life that predisposes to accumulation in the infant, particularly neonates. Adverse effects (colic, fussiness, crying, seizure activity, lower weight gain) have been documented.
fluvoxamine (Luvox®) Ref: 73-75	50	300	C	Use of these SSRIs during pregnancy does not appear to have teratogenic effects, but data is limited. One prospective case series reported 26 exposures to fluvoxamine, 97 to paroxetine, and 147 sertraline in pregnancy. The rates of malformations were similar between all 3 groups, and were not higher than those reported for the control group.	L2	Two small case studies of fluvoxamine exposure through breast milk have reported very low levels in the breast milk, and no adverse events in the infants.

g. Monograph doses are guidelines only. Doses must be individualised for each patient.

h. Adapted from the Food and Drug Administration (FDA, 1979). See Table 3a.

i. Comments adapted from GG Briggs et al., (1998), *Drugs in Pregnancy and Lactation*, 5th edition, as well as TW Hale (2000), *Medications in Mothers' Milk*, 9th edition. Refer to referenced articles for specific details.

j. Adapted from TW Hale (2000). *Medications in Mothers' Milk*, 9th edition. See Table 3b.

k. Comments adapted from GG Briggs et al., (1998), *Drugs in Pregnancy and Lactation*, 5th edition, as well as TW Hale (2000), *Medications in Mothers' Milk*, 9th edition Refer to referenced articles for specific details.

Drug Class (SSRI's continued)	Start Daily Dose at (mg) <sup>l</sup>	Max Daily Dose at (mg)	FDA Pregnancy Risk Category <sup>m</sup>	Fetal Risks <sup>n</sup>	Hale's Lactation Risk Category <sup>o</sup>	Breastfeeding <sup>p</sup>
<b>Selective Serotonin Reuptake Inhibitors (SSRIs) Continued</b>						
citalopram (Celexa®) Ref: 84-87	10	60	C	A review of 375 cases of citalopram exposure in early pregnancy found that the rate of congenital anomalies was not higher than that for SSRI exposure or for the general population	L3	2 case studies of citalopram have reported no adverse effects in nursing infants. 1 study reported uneasy sleep in the infant, and this was correlated to high serum concentration of citalopram. Symptoms were short-lasting and disappeared after a dose decrease. Data is limited.
Paroxetine (Paxil®) Ref: 73, 76-79	10	60	B		L2	Paroxetine does not have an active metabolite. It is excreted into breast milk but with generally undetectable serum levels in infants; no adverse effects have been reported.
sertraline (Zoloft®) Ref: 73, 80-83	50	225	B		L2	Milk levels have been reported for sertraline and its weak metabolite desmethylsertraline, but with low or undetectable serum levels in the infant. There is one report of a nursing infant with 50% of maternal serum levels, but no adverse effects noted.

- l. Monograph doses are guidelines only. Doses must be individualised for each patient.*
- m. Adapted from the Food and Drug Administration (FDA, 1979). See Table 3a.*
- n. Comments adapted from GG Briggs et al., (1998), Drugs in Pregnancy and Lactation, 5th edition, as well as TW Hale (2000), Medications in Mothers' Milk, 9th edition. Refer to referenced articles for specific details.*
- o. Adapted from TW Hale (2000). Medications in Mothers' Milk, 9th edition. See Table 3b.*
- p. Comments adapted from GG Briggs et al., (1998), Drugs in Pregnancy and Lactation, 5th edition, as well as TW Hale (2000), Medications in Mothers' Milk, 9th edition Refer to referenced articles for specific details.*

*Mental Health Illness during the Perinatal Period: Major Depression*

<b>Drug Class</b>	<b>Start Daily Dose at (mg)<sup>q</sup></b>	<b>Max Daily Dose at (mg)</b>	<b>FDA Pregnancy Risk Category<sup>r</sup></b>	<b>Fetal Risks<sup>s</sup></b>	<b>Hale's Lactation Risk Category<sup>t</sup></b>	<b>Breastfeeding<sup>u</sup></b>
<b>Atypical Antidepressants</b>						
bupropion (Wellbutrin SR®) Ref: 88	100	300	B	Insufficient human data available to ascertain the teratogenicity of these agents. Caution is recommended, and when possible, use an alternate medication with better know effects.	L3	Bupropion and its two metabolites have been measured in milk with reported milk: plasma ratios of up to 8.7, however no adverse effects have been reported.
maprotiline (Ludiomil®)	30	225	B		L3	Maprotiline is more sedating than the TCAs or SSRIs. Maprotiline is excreted into breast milk.
nefazodone (Serzone®)	100	600	C		L3	Nefazodone has active metabolites with long half-lives (no data on milk excretion).
trazodone (Desyrel®)	75	600	C		L2	Trazodone is excreted in milk with peak levels at 2 hours.
venlafaxine (Effexor®) Ref: 89	75	225	C		L3	One study found that the infant dose of venlafaxine transferred through breastmilk is high, thus caution is recommended.

*q. Monograph doses are guidelines only. Doses must be individualised for each patient.*

*r. Adapted from the Food and Drug Administration (FDA, 1979). See Table 3a.*

*s. Comments adapted from GG Briggs et al., (1998), Drugs in Pregnancy and Lactation, 5th edition, as well as TW Hale (2000), Medications in Mothers' Milk, 9th edition. Refer to referenced articles for specific details.*

*t. Adapted from TW Hale (2000). Medications in Mothers' Milk, 9th edition. See Table 3b.*

*u. Comments adapted from GG Briggs et al., (1998), Drugs in Pregnancy and Lactation, 5th edition, as well as TW Hale (2000), Medications in Mothers' Milk, 9th edition Refer to referenced articles for specific details.*

#### **IV. Electroconvulsive Therapy**

Numerous clinical reports of electroconvulsive therapy (ECT) in pregnant women over the past 60 years indicate that it is an effective line of treatment with few adverse effects for both mother and fetus.<sup>88</sup> ECT is particularly useful in cases where rapid treatment is imperative and where a comprehensive team of health care professionals (psychiatrist, obstetrician, anesthesiologist) is available.<sup>56,89</sup>

ECT use in postpartum mothers is an option for specific conditions such as severe depression where psychotic symptoms are present, acute mania, and in mothers who are at a risk for suicide or infanticide.<sup>1</sup> In addition, it is a safe treatment option for the infant and allows for continuation of the breastfeeding schedule with only minor disruptions at the time of the treatment.

The number of ECT treatments required to produce an effective response in a population of pregnant and postpartum women is most often in the range of 3-9, paying special attention to individual responses. Treatments are usually administered 3 times per week.

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**APPENDIX A**  
**EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)**  
JL Cox, JM Holden, R Sagovsky. Department of Psychiatry, University of Edinburgh.

Name:

Date:

Number of Months Postpartum:

*As you have recently had a baby, we would like to know how you are feeling. Please mark the answer which comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.*

*Here is an example, already completed:*

- I have felt happy:
- Yes, all the time
  - Yes, most of the time
  - No, not very often
  - No, not at all

*This would mean "I have felt happy most of the time during the past week". Please complete the following questions in the same way.*

**In the past 7 days:**

1. I have been able to laugh and see the funny side of things
  - As much as I always could 0
  - Not quite so much now 1
  - Definitely not so much now 2
  - Not at all 3
  
2. I have looked forward with enjoyment to things
  - As much as I ever did 0
  - Rather less than I used to 1
  - Definitely less than I used to 2
  - Hardly at all 3
  
3. I have blamed myself unnecessarily when things went wrong
  - Yes, most of the time 3
  - Yes, some of the time 2
  - Not very often 1
  - No, never 0

**In the past 7 days:**

4. I have been anxious or worried for no good reason
- No, not at all 0
  - Hardly ever 1
  - Yes, sometimes 2
  - Yes, very often 3
5. I have felt scared or panicky for no very good reason
- Yes, quite a lot 3
  - Yes, sometimes 2
  - No, not much 1
  - No, not at all 0
6. Things have been getting on top of me
- Yes, most of the time I haven't been able to cope 3
  - Yes, sometimes I haven't been coping as well as usual 2
  - No, most of the time I have coped quite well 1
  - No, I have been coping as well as ever 0
7. I have been so unhappy that I have had difficulty sleeping
- Yes, most of the time 3
  - Yes, sometimes 2
  - Not very often 1
  - No, not at all 0
8. I have felt sad or miserable
- Yes, most of the time 3
  - Yes, quite often 2
  - Not very often 1
  - No, not at all 0
9. I have been so unhappy that I have been crying
- Yes, most of the time 3
  - Yes, quite often 2
  - Only occasionally 1
  - No, never 0
10. The thought of harming myself has occurred to me
- Yes, quite often 3
  - Sometimes 2
  - Hardly ever 1
  - Never 0