



## **Support Document for Midwives Who Are Responsible for the Follow-Up of Women Taking SSRI and NSRI Antidepressants**



Ordre  
des Sages-Femmes  
du Québec

Comité des médicaments, examens et analyses

Maïa  
Éditions



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This document must be revised every three years.

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# 1 Introduction and background

Numerous epidemiological studies conducted around the world have confirmed the increase in mental health problems as well as the use of pharmacological therapies to treat them.

In their practice as first-line caregivers, midwives are becoming responsible for the follow-up of more and more women who are taking antidepressants or other medications prescribed to treat various mental health disorders. Several midwives have contacted the Ordre des sages-femmes du Québec (OSFQ) and expressed an interest in having a support document to guide them and enable them to offer better care to these women. As a result, the OSFQ tasked the Comité des médicaments, examens et analyses (CMEA) to study the matter.

Analysis of such matters is difficult given the complexity and interactions between the various mental health determinants involved in the appearance of such disorders, whether they are biological, psychological, social or cultural [1]. Also, there is a wide variety of mental health problems and prescribed treatments. Therefore, in this document, the CMEA decided to address depression only briefly and not provide more specific information on other mental health problems. In addition, the document deals mainly with the clinical aspects of antidepressant use, not with the psychosocial support that must be provided to women, which is a broad topic that could, in itself, have been the subject of another document.

This document will deal mainly with the follow-up of women who are taking selective serotonin reuptake inhibitor (SSRI) and norepinephrine-serotonin reuptake inhibitor (NSRI) antidepressants, which seem to account for most of the clinical situations reported by midwives.

## 2 Methodology

### 2.1 Literature review

The keywords selected for the search on Medline between October 7, 2012, and February 12, 2014, were *SSRI, NSRI, midwife, depression, antidepressant, pregnancy, neonate* and *Apgar*.

Although a large number of studies have been published on women taking selective serotonin reuptake inhibitors (SSRIs) or norepinephrine-serotonin reuptake inhibitors (NSRIs), certain factors limit their scope [2-4]:

- poor statistical significance of the research;
- limited number of subjects involved in the studies, which makes adverse outcomes for the mother and child rare;
- varying methodology;
- rapid progression of drug therapy, which changes prescribing habits and leads to insufficient exposure to observe the relationships between the use of SSRIs or NSRIs and the consequences for mothers, fetuses and newborns.

During the documentation process, it became obvious that there was a lack of research that took into consideration the specifics of the practice of midwifery, such as continuity of care, personalized follow-up, childbirth outside of hospital centres, etc. Most of the research that was found pertained to women who were under the care of a physician and who planned to give birth at a hospital centre.

The Comité des médicaments, examens et analyses (CMEA) conducted a review of the literature and focused mainly on the systematic reviews, the meta-analyses and the clinical guidelines of perinatal care organizations.



The Canadian provinces currently have the following guidelines regarding the use of SSRIs and NSRIs and neonatal issues:

- Canadian Paediatric Society (CPS) position statement [5];
- Clinical guideline issued by BC Perinatal Services, a British Columbia government agency that deals with perinatal issues in first-, second- and third-line care settings [6]. This document is currently the only article on SSRIs and NSRIs that addresses the topic of childbirth outside of hospital centres;
- Clinical guideline published in March 2014 by the BC Reproductive Mental Health Program and BC Perinatal Services concerning mental health problems during the perinatal period [8].

In England, the National Institute for Health and Care Excellence (NICE) recently published a clinical guideline on maternal mental health during the perinatal period. [7].

## 2.2 Consultations with experts and authorities

The CMEA consulted several experts on the matter (a family physician, an obstetrician specialized in high-risk pregnancies, a neonatologist, a pediatric cardiologist, the Centre IMAGE and a researcher) in order to obtain relevant clinical opinions as to the appropriate approach to adopt with the clientele of midwives in Québec. These experts acknowledged that the CPS document had some limitations with regard to the specifics of the practice of midwifery (childbirth outside of hospital centres and early discharge). The main difficulty resides in the inability to identify, both before and after birth, babies who will develop complications.

# 3 Depression and pregnancy

Mental health disorders, including depression, represent a real public health problem. Indeed, a recent study places them second on the list of the most incapacitating illnesses in the world, after cardiovascular diseases [9].

According to the World Health Organization:

*Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration. Depression can be long-lasting or recurrent, substantially impairing an individual's ability to function at work or school or cope with daily life. At its most severe, depression can lead to suicide [10].*

Mental health disorders are varied and complex. This document will provide only a brief overview of depression and focus mainly on the drugs used to treat this condition, particularly SSRIs and NSRIs, as well as the recommended follow-up.

## 3.1 Prevalence of depression

In Western countries, the prevalence of depression and anxiety during pregnancy and the first year following childbirth is 10% to 15% [11].

In obstetrics, depression is one of the most common complications. For the sake of comparison, perinatal depression (10% to 15%) is up to three times more common than postpartum hemorrhage (5% to 15%), up to two times more common than endometritis (7% to 10%) and up to two times more common than premature labour (7.6%) [12].



### 3.2 Screening

There is a tendency among professionals to normalize the unstable psychological condition of pregnant women or to attribute the symptoms of postnatal depression to “baby blues.”[10] Furthermore, symptoms such as fatigue, changes in appetite, sleep disorders, lack of energy, etc., can be associated with pregnancy, but also remain symptoms of depression.[8] It would seem that healthcare professionals detect only about 50% of cases of postnatal depression during regular follow-up. Implementing an adequate screening process and offering help early on reduce the risk of perinatal depression, the worsening of symptoms and the recurrence in women with a history of depression [4, 11, 12].

Screening through self-assessment may increase the detection of situations requiring medical evaluation. Although screening can take on many forms, women prefer a method through which they can share their feelings. They also point out how important it is for the professional to react quickly when the results of screening are positive [13].

### 3.3 Risk factors

There are multiple risk factors [12]:

- history of depression, particularly postpartum depression. Women who have previously suffered from postpartum depression have a high recurrence rate (50% to 62%) during subsequent pregnancies;
- family history of depression or bipolar disorder;
- mistreatment during childhood;
- maternal age < 20 years;
- associated stressors (conjugal violence, insufficient support system, poor socioeconomic status, single parenting);
- traumatic events (death of a loved one, obstetrical complications, history of perinatal mourning, etc.).

### 3.4 Preventative and protective factors

The presence of protective factors in the woman’s environment can also play a role by reducing or lessening the impact of the other factors listed above. For example, the presence of loved ones who comfort the woman and make her feel valued or involvement in interesting personal activities can protect against depression or promote recovery. Conversely, the absence of such factors can lead to the appearance (or reappearance) of depression. Schotte and his collaborators and Mauthner, in their respective studies, described certain protective factors [1, 14]:

- having been raised in a warm, loving environment;
- having good material and socioeconomic living conditions;
- being in good physical health;
- having a healthy, varied diet;
- engaging in physical activity;
- living a balanced life without excessive stress;
- having an active, supportive social network, having satisfactory, long-term spousal or family relationships;
- engaging in meaningful activities;
- having reasons for living;
- having the possibility of a “new start”;
- having covered the theme of postnatal depression in individual or group prenatal meetings;
- involving the partner and the family in the postnatal period.

### 3.5 Treatment

Psychotherapy and drug therapy are the two main recommended forms of treatment for depression [16]. Initiation of treatment with an antidepressant during pregnancy involves risks, and the results of psychotherapy are rarely significant over a short period of time. Ideally, a woman who is diagnosed with depression during pregnancy should be monitored by a team specialized in perinatal mental health.

### 3.6 Complications

#### 3.6.1 Anxiety

The comorbidity most commonly associated with depression is anxiety. Up to 38% of women who are diagnosed with postpartum depression also exhibit pathological anxiety [16].

#### 3.6.2 Postpartum psychosis

Postpartum psychosis occurs in 1 to 2 women out of 1000 during the baby's first month of life [12]. Women with bipolar disorder are at greater risk for psychosis if they stop taking their medication or if they are not well medicated. A woman who previously suffered from postpartum psychosis has a 60% chance of recurrence while a woman who suffered from psychosis outside of the perinatal period has a 30% chance of recurrence [12, 17].

### 3.7 Untreated depression

Untreated depression can have serious consequences on the outcome of the pregnancy. Indeed, it increases the number of spontaneous abortions, premature births and low-birth-weight babies [18].

With regard to the mother, moderate to severe untreated depression is associated, among other things, with suicidal ideation, inadequate diet or weight gain, excessive consumption of alcohol, drugs or cigarettes, and inadequate perinatal follow-up [4].

After birth, babies may be more lethargic, irritable or agitated. Attachment difficulties are more common [4].

### 3.8 Paternal depression

There is a link between maternal depression and paternal depression. In fathers, the prevalence of perinatal depression is about 10%. However, in couples where the mother suffers from perinatal depression, the prevalence of paternal depression can reach 25% [19].

## 4 Medication: Selective serotonin reuptake inhibitors (SSRIs) and norepinephrine-serotonin reuptake inhibitors (NSRIs)

Serotonin is naturally produced by the human body and acts as both a neurotransmitter and a hormone. It is found mainly in the digestive system, in platelets and in the central nervous system. It is involved in thermoregulation, dietary and sexual behaviour, the sleep-wake cycle, pain, anxiety and motor control. In addition, serotonin acts as a vasoconstrictor when platelets are called upon to stop bleeding. As a result, serotonin can be associated with vascular hypertension [20]. Norepinephrine is also a neurotransmitter that plays a role in excitation, the orientation of new stimuli, selective attention, vigilance, emotions, wakefulness and sleep, dreams and nightmares, learning and the reinforcement of certain memory circuits involving chronic stress [20].

## 4.1 Pharmacology

Selective serotonin reuptake inhibitors (SSRIs) are antidepressants that act by increasing the concentration of serotonin at neuronal synapses, which leads to an improvement in mood. Norepinephrine-serotonin reuptake inhibitors (NSRIs) operate in a similar fashion by also increasing the concentration of norepinephrine at the synapses [20].

### 4.1.1 SSRIs and NSRIs during pregnancy

At the end of a pregnancy, weight gain and the increased activity of certain enzymes have an impact on the pharmacokinetics and pharmacodynamics of antidepressants. Given the variable characteristics of each SSRI or NSRI, the dose of the medication may need to be increased during the second half of a pregnancy, contrary to the belief that the dose needs to be decreased toward the end of a pregnancy [4].

### 4.1.2 SSRIs and NSRIs during breast-feeding

SSRIs and NSRIs are excreted into breast milk [3]. They have long half-lives, which range from about twenty hours to a few days [21].

The proportion found in breast milk varies, but does not seem to reach detectable levels in most children. Newborns who were exposed during pregnancy tend to have fewer symptoms associated with the presence of SSRIs and NSRIs in breast milk than children who were not.

When a woman stops drug therapy during pregnancy, it is necessary to evaluate the need to resume it as soon as she has given birth. At that point, it is important to consider that some medications are less compatible with breast-feeding when the baby has not been exposed to them in utero. Given the very long half-life of fluoxetine (Prozac), initiation of treatment with this drug is rarely recommended during the first months following childbirth [21]. The woman could be prescribed a new SSRI or NSRI that is compatible with breast-feeding [3].

## 4.2 Indications

SSRIs and NSRIs are used to treat moderate to severe depression, anxiety disorders, panic disorders and migraines [22].

### Table 1 :

The most commonly prescribed SSRIs and NSRIs along with the usual daily dose of each molecule (please refer to the Compendium of Pharmaceuticals and Specialties (CPS)[23] for the product monographs).

ISRS	Dosage (mg)
Paroxetine ( <i>Paxil</i> )	20 - 50
Fluoxetine ( <i>Prozac</i> )	20 - 60
Sertraline ( <i>Zoloft</i> )	50 - 200
Citalopram ( <i>Celexa</i> )	20 - 60
Escitalopram ( <i>Ciprallex</i> )	10 - 20
Fluvoxamine ( <i>Luvox</i> )	50 - 100
IRNS	Dosage (mg)
Venlafaxine ( <i>Effexor</i> )	75 - 375

Free translation, data taken from Maternal use of SSRIs, SNRIs and NaSSAs: practical recommendations during pregnancy and lactation (Sie et al. 2011)<sup>3</sup>



### 4.3 Prevalence

In 2013, it was estimated that about 3.5% of pregnant women were being treated with SSRIs or NSRIs in North America [18].

### 4.4 Adverse events

The most commonly observed adverse events with SSRIs and NSRIs are gastrointestinal symptoms, headache, insomnia and agitation. Other symptoms such as tremors, excessive sweating and weight changes have also been reported [3].

### 4.5 Discontinuation of an SSRI or NSRI

In the presence of a mental health problem requiring drug therapy, evidence shows that **the risks associated with an untreated depressive state are greater than the fetal and neonatal risks associated with the treatment and should not lead to the discontinuation of the medication.** In addition to not decreasing the risks of complications for the baby, discontinuation of the medication considerably increases the risk of relapse [2, 4, 7, 8, 24]. It would seem that there is a 68% chance of relapse among mothers who discontinue treatment at the time of conception or during the first trimester compared to a 26% chance among those who continue treatment [17]. In addition, once the pharmacological treatment is resumed, it takes several weeks for the depressive symptoms to be brought back under control [3].

Some women may decide to stop their medication by personal choice or upon the recommendation of their treating physicians. An SSRI or NSRI must not be discontinued abruptly. The best way to withdraw an SSRI or NSRI is to gradually reduce the dose by 25% over a period of one or two weeks, under medical supervision. Depending on the dose of the medication being administered, it is normal for withdrawal to last several weeks [25]. Abrupt discontinuation may lead to withdrawal symptoms of varying intensity, including jitteriness, anxiety, insomnia, tremors and convulsions [4].

### 4.6 Polypharmacy

When a woman is taking more than one psychoactive drug, it is difficult to evaluate the real risks for her and her baby. Polypharmacy in mental health is justified when symptoms are particularly severe and especially when they are associated with anxiety, a panic disorder, or an obsessive or compulsive disorder, with or without depression. In these cases, newborns have a higher risk of experiencing symptoms [26]. For all these reasons, it is recommended that a medical team assume complete responsibility for the perinatal follow-up of any women who are taking more than one psychoactive drug.

## 5 Repercussions for the mother

### 5.1 Hypertension

Serotonin has a vasoconstrictive effect and can potentially affect blood pressure. A few studies have focused on the risk of hypertension, with or without preeclampsia, among women taking a selective serotonin reuptake inhibitor (SSRI) or a norepinephrine-serotonin reuptake inhibitor (NSRI) during pregnancy. Bérard and De Vera reported a 53% increase in risk. One SSRI in particular, paroxetine (Paxil), was associated with an increase in the incidence of hypertension from 2% to 3.6% [27]. According to Palmsten and her collaborators, the increased risks seem to be associated with the use of NSRIs and tricyclic antidepressants [28].

These studies remain observational and do not provide any information about the approach that healthcare professionals should adopt. Given that blood pressure is already monitored during pregnancy, no other monitoring is currently indicated [29].

## 5.2 Thrombocytopenia

Given that serotonin is stored in platelets, the use of SSRIs or NSRIs could inhibit platelet function and lead to bleeding, mainly in the stomach [20, 30]. This risk is present for all individuals taking an SSRI or an NSRI and is increased by the concomitant use of certain medications (acetylsalicylic acid [ASA], non-steroidal anti-inflammatory drugs [NSAIDs] and anticoagulants) [30]. Few studies have focused on this subject during pregnancy. For the moment, there seems to be no consensus about the impact on the mother, and fetuses exposed to SSRIs or NSRIs do not seem to have a greater risk of developing thrombocytopenia [31].

## 5.3 Suicide

Suicidality (suicidal ideation, preparation of the act, suicide attempt or death by suicide) related to the use of an antidepressant (SSRI, NSRI or other) is difficult to quantify given the increased risk of suicidality among individuals suffering from a mental illness. Suicide accounts for 28% of maternal deaths and represents the leading cause of death among mothers during their infants' first year of life. The predictability of the act is difficult to determine since half of the women have no specific history, but it is estimated that 50% of maternal suicides could be avoided [32]. However, studies confirm that the presence of a mental illness is an important risk factor and that depression in late pregnancy is the sign that best predicts a life-threatening postpartum depression [4]. As for the risk of suicidality among individuals taking an SSRI or NSRI antidepressant compared to that of patients with depression who are not taking any medication, it seems to be higher among teenagers, lower among individuals over 65 years of age and the same for people aged 18 to 64 [33].

If a midwife decides to address this matter with a woman during her pregnancy, she can refer to the document entitled *Prévention du suicide – Guide de bonnes pratiques à l'intention des intervenants des centres de santé et de services sociaux* [suicide prevention–good practice guide for health and social services centres] (<http://publications.msss.gouv.qc.ca/acrobat/f/documentation/2010/10-247-02.pdf>). (available in French only) published by the ministère de la Santé et des Services sociaux. There are also questionnaires to help assess the risk of suicide [8]. In addition, various suicide prevention centres throughout Québec offer training sessions.

# 6 Repercussions for the fetus and newborn

Since the publication of the Canadian Paediatric Society (CPS) document in 2011, midwives in Québec have been concerned about the consequences of in utero exposure to selective serotonin reuptake inhibitors (SSRIs) and norepinephrine-serotonin reuptake inhibitors (NSRIs) for newborns. No evidence points to a link between the use of antidepressants and an increased risk of neonatal resuscitation at birth. However, during the first 24 hours of life, certain complications may arise [6, 18, 34].

## 6.1 Poor neonatal adaptation or neonatal withdrawal syndrome

Poor neonatal adaptation or neonatal withdrawal syndrome is a syndrome that includes several neurological, respiratory and gastrointestinal signs that arise during the first hours or days following birth [18].

Two hypotheses explain the variability in the nomenclature used to define this syndrome [18]:

- **Poor neonatal adaptation:** Due to the vasoconstrictive effect of serotonin, the blood vessels of newborns who were exposed to SSRIs or NSRIs in utero may be less flexible. After birth, this could lead to a delay in the relaxation of the child's vascular system, causing vascular hypertension, which could explain the symptoms observed.
- **Neonatal withdrawal syndrome:** At birth, newborns are no longer exposed to SSRIs or NSRIs. As a result, their level of serotonin may decrease, thereby causing withdrawal symptoms.

To make reading easier, the term “poor neonatal adaptation” will be used in the rest of this document. Regardless of the nomenclature, the symptoms and the way to manage them remain the same.

### 6.1.1 Signs of poor neonatal adaptation



**Table 2 :**

Signs of poor neonatal adaptation by frequency

Common signs	Rare signs
<p><b>Neurological :</b></p> <ul style="list-style-type: none"> <li>Jitteriness</li> <li>Muscle tone regulation disorders</li> <li>Tremors</li> <li>Sleeping difficulties</li> <li>High-pitched or frequent crying</li> <li>Agitation or irritability</li> <li>Myoclonia</li> </ul>	<p><b>Neurological :</b></p> <ul style="list-style-type: none"> <li>Convulsions</li> <li>Hyperreflexia</li> <li>Lethargy</li> </ul>
<p><b>Gastrointestinal :</b></p> <ul style="list-style-type: none"> <li>Feeding difficulties</li> </ul>	<p><b>Gastrointestinal :</b></p> <ul style="list-style-type: none"> <li>Diarrhea</li> <li>Weak or uncoordinated sucking</li> </ul>
<p><b>Respiratory :</b></p> <ul style="list-style-type: none"> <li>Respiratory distress</li> </ul>	<p><b>Autonomic :</b></p> <ul style="list-style-type: none"> <li>Temperature instability</li> <li>Mottling</li> <li>Excessive sweating</li> <li>Nasal stuffiness</li> </ul>

Free translation, data taken from The use of psychotropic medication during pregnancy: how about the newborn? [18]

Once signs of poor neonatal adaptation appear, the syndrome will most likely remain mild. However, worsening of the condition is possible. It is difficult to determine which babies are at risk of developing more severe signs. Respiratory distress may occur in a baby who is initially not very symptomatic [18].

### 6.1.2 Poor neonatal adaptation evaluation tool

Monitoring for the appearance of poor neonatal adaptation includes an assessment of vital signs (heart rate, respiratory rate, temperature and oxygen saturation) every four hours (see section 7.2) and a clinical evaluation of the aforementioned symptoms [6].

The Finnegan score is a tool that is suitable for the evaluation of poor neonatal adaptation symptoms in order to facilitate clinical decision-making. It is calculated two hours after birth and every four hours thereafter for at least 24 hours (Appendix A) [35]. Signs of poor neonatal adaptation present during the first eight hours may suggest a different etiology (see section 6.1.4). The use of SSRIs or NSRIs by the mother may not be the source of the clinical signs observed

The Finnegan score is a tool that helps in the assessment of the newborn, but it does not replace the midwife’s clinical judgement or the parents’ potential desire for a transfer of care.

A score higher than 8 suggests poor neonatal adaptation and requires a transfer of care (*Regulation respecting cases requiring consultation with a physician or transfer of clinical responsibility to a physician*). A score lower than 7 does not justify stopping observation and could justify a transfer in accordance with the aforementioned regulation, based on the nature of the clinical signs observed.

**Table 3**

Interpretation of the Finnegan score according to the *Regulation respecting cases requiring consultation with a physician or transfer of clinical responsibility to a physician* (s. 5, 1st par., subpar. 3).

Score	Signs observed	Regulation
≥ 8	Regardless of the signs observed	Transfer
≤ 7	<ul style="list-style-type: none"><li>• Jitteriness</li><li>• Projectile vomiting</li><li>• Watery stools (diarrhea)</li><li>• Convulsions</li><li>• Hyperthermia</li><li>• Signs of respiratory distress (nasal flaring, tachypnea, retraction)</li></ul>	Transfer
	<ul style="list-style-type: none"><li>• Abnormal high-pitched crying</li><li>• Exaggerated Moro reflex (abnormal neurological signs)</li></ul>	Consultation
	<ul style="list-style-type: none"><li>• Calm sleep</li><li>• Increased muscle tone</li><li>• Myoclonic movements</li><li>• Sweating</li><li>• Mottling</li><li>• Excoriations</li><li>• Nasal stuffiness or sneezing</li><li>• Difficult breast-feeding</li></ul>	

### 6.1.3 Prevalence

Up to 30% of babies born from mothers taking an SSRI or an NSRI will have poor neonatal adaptation [18].

### 6.1.4 Course of poor neonatal adaptation

The first symptoms of poor neonatal adaptation appear a few hours after birth (on average, eight hours). Most of them last from two to six days, but some studies report them lasting up to two weeks. Newborns who do not develop symptoms during their first 48 hours of life are unlikely to develop any later on [18, 36].

### 6.1.5 Identification of babies at risk

Given that there is no established relationship between the SSRI or NSRI dose taken by the mother and the severity of the symptoms observed, it is difficult to determine which babies are at risk of developing poor neonatal adaptation. There may be a link with treatment duration, but it would seem that discontinuation of SSRI or NSRI use, even early in the pregnancy, does not significantly reduce the frequency of this syndrome [18].

### 6.1.6 Preventative and protective factors

A few practices make it possible to limit the appearance and reduce the severity of the symptoms observed [18]:

- Skin-to-skin contact
- Subdued lighting
- Swaddling

The purpose of these measures is to decrease the neurological stimulation of the baby in order to promote recovery. They also enable babies to better stabilize their temperature and regulate their breathing

- Breast-feeding

In addition to its known benefits, breast-feeding frequently and on demand enables the baby to receive a minimal dose of SSRIs or NSRIs through the breast milk (maintenance dose) and allows for smoother withdrawal [36].

## 6.2 Serotonin syndrome

Aside from poor neonatal adaptation, some authors suggest that exposed babies could suffer from serotonin syndrome. This syndrome is very rare, and its existence remains controversial. The symptoms of poor neonatal adaptation usually appear after eight hours of life. If similar symptoms arise right after birth, they may be due to serotonin syndrome [18].

## 6.3 Persistent pulmonary hypertension of the newborn

Persistent pulmonary hypertension of the newborn (PPHN) is a pathology in which systemic circulation and pulmonary circulation continue to follow the prenatal circulatory pathways instead of switching to the normal postnatal pathways. The persistent hypertension in the pulmonary vessels leads to reduced blood flow to the lungs, thereby limiting the amount of oxygen that reaches them. Various factors have an impact on the course of this transition: afterbirth delivery, release of catecholamines at birth, colder extra-uterine environment, expansion of the lungs to a normal volume, establishment of adequate alveolar ventilation and oxygenation, and clearance of fetal pulmonary fluid. The conditions that interfere with these processes maintain transitional circulation, thereby causing PPHN [37].

### 6.3.1 Symptoms and diagnosis

The newborn shows signs of severe respiratory distress: tachypnea, cyanosis, nasal flaring, retraction, paradoxical breathing, expiratory grunting and desaturation. PPHN is usually observed during the first 12 to 24 hours of life, given the compensatory mechanisms that the newborn uses right after birth [2, 6, 37]. Therefore, it is important to monitor the baby for a period of 24 hours.

PPHN is diagnosed based on the case history, physical examination, and various tests and examinations (blood pH, echocardiogram, X-ray, etc.) [38].

### 6.3.2 Risk factors

The main risk factors associated with this pathology are the following [39]:

- caesarean section;
- high maternal body mass index (BMI);
- use of acetylsalicylic acid (ASA) or non-steroidal anti-inflammatory drugs (NSAIDs) by the mother;
- all types of diabetes;
- uncontrolled asthma;
- presence of meconial amniotic fluid;



- post-term pregnancy;
- race (Black or Asian);
- smoking;
- poor socioeconomic status.

Recently, the use of SSRIs or NSRIs has also been cited as a risk factor given that serotonin is a vasoconstrictor and could have an effect on pulmonary vascularization [37].

### 6.3.3 Prevalence

The prevalence of PPHN is low: 0.1% to 0.2% of live-born babies [39]. The aforementioned risk factors increase the frequency of the condition.

As for PPHN associated with the maternal use of SSRIs or NSRIs, it would seem that the risk is lower than 1% [2, 4]. Although it is a serious condition, it does not justify discontinuing the medication [38]. It would seem that discontinuing the SSRI or NSRI beyond the 20th week of the pregnancy does not decrease the risk of PPHN [2, 40].

## 6.4 Congenital malformations

Fetal cardiac malformations are the main malformations that could be associated with the use of SSRIs or NSRIs during pregnancy [6].

### 6.4.1 Cardiac malformations

The prevalence of cardiac malformations (all pregnancies) is 0.7%. The risk increases to 1% when the baby is exposed to SSRI or NSRI antidepressants [6].

However, doubt remains regarding the link between the use of antidepressants and fetal cardiac malformations. The risk-benefit ratio must still be established. The association is well documented for paroxetine (Paxil), mainly because it is the SSRI/NSRI antidepressant that has been in use for the longest period [4]. The other molecules have been in use for too short a time for conclusions to be drawn. Some research points out that anxious women may receive closer medical follow-up, which may lead to a greater number of benign cases being diagnosed [4].

However, certain studies, the American Heart Association, and several physicians who were consulted, recommend that a fetal cardiac ultrasound be performed on babies exposed to an SSRI or an NSRI [3, 4, 41].

### 6.4.2 Other congenital malformations

The risk of having any congenital malformation, including gastroschisis, neural tube defects, etc., is 3.5% to 4% for babies exposed to an SSRI or an NSRI in utero compared to 3% for the general population [42].

# 7 The practice of midwifery

## 7.1 The midwife's role

A large part of the midwife's role is to offer support during the major transition periods, i.e. pregnancy, delivery and the postpartum period. This support is likely to play a role in the prevention of depressive states. However, when applicable, the midwife must be able to detect depressive conditions and refer her clients to another professional, if necessary.

### 7.1.1 Screening and referral to a mental health professional

Given that midwives are first-line caregivers who aim to establish a relationship of trust with women, they play an important role in screening for depression. This role is based on active listening and must apply to all women. Many situations involving depression are not detected [4, 8, 11, 12].

It is also important to consider that some women have a higher risk of depression (see section 3.3). Certain specific symptoms can be good indicators of increased risk: unexplained physical symptoms, pain, including chronic pain, persistent fatigue, insomnia, anxiety, and abuse of alcohol or other drugs [4].

If a midwife has any doubts or if the woman is in a depressive state or at a higher risk for depression, a more specific screening is recommended. This evaluation can be conducted using the Edinburgh Postnatal Depression Scale (Appendix 2), for example, or by asking these two questions [43]:

- In the past two weeks, have you felt demoralized, depressed or desperate?
- In the past two weeks, have you taken little interest or pleasure in your activities?

If the woman obtains a high score on the Edinburgh Postnatal Depression Scale, if she answers "yes" to these two questions or if the screening performed suggests the presence of a depressive state, a thorough clinical evaluation must be conducted by a mental health professional. Therefore, the midwife must refer her client to a physician for diagnosis and treatment. If the situation requires immediate medical action, the woman must be referred to emergency psychiatric services and she must not go alone. In non-urgent situations, a referral to a psychologist can be considered for any woman who wishes to start psychotherapy during her pregnancy or the postpartum period.

### 7.1.2 Psychosocial support

In its document entitled *Faire face à la dépression au Québec: Protocole de soins à l'intention des intervenants de première ligne* [dealing with depression in Québec: a care protocol for first-line caregivers] (p. 14), the Institut national de santé publique du Québec (INSPQ) (2012) describes the essential principles of care that must be applied in the case of individuals with depression. The philosophy and standards of practice of midwives overlap mainly with four of these principles.

- Establishment of a relationship of trust. It is established gradually and fostered by the continuity of care throughout the perinatal period, as well as the respect and cooperation between the woman and the midwife.
- Promotion of health. The midwife promotes a healthy lifestyle (diet, sleep, physical activity, alcohol and drug consumption, etc.) with all of her clients and offers advice tailored to their needs.
- Support and participation of family and loved ones. With the woman's permission, the midwife can have a discussion with any person of significance identified by her client in order to explain the reality of depression and solicit the support and participation of her loved ones. The midwife must also talk to the woman about opportunities to develop her support network.
- Knowledge of community resources. The midwife must be aware of the community resources in her area and share them with the woman and her family.

### 7.1.3 Collaborative care

A woman with symptoms of depression, whether she is medicated or not, would benefit from a partnership with other caregivers who are already involved in her current health situation. **Under no circumstances can the midwife manage her client's pharmacological treatment.**

### 7.2 Delivery outside of a hospital centre and neonatal monitoring

BC Perinatal Services (2013) is the only organization that has published a clinical guideline addressing delivery outside of a hospital centre by women receiving SSRI or NSRI antidepressants [6].

With regard to the newborn, the authors recommend the measurement of vital signs (heart rate, respiratory rate, temperature) and oxygen saturation after one hour of life and every four hours thereafter for the first 24 hours [6].

This monitoring is not specific to the evaluation of poor neonatal adaptation. It is also used to identify babies who may have persistent pulmonary hypertension of the newborn or an undiagnosed cardiac malformation. If vital signs and oxygen saturation values are within the normal ranges during the first 24 hours of life, the risk of the baby developing symptoms requiring hospitalization is low [6].

In addition, a complete clinical examination of the newborn must be conducted in order to detect abnormal clinical elements requiring a medical evaluation [6].

This recommendation does not change even if a fetal cardiac ultrasound was performed during the pregnancy. The purposes of oxygen saturation measurement and cardiac ultrasound are different and remain complementary [4].

### 7.3 Early discharge

Follow-up by a midwife allows women who delivered normally and their healthy newborns to benefit from an early discharge after a period of three hours following birth. By conducting two to three consultations during the first five days following birth, the midwife ensures that the postpartum period is progressing normally for both the mother and the newborn. This type of postnatal follow-up for women receiving SSRIs or NSRIs is not documented in the literature. Given that babies born to mothers who took an SSRI or an NSRI antidepressant have an increased risk of developing poor neonatal adaptation, persistent pulmonary hypertension of the newborn or cardiac malformations, postnatal follow-up during the first 24 hours of life is more complex. BC Perinatal Services recommends close follow-up for a minimum of 24 hours [6] as well as a follow-up three to five days after discharge to ensure that the newborn is gaining weight adequately and not showing any symptoms of poor neonatal adaptation, and to evaluate the mother's health.

## 8 Considerations for the practice of midwifery

Midwives can perform the perinatal follow-up of women receiving an **SSRI or NSRI antidepressant**.

Early in the pregnancy, the midwife must consult the physician who is treating her client's mental health condition (making a request for a mental health evaluation during the pregnancy and, possibly, for a prescription for a fetal cardiac ultrasound; see section 8.1.2) and use the consultation form in effect.

A telephone consultation with the Centre IMAGe of the Hôpital Sainte Justine is not sufficient. If her client is not already receiving psychotherapy, the midwife must evaluate this possibility with her and inform her of the services available in her area.

## 8.1 Prenatal considerations

### 8.1.1 Evaluation of the woman's well-being

- This evaluation is based on active listening and applies to all women.
- In the event that a woman is at high risk or has specific symptoms, the Edinburgh Postnatal Depression Scale can be used to assist in screening for depression (Appendix 2).
- The midwife must take a global approach and include the woman's partner or any other person of significance to her in order to help make the pregnancy easier and plan the postnatal period..

### 8.1.2 Prenatal follow-up of women taking antidepressants

#### Treatment

- The evidence supports continuing the pharmacological treatment with SSRIs or NSRIs during the pregnancy and postnatal period.
- Seeking the opinion of an obstetrician specialized in high-risk pregnancies is recommended if the physician who is treating the mental illness recommends discontinuing the drug during the pregnancy.
- It is strongly advised to avoid the use of St. John's-wort because this natural product interacts with SSRIs and NSRIs [44].

#### Cardiac ultrasound

- The midwife must mention that the woman is taking SSRIs or NSRIs on the requisition for the morphology ultrasound to be performed at 18 to 20 weeks of amenorrhea.
- After discussion (informed decision; see section 6.4.1), a fetal cardiac ultrasound must be offered to parents between 20 and 24 weeks of amenorrhea, in accordance with the practices in place at the hospital centre to which the woman has been referred.

#### Consultation or transfer

- In the case of a woman taking an SSRI or an NSRI, the midwife must ensure that the woman has taken the suggested steps (including the medical consultation) and obtain the necessary documentation after the consultation (consultation report).
- If the woman is taking an antidepressant of a different class, the midwife must consult a physician in accordance with section 7 of Schedule II of the Regulation respecting cases requiring consultation with a physician or transfer of clinical responsibility to a physician and thus establish the woman's eligibility for follow-up at a birthing centre or a midwife's services (Appendix 3).
- The midwife must transfer clinical care to an obstetrician if the woman is taking more than one psychotropic drug (this includes all the drugs used to treat mental health problems).
- The midwife must consult the treating physician if she notices that the woman's psychological state is deteriorating or ensure that the woman reaches emergency psychiatric services if the situation becomes urgent.

#### Practices to promote

- In preparation for the postnatal period, the midwife must assist her client in implementing support strategies.

## 8.2 Intrapartum considerations

### 8.2.1 Place of birth

The literature does not indicate any increase in the newborns' need for neonatal resuscitation measures. The



discussion regarding place of birth must include the presentation of all three possible locations (home, birthing centre, hospital centre). The home remains a possible place of birth for women who are being treated with an SSRI or NSRI antidepressant.

The midwife must inform the parents of the recent evidence and discuss their needs to enable them to make an informed decision regarding the place of birth and postnatal monitoring of the newborn.

## 8.3 Postnatal considerations

### 8.3.1 The newborn (first 24 hours of life)

#### Risk of poor neonatal adaptation

- It is recommended to keep the newborn under observation for a minimum of 24 hours.
- An evaluation of the symptoms of poor neonatal adaptation (Table 2), as well as a measurement of vital signs and oxygen saturation, must be performed after one hour of life and every four hours thereafter. After one hour of life, oxygen saturation must be higher than 94% (see Appendix 4).
- In addition, it is recommended to calculate the Finnegan score (see Appendix 1) during every examination.
- This monitoring must be performed by a midwife or a team of midwives. Proper communication and monitoring follow-up mechanisms, including adequate documentation, must be implemented.
- A transfer is justified if the team of midwives cannot ensure follow-up for at least 24 hours or if the parents request it. The transfer can be organized within three to six hours of birth if the baby is asymptomatic.
- After the minimum observation period of 24 hours, babies can be discharged if their vital signs and oxygen saturation are stable, their physical examination is normal and they show no signs of poor neonatal adaptation.

#### Best practices

- Maternal breast-feeding, skin-to-skin contact, soft lighting and a calm environment are necessary to lessen and even prevent withdrawal symptoms in the newborn.

#### Consultation or transfer

- During her monitoring, if the midwife notices that the newborn's clinical examination results are abnormal or that the Finnegan score is 8 or higher, she must consult a physician or proceed with a transfer in accordance with Schedule V of the Regulation respecting cases requiring consultation *with a physician or transfer of clinical responsibility to a physician*.

### 8.3.2 The mother

#### Evaluation of the woman's well-being

- This evaluation is based on active listening and must apply to all women.
- In the event that a woman is at high risk or has specific symptoms, the Edinburgh Postnatal Depression Scale can be used to assist in screening for depression (Appendix 2).
- If the midwife notices a deterioration of the mother's condition, she must consult a physician or proceed with a transfer in accordance with Schedule V of the *Regulation respecting cases requiring consultation with a physician or transfer of clinical responsibility to a physician*.

#### Follow-up

- Given the increased risk of postnatal depression, the midwife must ensure that the woman is seen by her physician within six weeks postpartum if her client is continuing her pharmacological treatment.
- The midwife must also ensure that the woman has the support that she needs during the postnatal period.

# A Appendix 1- Finnegan score [35]

Signs		—:—	—:—	—:—	—:—	—:—
Central nervous system disturbances	<b>High-pitched cry or excessive crying</b> (25% to 50 % of the time)	2				
	<b>Excessively high-pitched cry or continuous crying</b> (> 50 % of the time)	3				
	<b>Sleep between feedings</b> < 3 hours (<75 % of the time)	1				
	< 2 hours (25% to 75 % of the time)	2				
	< 1 hours (>25 % of the time)	3				
	<b>Moro reflex:</b> hyperactive	2				
	Markedly hyperactive	3				
	<b>Tremors—disturbed:</b> mild	1				
	severe	2				
	<b>Tremors—undisturbed:</b> mild	3				
	severe	4				
<b>Increased muscle tone</b>	2					
<b>Excoriation on : _____</b>	1					
<b>Myoclonic jerks</b>	3					
<b>Generalized convulsions</b>	5					
Metabolic, vasomotor and respiratory disturbances	<b>Sweating</b>	1				
	<b>Temperature:</b> between 38,0°C and 38,3°C	1				
	> 38,3 °C	2				
	<b>Frequent yawning</b> (3 or 4 yawns in a row)	1				
	<b>Mottling</b>	1				
	<b>Nasal stuffiness</b> (sniffles)	1				
	<b>Sneezing</b> (> 3 or 4 sneezes in a row)	1				
	<b>Nasal flaring</b>	2				
Gastrointestinal disturbances	<b>Respiratory rate:</b> > 60/min	1				
	> 60/min + retraction	2				
	<b>Excessive sucking</b>	1				
	<b>Poor feeding</b>	2				
	<b>Regurgitation</b>	2				
	<b>Projectile vomiting</b>	3				
	<b>Stools:</b> Loose	2				
Watery (diarrhea)	3					
<b>Total</b>						
Midwife's initials						

\* The underlined elements are transfer or consultation criteria.



# A Appendix 2—Edinburgh Postnatal Depression Scale (EPDS)

Select the answer that best represents your feelings in the past seven days.

1. I have been able to laugh and see the funny side of things.

- As much as I always could
- Not quite so much now
- Definitely not so much now
- Not at all

2. I have looked forward with enjoyment to things.

- As much as I ever did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

3. I have blamed myself unnecessarily when things went wrong.

- No, never
- Not very often
- Yes, some of the time
- Yes, most of the time

4. I have been anxious or worried for no good reason.

- No, not at all
- Hardly ever
- Yes, sometimes
- Yes, very often

5. I have felt scared or panicky for no very good reason.\*

- Yes, quite a lot
- Yes, sometimes
- No, not much
- No, not at all

6. Things have been getting on top of me.\*

- Yes, most of the time I haven't been able to cope at all.
- Yes, sometimes I haven't been coping as well as usual.
- No, most of the time I have coped quite well.
- No, I have been coping as well as ever.



**7. I have been so unhappy that I have had difficulty sleeping.\***

- Yes, most of the time
- Yes, sometimes
- Not very often
- No, not at all

**8. I have felt sad or miserable.**

- No, not at all
- Not very often
- Yes, quite often
- Yes, most of the time

**9. I have been so unhappy that I have been crying.\***

- Yes, most of the time
- Yes, quite often
- Only occasionally
- No, never

**10. The thought of harming myself has occurred to me.\***

- Yes, quite often
- Sometimes
- Hardly ever
- Never

**Instructions for midwives**

1. Ask the mother to select the answer that comes closest to how she has been feeling in the past seven days.
2. You must obtain answers for all ten statements.
3. The mother should not discuss the statements or answers with others before she has finished filling out the questionnaire.
4. If the mother has difficulty reading, the midwife can have her respond to the questionnaire orally..

The Edinburgh Postnatal Depression Scale (EPDS) was developed in the Livingston and Edinburgh health centres. It is made up of ten short statements. The mother chooses which of the four possible answers is the closest to way that she has felt during the past week. Most mothers fill out the questionnaire without any difficulty in less than five minutes. The validation study revealed that a score above the threshold was a possible indication of depression. All the same, the EPDS score should not pass before clinical judgement. A more thorough clinical evaluation should be performed to confirm the diagnosis. The EPDS indicates how the mother felt during the previous week. In case of doubt, it may be useful to have the mother fill out the questionnaire again one or two weeks later. It will not detect mothers suffering from anxiety neuroses, phobias or personality disorders.



## Interpretation of results

Each answer is associated with a score of 0 to 3, based on the importance of the statements. For the statements without asterisks (\*) (1, 2, 3, 4 and 8), the scores associated with the answers increase (i.e. 0, 1, 2, 3), while for the statements with asterisks (5, 6, 7, 9 and 10), they decrease (i.e. 3, 2, 1, 0).

The total is calculated by adding up the results for all ten statements. A woman who obtains a score of 10 or higher should be referred to a physician for a more thorough evaluation. A score of 13 or higher could indicate a major depression. Any positive answer to statement 10 requires a more thorough clinical evaluation. A few women with scores lower than 10 may also suffer from depression and/or benefit from support.

**Free adaptation of** the Québec version, taken from Des Rivières-Pigeon, Séguin, Brodeur, Perreault, Boyer, Colin and Goulet. L'échelle de dépression postnatale d'Édimbourg : validité au Québec auprès de femmes de statut socio-économique faible. *Canadian Journal of Community Mental Health*, 2000.19(1): p. 201-14 [45]. This Québec version is based on the original English version: Cox, Holden and Sagovsky. Detection of postnatal depression: development of the 10 item EPDS. *British Journal of Psychiatry*, 1987. 150: p. 782-6.

## A Appendix 3–Midwives Act

The *Midwives Act* (C.Q.L.R. c. S 0.1) provides a *Regulation respecting cases requiring consultation with a physician or transfer of clinical responsibility to a physician* (s. 5, 1st par., subpar. 3). The elements pertaining to the matter of selective serotonin reuptake inhibitors (SSRIs) and norepinephrine-serotonin reuptake inhibitors (NSRIs) during the perinatal period are listed below.

### SCHEDULE II (ss. 1 and 5)–CLASSIFICATION: PRESENT PREGNANCY

#### Cases for mandatory consultation

- risks related to a pathology that could influence the course of the present pregnancy, for example: endocrine, hepatic, neurologic, psychiatric, heart, pulmonary or renal pathologies
- the mother’s use of medication, drugs or alcohol having a potential impact on the fetus or newborn

### SCHEDULE IV (ss. 1 and 5)–CLASSIFICATION: POSTPARTUM (MATERNAL)

#### Cases for mandatory consultation

- serious psychological problems

#### Cases for mandatory transfer

- postpartum psychosis

### SCHEDULE V (ss. 1 and 5)–CLASSIFICATION: NEWBORN

#### Cases for mandatory consultation

- abnormal pigmentation
- abnormal crying
- absent or abnormal primitive reflexes after sequential evaluation
- abnormal neurological signs
- heart murmur
- persistent tachypnea at more than 60 respirations/minute
- failure to regain birth weight after 14 days of life, unresponsive to treatment
- irritability, hypertonia if more than 24 hours
- heart beat which is abnormal or irregular, less than 100 beats/min or more than 200 beats/min

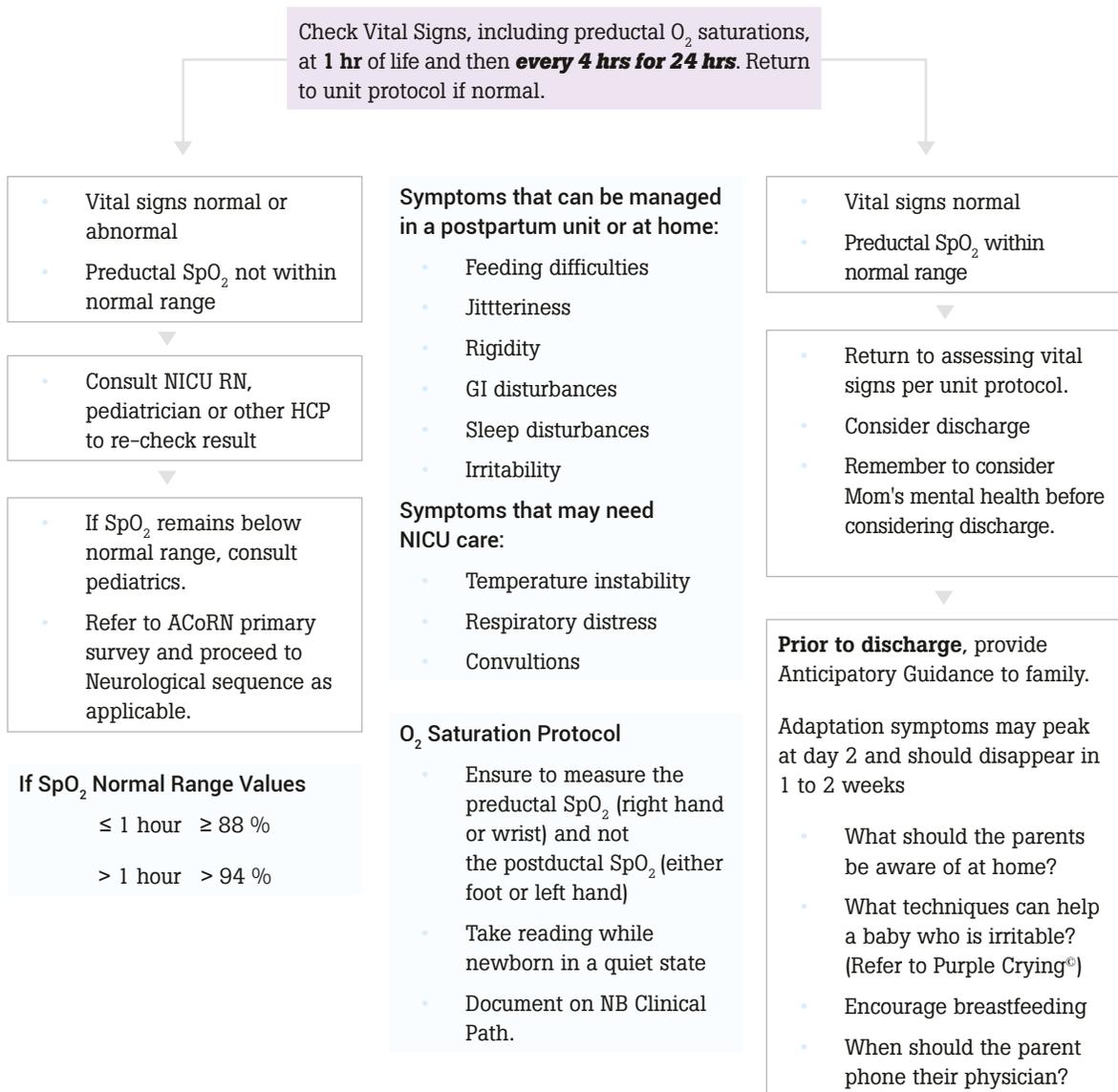
#### Cases for mandatory transfer

- hypothermia (36°C rectal or 35.5°C axillary) persisting beyond 2 hours of life or hyperthermia (38.5°C rectal or 38°C axillary) persisting beyond 12 hours of life
- respiratory distress or apnoea
- APGAR: less than 7 at 5 minutes / less than 9 at 10 minutes
- central cyanosis
- newborn having required endotracheal intubation or positive pressure ventilation beyond the second minute of life
- jitteriness or convulsions
- lethargy or hypotonia
- signs of withdrawal
- vomiting bile or diarrhea

Midwives must fill out the medical consultation form (AH 226 DT), and physicians must respond in writing.

# A Appendix 4–Algorithm for newborns exposed to SSRIs/NSRIs (BC Perinatal Services) [6]

## Appendix A Newborns Exposed to SSRI / SNRIs during Pregnancy Algorithm



Key			
ACoRN	Acurate Care of at-Risk Newborns	NICU	Neonatal Intensive Care Unit
HCP	Healt Care Provider	SpO2	Oxygen Saturation
NB	New born	≤ less than or equal to	> greater than

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