



**Pregnancy-Related Issues  
in the  
Management of Addictions**

**A Reference for  
Care Providers**

**[www.addictionpregnancy.ca](http://www.addictionpregnancy.ca)**

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**NOTE: This reference strives to provide accurate and up-to-date information for medical professionals and does not include routine prenatal care manoeuvres. Care has been taken to ensure the accuracy and completeness of this reference. However, the editors and publishers are not responsible for typographical errors or new information published after September 2007. The user of this reference assumes complete responsibility in applying any management strategies documented in this resource.**

**Please exercise your own clinical judgment when implementing any management strategies found here. It is advisable to confirm details, such as medication dosages or laboratory normal values, with other sources.**

The PRIMA project is based in Canada. We make no claims that the content is appropriate outside of Canada.

Please consult our website <http://www.addictionpregnancy.ca> for additional information, references and editorial information. Contact Dr. Deana Midmer for further information on the project ([deana.midmer@utoronto.ca](mailto:deana.midmer@utoronto.ca)).

**Citation for third edition:**

Ordean A, Midmer D, Graves L, Payne S, Hunt G, and the PRIMA Group\*. PRIMA (Pregnancy-Related Issues in the Management of Addictions): A Reference for Care Providers. Toronto (Canada): Department of Family & Community Medicine, University of Toronto, 2008.

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***This publication was made possible through grants from the Lawson Foundation and Health Canada.***

***Aussi disponible en français.***

## Table of Contents

### Section I – General Standards of Care

■ Initial Encounter .....	1
■ Management of Medical Emergency ....	6
■ Approach to Care .....	8
■ Follow-up Visits .....	10
■ Infectious Disease .....	12
■ Drug Toxicology Testing .....	16

### Section II – Specific Substances

■ Alcohol .....	19
■ Nicotine .....	22
■ Marijuana .....	24
■ Opiates .....	25

■ Benzodiazepines .....	29
■ Stimulants .....	31
■ Inhalants .....	33
■ Hallucinogens and Designer Drugs ....	34

### Section III – Labour and Delivery and Postpartum Care Issues

■ Pain Management in Labour and Delivery .....	35
■ Postpartum Care .....	37
■ Breastfeeding .....	38

### Section IV – National Resources .....

## The Importance of Initial Encounter

*The initial encounter is crucial in engaging a woman into care; the chief goal is to establish rapport. Ask her what she needs and respect her answers. This may be as simple as offering something to eat or providing reassurance that you will take care of her and her baby. Respect a woman's autonomy without argument or judgement.*

*By providing non-judgemental care, you will support a woman's self-determination. Recognize that "disruptive" behaviour may be a reaction to past negative experiences with the health care system.*

*Caring for pregnant women with problematic substance use may be challenging. Being less "intrusive" on the first visit may actually ensure that she comes back for subsequent visits, ultimately optimizing prenatal care.*

## Initial Encounter

**Establishing rapport** is the single most important aspect of the initial encounter.

- Several visits may be required to complete all sections of the assessment
- Complete sections as indicated by the presentation and circumstances of the woman
- Address the woman's needs and withdrawal symptoms before moving on to next sections
- Address the woman in a culturally-appropriate, non-judgemental manner
- Offer help as needed or wanted
- Refrain from trying to "cure" the woman

## Screening and Assessment

### History\*

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Medical	<ul style="list-style-type: none"><li>• Chronic and acute medical concerns</li><li>• Medications, allergies</li><li>• Gynecological and obstetrical history (GTPAL, last menstrual period)</li><li>• HIV, Hepatitis A, B, C (HAV, HBV, HCV), sexually transmitted diseases (STDs)</li><li>• Family history of substance dependence and psychiatric conditions</li><li>• Psychiatric history (diagnosis, previous treatment, abuse history, eating disorders)</li><li>• Previous emergency visits, hospitalizations</li></ul>
Drug Use	<ul style="list-style-type: none"><li>• How much alcohol do you drink? (See page 19 for T-ACE)</li><li>• Do you smoke? If yes, how many cigarettes per day?</li><li>• Have you ever used cocaine, marijuana or any other recreational drug? (Modify based on drugs used in your community)</li></ul>

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*Drug Use  
(Cont.)*

- What's your drug of choice? Route(s) of use?
- Have you ever used drugs by injection? (See page 12 for infectious disease concerns with injection drug use)

**Mood**

- How has your mood been during this pregnancy? (See page 37 for PPD)

**Woman and  
Child  
Safety**

A woman may not readily admit to violence. Disclosure is a voluntary act. If you have any suspicion about woman abuse, consider using the following questions:

- Have you been hit, kicked, punched or otherwise hurt by someone within the past year? If so, by whom?
- Do you feel safe in your current relationship?
- Is there a partner from a previous relationship who is making you feel unsafe now?

You may also wish to ask about relational aspects of a woman's substance use:

- Do you ever use alcohol or drugs in response to your partner's treatment of you?
- Do you ever use alcohol or drugs to help cope with fear?
- Do you ever feel pressured or manipulated by your partner to use alcohol or drugs?
- If you quit using, what would your partner do? Would you be supported?

Child safety: (See page 11 for child protection)

- Do you have any children living with you?
- Where is/are your child(ren) now?
- When you are using, who is usually with your child(ren)?
- Has anyone ever threatened or abused your child(ren)?

**\* Consider using the ALPHA (Antenatal Psychosocial Health Assessment) Form:**  
<http://dfcm19.med.utoronto.ca/research/alpha>

## Needs

- Ask to identify her most pressing needs: “Right now, how can I help you most?”

Health: How do you feel? Are you feeling pain anywhere? Do you feel sick in any way?  
Food: Are you hungry? Do you need something to eat and drink?  
Clothing: Do you have other clothes? Can I get you a change of clothes?  
Housing: Where are you staying? How long can you stay there? Who lives with you?  
Safety: Do you feel safe there?  
Family: What help do you have in this pregnancy? Any children? Others?  
Partner: Do you have a partner? What is your relationship like?  
Referrals: Do you want to talk with Social Work? Legal Aid? Public Health?

## Explore the Pregnancy: **Patient-centred Model (FIFE)**

Feelings: How do you feel about being pregnant?  
How do you feel about the new baby?  
Impressions/Ideas: How do you think you got to this place in your life?  
What are your ideas about where to go from here?  
Functioning: How does the pregnancy affect your everyday life?  
How will it affect your life later or after the birth?  
Expectations: How can I help?  
How can we work together?

The overlap of violence, mental health problems and problematic substance use in pregnancy (PSUP) must be recognized. As many as 2/3 of women with PSUP have concurrent mental health problems. In addition, many women with PSUP are victims of physical and sexual abuse either as children or adults. Establishing a therapeutic relationship and sensitive interviewing techniques are required before screening for these co-morbid conditions.

## Physical Exam

Ask for permission to examine her and explain what you are doing. Ensure safety, privacy, confidentiality.

- Vital signs, fetal heart rate
- Weight
- Abdominal exam: symphysis fundal height, hepatosplenomegaly
- Gynecological exam can be deferred until second visit unless at patient's request or if urgently needed
- Skin: needlemarks, cellulitis/abscesses, bruises/cuts/burns

## Investigations

- Bloodwork: Quantitative serum  $\beta$ -HCG, routine prenatal bloodwork, (hepatitis B, syphilis, rubella), hepatitis C antibody, liver enzymes (AST, ALT), HIV serology
- Urine: routine and microscopy (protein), culture and sensitivity
- Ultrasound: for dates (if uncertain) and morphology
- Consider utility of voluntary urine drug screening (UDS) (with consent) (See page 16)
  - Pro: Can help clarify an unclear drug history; necessary if considering methadone maintenance therapy
  - Con: If framed poorly, can create an adversarial relationship from the first meeting

## Intervention

- Deal with immediate needs and issues (See page 3)
- Treat intoxication and withdrawal promptly (See appropriate protocols with different substances)
  - Appropriate for hospital admission/medical withdrawal?
- Plan for follow-up soon after initial encounter
- Be honest and open about any child protection responsibilities (See page 11)
  - No legal requirement to report the unborn fetus to child protection agencies – consider earlier referral if children in her care
- Consider transfer of care to level II/III centre and experienced caregiver according to clinical needs
- If abstinence not achievable at present, focus on harm reduction

## When Interviewing Remember:

- Watch for non-verbal cues
- Be woman-centred
  - Explain alternatives and offer choices
  - Obtain consent for all procedures
  - Honour her decisions
- Appearance of belligerence or anger may signify:
  - Previous negative health care experience
  - Illiteracy/limited intellectual functioning
  - Intoxication/withdrawal/fear/pain
  - Vulnerability/abuse/mental health problems

## Management of Medical Emergency

### Physical Exam

#### ■ Pay attention to ABCs:

- Airway maintenance and C-spine control
- Breathing and ventilation
- Circulation (blood pressure, pulse, need for IV fluids?)

#### !! Focus on BP, pulse, level of consciousness, size and reactivity of pupils

#### ■ General Appearance:

- Hygiene
- Fatigue
- Weight
- Signs of overdose or withdrawal
- Needle marks, nasal septum erosions
- Mucous membranes
- Odours
- Signs of trauma, seizures

#### ■ Vital signs: temperature, blood pressure, pulse, respirations

#### ■ Neurological: size and dilation of pupils, mental status

#### ■ Abdomen: tenderness, rebound, guarding of abdomen, symphysis fundal height, fetal heart rate and pattern

#### ■ Pelvic: assess for bleeding; perform sterile speculum exam (if unknown placental location); examine cervix (if history of abdominal pain or contractions); assess for uterine tenderness

#### ■ Assess for contractions by palpation or with tocometer

## Investigations

- Urine drug screen with consent (consent not needed if emergency situation) (See pages 16 and 17 for urine drug screening)
- Prenatal bloodwork, hepatitis C antibody, HIV (obtain informed consent)
- Ultrasound (to rule out placental problems and to assess fetal well-being)

## Management

- Treat the intoxication
- Consider management of withdrawal
- Consider child protection concerns (no legal duty to report unborn infant; presence of other children in woman's custody may require earlier referral) (See page 11)
- Ensure obstetrical follow-up (improved outcomes with prenatal care alone)
- Refer to shelter if social instability or domestic violence

## !! Indications for Inpatient Management

- Suicidal ideation
- Acute psychosis
- Alcohol withdrawal
- Opiate withdrawal
- Benzodiazepine withdrawal
- Desire to undergo detoxification

## Approach to Care

### Motivational Interviewing: Stage of Change

Stage	Readiness for Change	Strategies
<b>Precontemplation</b>	May or may not be aware of reasons for change May not be ready or interested	<ul style="list-style-type: none"> <li>• Declare openness to discuss substance use at any time</li> <li>• Provide pregnancy care within a harm-reduction framework</li> </ul>
<b>Contemplation</b>	Considering change	<ul style="list-style-type: none"> <li>• Discuss health risks, give information</li> <li>• Roll with resistance</li> </ul>
<b>Preparation</b>	Ready to plan change	<ul style="list-style-type: none"> <li>• Determine start date, validate reasons for change, complete decisional balance (see page 9)</li> <li>• Make concrete plans for change</li> </ul>
<b>Action</b>	Change is happening	<ul style="list-style-type: none"> <li>• Support efforts</li> <li>• Anticipate and normalize relapse</li> </ul>
<b>Maintenance</b>	Change has occurred	<ul style="list-style-type: none"> <li>• Show support and admiration</li> <li>• Help strategize how to handle relapses or slips</li> </ul>

## Decisional Balance

Work with the woman to complete each cell of the table. The woman discusses first the pros and cons of not changing followed by the pros and cons of changing.

Decisional Balance	Benefits/Pros	Costs/Cons
Current Behaviour (not changing)		
Changed Behaviour (changing)		

## Woman-Centred Childbirth Care

Concept	Overview	Strategy
Woman as Principal	She is the centre of the birth experience	<ul style="list-style-type: none"><li>• Encourage her to make decisions and support her choices</li><li>• Ensure that she has a control over her care</li></ul>
Family as Context	She defines “family”	<ul style="list-style-type: none"><li>• May be friends, relatives, parents, coworkers, neighbours, church group, self-help group, etc., or clinic staff</li><li>• Help her establish a support base for the future</li></ul>
Birth as a Process	Birth is part of her “life story”	<ul style="list-style-type: none"><li>• Not just a biomedical event</li><li>• Process does not end at delivery</li></ul>
Caregiver as Facilitator	Assist her birth process	<ul style="list-style-type: none"><li>• Make her birth as positive as possible</li><li>• Success at birth can increase her self-esteem and confidence</li></ul>

## Monitoring

Manoeuvre	Time, Frequency
Prenatal Visits	<ul style="list-style-type: none"> <li>• Weekly (if needed)</li> </ul>
Routine Prenatal Bloodwork	<ul style="list-style-type: none"> <li>• Baseline, repeat at discretion of clinician</li> </ul>
AST, ALT	<ul style="list-style-type: none"> <li>• Baseline, repeat at discretion of clinician</li> </ul>
HBV, HCV, HIV, VDRL, Mantoux	<ul style="list-style-type: none"> <li>• Baseline</li> <li>• Continue q 3 months if negative and at continued risk</li> </ul>
Pap smear Chlamydia, Gonorrhea	<ul style="list-style-type: none"> <li>• Baseline</li> <li>• Baseline, repeat in third trimester (if at continued risk)</li> <li>• Consider urine testing, if pelvic exam is problematic</li> </ul>
Ultrasound	<ul style="list-style-type: none"> <li>• Baseline for dates (if needed)</li> <li>• 18-20 weeks anatomic scan</li> <li>• As needed to monitor for interval growth</li> </ul>
Biophysical Profile (BPP) Non-stress Test (NST)	<ul style="list-style-type: none"> <li>• As indicated clinically for monitoring high-risk pregnancies</li> </ul>
Drug Toxicology Testing	<ul style="list-style-type: none"> <li>• Discuss rationale for testing and obtain informed consent (See pages 16-18 for drug toxicology testing)</li> </ul>

## Child Protection

- Anyone who has reasonable grounds to suspect that a child is or may be in need of protection must make the report directly to child protection services. **Inform women of your responsibility.**
- The definition of need for protection or at-risk varies by province and territory. Please contact your local authorities to clarify specific responsibilities regarding the definition of risk as it applies to substance-using parents.
- In Canada, a fetus is not recognized legally as a person for any reason, including child protection; however, **there is a legal obligation to report once the child is born.**
- **Do not call protective services prenatally without prior discussion and consent from the woman.**
- Encouraging women to self-report prenatally can increase self-efficacy, dignity and stability, while promoting open and informed decision-making by child protection authorities. If a patient chooses not to self-report, **speak to child protection services after the child is born and in the presence of the woman.**
- Consider earlier referral if woman has children in her care.

## Management of Substance Use

- Discuss and encourage substance abuse treatment for support and safety - many facilities will give expedited entry to pregnant women
- Discuss harm reduction and/or relapse prevention at every visit
- Educate about maternal and fetal effects
- Offer supervised urine drug screens, if acceptable to patient (reduces confusion or surprises around delivery and provides support for women around future child protection issues)
- Offer continued assistance with basic needs - food, housing, transportation, etc.

## Infectious Disease

<b>General screening</b>	<ul style="list-style-type: none"> <li>• Offer screening to all pregnant substance users at first visit</li> <li>• For high-risk women, repeat testing q 3 months and/or in third trimester</li> <li>• Screen for Hepatitis A Ab, Hepatitis Bs Ag and Ab, Hepatitis C Ab, HIV, VDRL</li> </ul>
<b>General Prevention</b>	<ul style="list-style-type: none"> <li>• Advise women about the risks of sharing needles and drug paraphernalia and the benefits of using needle exchanges</li> <li>• Advise women with multiple sexual partners about safer sex practices</li> <li>• Refer women for substance abuse treatment services</li> <li>• Refer women with opioid dependence for opioid replacement therapy</li> </ul>
<b>Hepatitis C</b>	
<b>Screening</b>	<ul style="list-style-type: none"> <li>• Hepatitis C antibody (HCV Ab) does not distinguish between acute, chronic or resolved infection</li> <li>• If HCV Ab positive, monitor AST and ALT at least once annually</li> <li>• If ALT normal, order HCV RNA to confirm active infection; If HCV RNA is negative, repeat at least once more to confirm spontaneous clearance of virus</li> <li>• For chronic Hepatitis C positive patients, recommend hepatitis A and B vaccines to prevent progression to cirrhosis with co-infection</li> </ul>
<b>Prevention of Vertical Transmission</b>	<ul style="list-style-type: none"> <li>• No known way to prevent vertical transmission</li> <li>• Limit use of fetal scalp clips and other manoeuvres that may place baby in contact with mother's blood in labour</li> </ul>
<b>Transmission</b>	<ul style="list-style-type: none"> <li>• Long-term sexual partners of carriers have a low risk of infection (1-4%)</li> <li>• Infection rate is ~3-5% for infants born to hepatitis C positive mothers, regardless of vaginal or caesarean delivery</li> </ul>
<b>Breastfeeding</b>	<ul style="list-style-type: none"> <li>• No evidence of transmission through breast milk - woman has choice to breastfeed</li> </ul>

(Cont.)

Treatment	<ul style="list-style-type: none"><li>• All patients with chronic HCV should be assessed to determine if may benefit from therapy; treatment is contraindicated during pregnancy</li><li>• Offer treatment after breastfeeding finished</li></ul>
Neonatal Testing	<ul style="list-style-type: none"><li>• HCV antibody transferred from mother to infant can last up to 18 months and does not indicate neonatal infection; if infection has occurred, RNA can be detected at 1-2 months of age</li><li>• Test for antibody in infant at 18 months, or RNA at 2 months</li></ul>

## Hepatitis B

Screening	<ul style="list-style-type: none"><li>• Screen all pregnant women routinely; check for both HBsAg (indicates infection) and anti-HBs (immunity)</li><li>• Repeat testing before delivery in women with continuing high-risk behaviours</li></ul>
Immunization	<ul style="list-style-type: none"><li>• Canadian Immunization Guide recommends offering Hepatitis B vaccine to all high risk women during pregnancy</li><li>• Immunize all susceptible pregnant women (HBsAg and anti-HBs negative) who are at increased risk (injection drug use, high risk sexual practices) with hepatitis B vaccine (0,1 and 6 months schedule preferred); an accelerated schedule is also approved (0,1 and &gt;2months)</li><li>• For alcohol-dependent and chronic liver disease patients (e.g., persons infected with hepatitis C), higher concentration vaccine and periodic monitoring of anti-HBs titres recommended; booster doses should be given followed by re-checking anti-HBs titre</li><li>• Refer to Canadian Immunization Guide, 7th edition, 2006 for further details (<a href="http://www.naci.gc.ca">www.naci.gc.ca</a>)</li></ul>

Prevention of Vertical Transmission	<p>If mother is Hepatitis B surface antigen (HBsAg) positive, treat newborn with:</p> <ul style="list-style-type: none"> <li>• Immunoglobulin + vaccine within 12 hours of birth</li> <li>• Booster vaccinations at 1 and 6 months</li> <li>• Test for hepatitis B one month after last vaccination</li> <li>• Order the following markers: HBsAg, HBeAg, anti-HBs, anti-Hbe</li> </ul>
<b>Hepatitis A</b>	
Immunization	<ul style="list-style-type: none"> <li>• Safety in pregnancy unknown ; Canadian Immunization Guide recommendation is to offer women immunization in pregnancy</li> <li>• Immunization recommended for injection drug users and hepatitis C positive women: drugs and paraphernalia may be contaminated with hepatitis A (via fecal-oral route)</li> </ul>
<b>HIV</b>	
Screening	<ul style="list-style-type: none"> <li>• Offer screening to all pregnant women</li> </ul>
Prevention of Vertical Transmission	<ul style="list-style-type: none"> <li>• HIV medicine is evolving quickly, please contact local ID expert about appropriate prophylactic antiretroviral therapy for HIV infected pregnant women to decrease perinatal transmission</li> </ul>
Antenatal Treatment	<ul style="list-style-type: none"> <li>• Management of HIV-positive pregnant woman is complex and should occur in centre that offers obstetrics, addiction and HIV treatment</li> <li>• Delay treatment until after first trimester to avoid teratogenic effects</li> </ul>
Intrapartum Treatment	<ul style="list-style-type: none"> <li>• HIV positive women who received no treatment or had inadequate suppression of viral load should receive prophylactic antiretroviral therapy prior to delivery and should be offered a C-Section to decrease risk of perinatal transmission</li> <li>• No evidence for elective C-section for HIV positive women who have received adequate multiple therapy with significant viral load reduction</li> <li>• Women who tested negative in the past or have unknown HIV status in pregnancy, but continue with high-risk behaviours (e.g., injection drug use, sharing needles, unprotected intercourse with high-risk partner) should be retested and offered perinatal prophylaxis</li> <li>• Refer to guideline in CMAJ 2003; 168(13): 1671-1674 and 1683-1688 (<a href="http://www.cmaj.ca">www.cmaj.ca</a>)</li> </ul>

Postpartum  
Treatment

- Neonate: offer antiretroviral treatment according to the protocol for perinatal prophylaxis
- Mother: resume combination antiretroviral therapy based on immunologic and virologic status
- Breastfeeding: contraindicated if HIV positive status
- See guideline in CMAJ 2003; 168(13): 1671-1674 ([www.cmaj.ca](http://www.cmaj.ca)) and contact local ID expert for advice about management

**Tuberculosis**

Screening

- Mantoux testing recommended for all patients who use injection drugs, are HIV positive, homeless or imprisoned within the last 12 months

INH Prophylaxis

- INH prophylaxis recommended if tuberculin positive on Mantoux screening with no evidence of active tuberculosis (Tb)
- Can wait until 2-3 months postpartum to treat latent tuberculosis due to increased risk of INH-induced hepatitis in pregnancy (INH not teratogenic)
- Breastfeeding should be encouraged (low concentrations in breast milk)
- For adults, order baseline liver enzymes (AST, ALT and bilirubin) and monitor ALT, AST for patients with a history of alcohol abuse, age  $\geq 35$  or pre-existing liver disease
- Monthly clinical monitoring is recommended
- INH should be given for 9 months at a dose of 300 mg daily
- Vitamin B<sub>6</sub> (pyridoxine) should be added during pregnancy (dose: 25 mg daily)
- Administer under direct observation if woman is highly unstable

## Drug Toxicology Testing

Except in life-threatening situations where informed consent is impossible, adults must give informed consent before they are tested for drugs.

**In cases of child protection concerns, neonatal toxicology testing may be performed without consent of the parent(s), if the person requesting this testing has a legislative right to make decisions for that child.**

### Urine Drug Screening (UDS)

- Immunoassay more sensitive: screens for classes of drugs and some specific drugs
- Chromatography more specific: detects specific drugs
- Confirmatory testing, using at least 2 methods of testing, is essential if there are legal or custody implications for results
- Also ensure clear chain of custody of specimen between woman providing sample and laboratory testing e.g., supervised sample collection
- Detection times depend on numerous factors including urine concentration, individual health status, drug metabolism and half-life; meant as a guide since some results may fall outside ranges

## Urine Drug Screening

Drug	Chromatography – Days Detected	Immunoassay – Days Detected
Opiates Codeine Morphine Meperidine Hydromorphone Hydrocodone Oxycodone	1-2	3-5 <ul style="list-style-type: none"> <li>• Does not differentiate between various opiates</li> <li>• Synthetic and semisynthetic opiates (oxycodone, meperidine, methadone) often missed</li> <li>• False positives: quinolone antibiotics, poppy seeds</li> <li>• Both codeine and morphine are detected with codeine use</li> </ul>
Benzodiazepines (Chronic Use)	Days-weeks, depending on half-life	20+ Clonazepam sometimes missed
Cannabis (Chronic Use)	n/a	20+
Cocaine	1-2 (parent drug)	3-5 (benzoylecgonine - cocaine metabolite)
Amphetamines e.g., methamphetamine, MDMA (ecstasy)	1-2	2-3 (Cross reacts with decongestants and antipsychotics)

## Hair and Meconium Testing

Hair and meconium testing are alternate biological markers for longitudinal exposure to alcohol and drugs. These tests are rarely used in clinical practice due to several limitations and are currently ordered for legal reasons. Both hair and meconium testing cannot pinpoint the specific time nor the exact amount and length of an individual's drug use.

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### Hair Testing

- Can be done with both maternal and newborn hair
- Newborn hair starts growing in third trimester of pregnancy indicating in utero exposure to substances
- Hair analysis can detect a broad range of drugs including opiates, cocaine, cannabis, benzodiazepines, barbiturates, amphetamines and other drugs

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### Meconium

- Represents newborn's first stool, blackish in colour
  - Starts forming in second trimester of pregnancy indicating in utero substance exposure
  - Testing can detect exposure to alcohol, opiates, cocaine, cannabis, barbiturates, amphetamines and others
-

## Alcohol

Safe Drinking Levels	<ul style="list-style-type: none"><li>No safe threshold for maternal alcohol intake: <b>Abstinence is recommended during pregnancy</b></li><li>Women can be reassured that adverse fetal effects have not been demonstrated with mild social drinking before realizing they were pregnant</li></ul>
Screening and Identification	<ul style="list-style-type: none"><li>Ask about number of standard drinks per day and per week 1 standard drink = 1 bottle beer, 5 oz wine, 1½ oz liquor</li><li>Ask about maximum consumption on any 1 day since pregnancy began</li><li>Order GGT and MCV if alcohol use suspected (sensitivity 50% for 4 or more drinks per day)</li></ul> <p><b>T-ACE screening questionnaire</b></p> <p><b>T</b> Tolerance: How many drinks does it take for you to feel an effect?</p> <p><b>A</b> Have people <b>A</b>nnoyed you by criticizing your drinking?</p> <p><b>C</b> Have you felt you ought to <b>C</b>ut down on your drinking?</p> <p><b>E</b> Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover? (<b>E</b>ye-opener)</p> <p><b>Scoring</b></p> <p><b>T:</b> 2 points if it takes more than 2 drinks to make her feel “high”</p> <p><b>A,C,E:</b> 1 point for each “yes”</p> <p>A total of 2 or more points indicates that the woman likely has an alcohol problem (requires further assessment for diagnosis)</p>
Symptoms and Signs of Withdrawal	<ul style="list-style-type: none"><li>Common in women drinking <b>6 or more drinks per day</b></li><li>Onset 8-12 hours after last drink, peaks 24-72 hours, may last 7 days</li><li>Tremor (postural, intention), ataxia, sweating are most reliable signs</li><li>Other signs: hypertension, tachycardia, gastrointestinal upset, anxiety</li><li>Complications: seizures (grand-mal, non-focal, brief), hallucinations, arrhythmias, delirium tremens</li></ul>

## Management of Withdrawal

- Admit to hospital
- Monitor hydration status and rule out electrolyte imbalance
- Monitor for non-reassuring fetal status
- Folic acid 5mg po od
- Thiamine 100 mg po od x 3 days
- If not in labour, treat with diazepam 20 mg po q 1-2 h until minimal tremor; ongoing treatment not usually needed

### During labour:

- Notify neonatology/pediatrics: benzodiazepines can cause “floppy baby syndrome”
- Use lorazepam 2-4 mg sl, po q 2-4 h prn

## Fetal Effects

### Fetal Alcohol Spectrum Disorder (FASD)

Includes Fetal Alcohol Syndrome and other alcohol-related birth defects and neurological disorders

**Prevalence of Fetal Alcohol Spectrum Disorder:** ~1 in 100 live births

**Prevalence of Fetal Alcohol Syndrome (FAS):** ~1 in 1000 live births (general population); 4-5% in heavy drinkers

### Features of FAS include:

- Growth restriction
- Characteristic facial anomalies, e.g., microcephaly, micrognathia, short palpebral fissure, flat philtrum
- Central nervous system abnormalities, developmental delays, brain malformations, intellectual impairment, behavioural problems

See guideline on diagnosing FASD in *CMAJ 2005; 172 (5 suppl.): S1-S21* ([www.cmaj.ca/](http://www.cmaj.ca/))

### Other complications of alcohol use during pregnancy:

- Spontaneous abortion
- Fetal demise

(Cont.)

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Neonatal Effects	<ul style="list-style-type: none"><li>• If mother intoxicated at time of delivery, assess neonate for withdrawal</li></ul>
Breastfeeding	<ul style="list-style-type: none"><li>• Alcohol enters breast milk and infants are exposed to a fraction of the alcohol ingested by the mother</li><li>• Potential adverse effects include: impaired motor development in child and decreased let-down reflex and suppressed lactation in mother</li><li>• <b>An acceptable level of alcohol in breast milk has not been established</b></li><li>• With moderate, occasional alcohol use: delay nursing for 1-2 hours per drink to minimize infant exposure; heavy alcohol consumption should be avoided while breastfeeding</li></ul>
Management of Alcohol Dependence	<ul style="list-style-type: none"><li>• Behavioural interventions recommended</li><li>• Pharmacotherapy can help to maintain abstinence e.g., anti-craving (naltrexone and acamprosate) and aversive (disulfiram) agents</li></ul>
Anti-alcohol Drugs	<ul style="list-style-type: none"><li>• Disulfiram: acetaldehyde dehydrogenase inhibitor; teratogenic, contraindicated in pregnancy</li><li>• Naltrexone: opioid receptor antagonist; safety not established in pregnancy; use only if behavioural treatment has failed and benefit outweighs risk</li><li>• Acamprosate: glutamate modulator; safety not established in pregnancy, use not recommended in pregnancy</li></ul>

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## Nicotine

Routes	<ul style="list-style-type: none"> <li>Smoking (inhaling); mucosal absorption (chewed); snorting (rare)</li> </ul>
Harmful Effects	<ul style="list-style-type: none"> <li>Fetal effects: first trimester - increased risk of spontaneous abortion, third trimester - increased risk of intrauterine growth restriction and prematurity</li> <li>Obstetrical complications: increased risk of placental abruption, placenta previa, premature rupture of membranes</li> <li>Neonatal effects: increased irritability and hypertonia in newborns - resolve with no treatment, 20% increase in perinatal mortality rate, doubled incidence of low birth weight (LBW) infants (&lt;2500 g), increased risk of sudden infant death syndrome (SIDS)</li> <li>Second-hand smoke effects: increased risk of SIDS, increased incidence of bronchitis, pneumonia, otitis media, asthma, allergies and behavioural difficulties</li> </ul>
Symptoms of Intoxication	<ul style="list-style-type: none"> <li>Mild euphoria (or feeling of well-being), increased arousal (increased heart rate, blood pressure), enhanced ability to concentrate, relaxation</li> <li>Decreased appetite, increased metabolic rate, lower body weight set point</li> </ul>
Symptoms of Overdose	<ul style="list-style-type: none"> <li>Nausea, salivation, abdominal pain, sweating, headache, dizziness</li> <li>Occurs with ingestion of nicotine</li> </ul>
Symptoms of Withdrawal	<ul style="list-style-type: none"> <li>Irritability, restlessness, anxiety, insomnia, fatigue, lack of concentration</li> <li>Symptoms are worse in first 3-4 days, may persist for a week or longer</li> <li>Cravings may persist for months or years</li> </ul>
Smoking Cessation Therapy	<ul style="list-style-type: none"> <li>Offer brief interventions (simple advice), group or individual counselling and self-help materials before pharmacotherapy</li> <li>Less success quitting if partner smokes and increased risk of resumption after birth</li> <li>Encourage smoking reduction as an alternative to smoking cessation for those unable to quit</li> <li>Consider pharmacotherapy - weigh benefits and risks</li> </ul>

(Cont.)

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Pharmacotherapy	<ul style="list-style-type: none"><li>• Nicotine Replacement Therapy(NRT) (e.g., gum, lozenge, patch, inhaler) indicated for heavily nicotine-dependent women and women unable to quit with behavioural intervention</li><li>• NRT safer than smoking for pregnant woman and fetus because other toxins of cigarettes are eliminated</li><li>• Start with 21 mg nicotine patch if smoking &gt;10 cigarettes daily; patch can be taken off at bedtime</li><li>• Look at <a href="http://www.pregnets.com">www.pregnets.com</a> for more details on specific doses of different NRT products</li><li>• Bupropion (Zyban) not contraindicated during pregnancy, but further research is needed; only use if benefits outweigh risks - decreases cravings and moderates withdrawal symptoms</li><li>• Varenicline (Champix) not studied or indicated in pregnancy - decreases withdrawal and blocks benefits from nicotine exposure</li></ul>
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Breastfeeding	<ul style="list-style-type: none"><li>• Nicotine and its metabolite are detected in breast milk</li><li>• Heavy smoking may decrease quantity and quality of breast milk by one third</li><li>• Cigarette smoking should be minimized while breastfeeding</li><li>• Nicotine Replacement Therapy (NRT) poses no problems for breastfeeding infant</li><li>• Risks to baby of not breastfeeding greater than risks of breastfeeding and smoking</li></ul>
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Resources	Provincial Smoker's Helplines:	<ul style="list-style-type: none"><li>• MB 1-877-513-5333</li><li>• BC 1-877-455-2233</li><li>• SK 1-877-513-5333</li><li>• PEI 1-888-818-6300</li><li>• AB 1-866-332-2322 (or 1-866-33AADAC)</li><li>• NS 1-877-513-5333</li><li>• NFLD 1-800-363-5864</li><li>• NB 1-877-513-5333</li><li>• NNV 1-866-877-3845</li><li>• QC 1-866-527-7383</li><li>• YK 1-800-661-0408 (x8393)</li><li>• ON 1-877-513-5333</li><li>• NWT No line</li></ul>
	Motherisk Alcohol and Substance Use Helpline:	1-877-327-4636

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## Marijuana

Marijuana (leaves and tops of plants), Hashish (hard chunks or cubes of dried cannabis resin and compressed flowers), Hashish Oil (viscous extract from hashish)

Routes	<ul style="list-style-type: none"> <li>Smoking (inhaling), oral ingestion (cooked or baked in foods), rarely injected</li> </ul>
Safe Limits	<ul style="list-style-type: none"> <li>There is no known safe limit for use in pregnancy; studies on this topic have many confounders</li> </ul>
Harmful Effects	<ul style="list-style-type: none"> <li>Neonatal effects: no significant effect on birth parameters, no congenital anomalies</li> <li>Obstetrical complications: no consistent association with antenatal / intrapartum complications</li> <li>Possible neurobehavioural effects in neonate: increased tremors, exaggerated startles and sleep disturbances (decreased total quiet sleep at 1 month, which continued at 3 years of age)</li> <li>Long-term effects: increased hyperactivity, inattention, and impulsivity from school age (6 years) to adolescence; increased delinquency and externalizing problems</li> <li>Acute non-lymphoblastic leukemia associated with prenatal marijuana exposure (documented in one study)</li> </ul>
Symptoms of Intoxication	<ul style="list-style-type: none"> <li>Increased heart rate</li> <li>Impaired performance on psychomotor tasks and other forms of cognitive impairment</li> </ul>
Symptoms of Withdrawal with Chronic Daily Use	<ul style="list-style-type: none"> <li>Mild symptoms and signs: irritability, insomnia, anorexia - resolve within days</li> <li>Moderate symptoms and signs: anxiety, irritability - may continue for weeks</li> </ul>
Management of Withdrawal	<ul style="list-style-type: none"> <li>No specific therapy</li> </ul>
Management of Dependence	<ul style="list-style-type: none"> <li>Reduce amount used if unable to quit</li> </ul>
Breastfeeding	<ul style="list-style-type: none"> <li>Marijuana is transferred into breast milk and may cause lethargy, poor feeding, and neurobehavioural effects in infant; abstinence from marijuana recommended while breastfeeding</li> </ul>

## Opiates

Codeine, Morphine, Oxycodone, Hydromorphone, Hydrocodone, Meperidine, Methadone, Fentanyl, Heroin, Buprenorphine, LAAM

Routes	<ul style="list-style-type: none"><li>• Oral, intramuscular (IM), intravenous (IV), transdermal, smoking</li></ul>
Safe Limits	<ul style="list-style-type: none"><li>• Women taking moderate doses of prescribed opiates with no evidence of dependence should continue their medication</li><li>• May need to observe neonate for withdrawal even with therapeutic doses</li><li>• If tapering attempted, it should be considered only in second trimester, as theoretical risks higher in first and third trimesters (See below for complications of withdrawal)</li></ul>
Symptoms of Intoxication	<ul style="list-style-type: none"><li>• Euphoria, sense of inner peace, fatigue, confusion, drowsy, “nodding off”</li><li>• Pinpoint pupils, shallow breathing with decreased respiratory rate</li></ul>
Symptoms of Overdose	<ul style="list-style-type: none"><li>• Drowsy, slurred speech, ataxic, decreased respiratory rate</li></ul>
Treatment of Overdose	<ul style="list-style-type: none"><li>• <b>!! Medical EMERGENCY for mother and fetus</b></li><li>• ABCs: establish an airway and support adequate respirations</li><li>• Naloxone IV should be administered if spontaneous respirations do not recover - titrate against clinical signs</li><li>• Assess fetal status (method subject to gestation) and consult a specialist</li></ul>
Symptoms of Withdrawal	<ul style="list-style-type: none"><li>• Flu-like symptoms (“dope sick”): nausea, vomiting, diarrhea, sweating, myalgias, chills, rhinorrhea, runny eyes, piloerection</li><li>• Psychological symptoms: insomnia, anxiety, strong drug cravings, dysphoria</li><li>• Pregnancy-specific symptoms: abdominal cramping, uterine irritability</li></ul>

Complications Associated with Acute Withdrawal	<ul style="list-style-type: none"> <li>• Can cause uterine irritability leading to increased risk of spontaneous abortion, preterm labour, fetal hypoxia and fetal death</li> <li>• High risk of relapse to opioid use</li> </ul>
Maternal Withdrawal Management	<ul style="list-style-type: none"> <li>• Offer symptomatic therapy for nausea, vomiting, myalgias until symptoms resolve or until methadone becomes effective</li> <li>• Start methadone (see Initiation on page 27) or buprenorphine (see below)</li> <li>• Can use morphine 5-10 mg po q 4-6 h prn until methadone available</li> <li>• Clonidine: CONTRAINDICATED during pregnancy</li> <li>• NSAIDs: CONTRAINDICATED during third trimester</li> </ul>
Fetal Effects	<ul style="list-style-type: none"> <li>• Direct effect on fetal growth leading to intrauterine growth restriction and low birth weight</li> </ul>
Maternal Effects	<ul style="list-style-type: none"> <li>• Higher rates of obstetrical and medical complications (particularly with injection opiate use) such as HIV, hepatitis, STDs</li> </ul>
Management of Opioid Dependence in Pregnancy	<ul style="list-style-type: none"> <li>• Pregnant women who are physically and psychologically dependent on opioids, should be offered opioid replacement therapy (methadone or buprenorphine) – follow provincial guidelines for prescribing methadone or buprenorphine [the latter currently under development]</li> <li>• Rationale for use: benefits of opioid replacement therapy outweighs risks of untreated opioid dependence in pregnancy – decreased illicit opiate use and cravings, decreased withdrawal symptoms and signs, improved maternal health status and compliance with prenatal care, reduced fetal and neonatal complications</li> </ul>
Buprenorphine	<ul style="list-style-type: none"> <li>• Women who are maintained on buprenorphine (Subutex) prior to their pregnancy can remain on the same treatment during pregnancy; women do not need to switch to methadone</li> <li>• Women maintained on combined buprenorphine/naloxone (Suboxone) should be transferred to buprenorphine (Subutex) due to the unknown safety of naloxone in pregnancy</li> <li>• Data on safety of buprenorphine during pregnancy and breastfeeding is limited; however, preliminary studies have indicated decreased severity and duration of neonatal withdrawal</li> <li>• Randomized controlled trial of methadone versus buprenorphine is currently being conducted to determine the optimal treatment of opioid dependence in pregnancy</li> </ul>

Methadone Protocol

**Inpatient Initiation**

- Admit to hospital, expected length of stay ~ 5-7 days
- Advise patient to stop illicit opioid use
- Administer methadone 10-20mg po at onset of withdrawal symptoms, then doses of 5mg po q4-6h prn for ongoing withdrawal symptoms to a maximum of 35mg in 24 hours on day 1
- Next day, administer previous day's total dose as a single morning dose then 5mg po q6h prn to a maximum of 45mg in 24 hours on day 2
- Do not increase beyond 45mg on days 3-5
- Hold dose if drowsy and watch for symptoms of intoxication (See page 25)
- Discharge home when stable on one daily dose (i.e., dose lasts for ~24 hours and no further prn doses needed)

**Outpatient Initiation**

- Consider if inpatient treatment not available or patient not able to be admitted to hospital
- Follow same protocol as outlined in MMT guidelines for outpatient initiation

**Outpatient Follow-up (after initiation)**

- Increase dose by 5-10mg every 5-7 days if withdrawal symptoms or cravings continue
- Optimal dose does not cause sedation and lasts 24 hours without symptoms
- Rate of methadone metabolism increases in third trimester causing withdrawal symptoms, dose should be increased by 10-15mg and/or split into twice-daily dosing (in a 60:40 or 50:50 ratio) if withdrawal symptoms continue
- Use caution with doses >120 mg per day
- Consider consulting a physician with experience in caring for methadone-maintained pregnant women

Fetal Assessment in Pregnancy	<ul style="list-style-type: none"> <li>• Consider NST and/or BPP for assessment of fetal well-being</li> <li>• NST: methadone leads to decreased beat-to-beat variability, decreased fetal movements and suppresses fetal heart rate accelerations</li> <li>• BPP: suppressed fetal breathing with methadone use</li> </ul>
Labour and Delivery Issues	<ul style="list-style-type: none"> <li>• Continue with regular dose of methadone or buprenorphine during labour</li> <li>• Adequate analgesia required – may need larger and/or more frequent doses because of tolerance</li> <li>• If not on methadone: treat with morphine if presenting with withdrawal symptoms</li> </ul>
Postpartum Issues	<ul style="list-style-type: none"> <li>• Many need dose reduction of methadone or buprenorphine in first few days or weeks postpartum</li> <li>• Prescribe adequate analgesia; do not discharge with more than few days supply of opiates – use caution when prescribing codeine preparations to breastfeeding mother</li> <li>• Neonates should be observed for withdrawal for at least 4-5 days in hospital</li> <li>• Close follow-up of mother and infant recommended</li> </ul>
Breastfeeding	<ul style="list-style-type: none"> <li>• Methadone and buprenorphine enters breast milk, although only a small amount detected</li> <li>• Breastfeeding ad lib is safe regardless of dose</li> <li>• Women using illicit opioids should consider benefits vs. risks of breastfeeding</li> </ul>
Neonatal Withdrawal	<ul style="list-style-type: none"> <li>• Some babies of women using opiates will experience neonatal withdrawal</li> <li>• Symptoms include gastrointestinal (vomiting, watery stools), central nervous system (high-pitched crying, tremors, abnormal muscle tone), metabolic (poor weight gain), vasomotor and respiratory effects</li> <li>• Management of neonatal withdrawal depends on availability and comfort level of local health care facility and training level of staff (e.g., rooming-in, nursery or NICU admission)</li> <li>• Encourage maternal bonding and breastfeeding regardless of venue</li> <li>• Rooming-in, under care of supportive nursing staff, may help reduce prevalence and severity of neonatal withdrawal and promote bonding</li> <li>• If infant displays significant withdrawal symptoms, may require treatment with morphine and consultation with pediatrics</li> </ul>

## Benzodiazepines

Lorazepam (Ativan®), diazepam (Valium®, temazepam [Restoril®]), clonazepam (Rivotril®), oxazepam (Serax®), chlordiazepoxide (Librium®)

Route	<ul style="list-style-type: none"><li>• Oral</li></ul>
Safe Limits	<ul style="list-style-type: none"><li>• No safe limits established</li><li>• Women with psychiatric indication for benzodiazepine use may be maintained on therapeutic doses</li><li>• Consider taper to lowest possible dose</li></ul>
Symptoms of Intoxication and Overdose	<ul style="list-style-type: none"><li>• Drowsiness, slurred speech, ataxia, disinhibition</li><li>• Overdose:<ul style="list-style-type: none"><li>■ Coma and respiratory depression, especially if combined with alcohol, opiates, other sedatives</li><li>■ Treat symptomatically, manage airway</li></ul></li></ul> <p><b>!! DO NOT USE FLUMAZENIL IN PHYSICALLY DEPENDENT PATIENTS (CAN TRIGGER SEIZURES, ARRHYTHMIAS)</b></p>
Acute Adverse Effects	<ul style="list-style-type: none"><li>• Decreased respiratory drive</li><li>• Rebound insomnia after 3 weeks use</li></ul>
Complications of Chronic Use	<ul style="list-style-type: none"><li>• Depression</li><li>• Falls and confusion (more in elderly)</li></ul>
Withdrawal	<ul style="list-style-type: none"><li>• Risk of withdrawal after two months of daily use; even at therapeutic doses</li><li>• Onset 2-4 days after discontinuation, duration weeks or months</li><li>• Anxiety, panic attacks, insomnia, emotional lability</li><li>• Neurological symptoms: dysperceptions, depersonalization</li><li>• Seizures, psychosis, delirium can occur with abrupt cessation of doses equivalent to diazepam 50 mg per day or more</li></ul>

(Cont.)

Benzodiazepine Tapering Protocol	<p><b>Patient using &gt;60-80 mg diazepam or equivalent per day:</b></p> <ul style="list-style-type: none"> <li>• Inpatient management preferred</li> <li>• Start at <math>\frac{2}{3}</math> - <math>\frac{3}{4}</math> of the diazepam equivalent dose</li> <li>• Taper by no more than 10% per day</li> <li>• Adjust dose and rate of taper according to symptoms</li> </ul>	<p><b>Patient using &lt;60 mg diazepam per day, not double-doctoring:</b></p> <ul style="list-style-type: none"> <li>• Slow outpatient taper</li> <li>• Taper by 5 mg diazepam equivalent q 1-2 weeks</li> <li>• Taper with benzo they are on or switch to clonazepam or diazepam (longer half-life)</li> <li>• Weekly or daily dispensing</li> <li>• Scheduled doses, supportive counselling</li> <li>• May need to slow taper near end</li> </ul>
Teratogenicity	<ul style="list-style-type: none"> <li>• Some but not all studies found a slight increase in risk of cleft lip and/or palate with first trimester benzodiazepine use; avoid if possible</li> <li>• Consider Level 2 ultrasound in second trimester to rule out facial anomalies</li> </ul>	
Obstetrical Complications	<ul style="list-style-type: none"> <li>• Sedates fetus (flat tracing, depressed fetal behaviour )</li> </ul>	
Management of Neonate	<ul style="list-style-type: none"> <li>• Heavy use during or just prior to labour can result in “floppy baby syndrome” (hypotonia, lethargy, respiratory problems, hypothermia and sucking difficulties)</li> <li>• Neonatal withdrawal reported: abnormal sleep patterns, tremors, hyperreflexia, irritability, hypertonia, diarrhea, vomiting, apnea and vigorous sucking</li> <li>• Treatment: observation and routine care</li> </ul>	
Breastfeeding	<ul style="list-style-type: none"> <li>• Chronic benzodiazepine use in nursing mothers has been reported to cause infant lethargy and weight loss; monitor closely</li> </ul>	

## Stimulants

Cocaine (blow, C, coke, snow), Crack - cocaine (rock, dime), Amphetamines, Ephedrine, Methamphetamine (ice, crystal-meth), MDA- methylendioxyamphetamine, MDMA- methyenedioxymethamphetamine (ecstasy), Methylphenidate (Ritalin®), Nicotine, Caffeine

Routes	<ul style="list-style-type: none"><li>• Oral (amphetamines, MDMA, methylphenidate, caffeine)</li><li>• Intranasal (cocaine, methylphenidate, amphetamines)</li><li>• Smoking (crack, nicotine)</li><li>• Intravenous (cocaine/crack, amphetamines, methylphenidate)</li></ul>
Psychoactive Effects	<ul style="list-style-type: none"><li>• First few uses: euphoria, sense of sensuality, power and energy</li><li>• Chronic use: brief sense of euphoria, followed by anxiety, agitation, paranoid thoughts</li></ul>
Acute Complications	<ul style="list-style-type: none"><li>• Hallucinations (especially tactile), delirium, seizures (typically grand-mal), intracerebral and subarachnoid hemorrhages, coma, hyperthermia, tachycardia, tachyarrhythmias, acute MI</li></ul>
Symptoms and Management of Withdrawal	<ul style="list-style-type: none"><li>• Primarily psychological</li><li>• Fatigue, nightmares, insomnia, increased appetite, psychomotor agitation or restriction and dysphoric mood</li><li>• Safe to stop abruptly, provide supportive care</li></ul>
Complications of Chronic Use	<ul style="list-style-type: none"><li>• Depression, suicide, violent behaviour</li><li>• Psychosis (paranoid delusions or hallucinations that may persist for months)</li><li>• Memory impairment, cortical damage</li><li>• Infections (Hepatitis B and C, HIV, cellulitis, endocarditis)</li><li>• Cardiovascular risks (myocardial infarction, coronary and aortic dissection, myocarditis, pericarditis, endocarditis)</li><li>• Infertility, galactorrhea, loss of libido</li><li>• Self-neglect, weight loss</li></ul>

Teratogenicity	<ul style="list-style-type: none"> <li>• Possible genitourinary tract abnormalities</li> </ul>
Pain Management	<ul style="list-style-type: none"> <li>• Use of stimulants can lower pain threshold - provide appropriate care</li> </ul>
Obstetrical Associations and Complications	<ul style="list-style-type: none"> <li>• Spontaneous abortion</li> <li>• Abruptio placenta</li> <li>• Premature rupture of membranes (PROM)</li> <li>• Preterm labour and delivery</li> </ul>
Fetal Complications	<ul style="list-style-type: none"> <li>• Fetal distress</li> <li>• Intrauterine growth restriction</li> <li>• Cerebral infarction in utero has been reported</li> <li>• Sudden intra-uterine fetal death (cocaine)</li> </ul>
Neonatal Complications	<ul style="list-style-type: none"> <li>• Increased risk of neonatal mortality</li> <li>• Low birth weight</li> <li>• If mother intoxicated at delivery, neonates may demonstrate changes in neurobehaviour such as irritability, tremulousness, muscular rigidity and gastrointestinal symptoms (vomiting, diarrhea)</li> </ul>
Management of Neonate	<ul style="list-style-type: none"> <li>• Comfort measures are generally sufficient</li> <li>• Routine newborn care</li> </ul>
Breastfeeding	<ul style="list-style-type: none"> <li>• Enters breast milk</li> <li>• Advise women not to breastfeed within 3 days of using (pump and discard milk)</li> </ul>
Long-term Effects on Child	<ul style="list-style-type: none"> <li>• Studies have found conflicting results</li> <li>• Language delays (expressive language and verbal comprehension) and behaviour problems may become evident at school age</li> </ul>

## Inhalants

Volatile solvents, such as gasoline, glue, aerosol paints

Route, Duration	<ul style="list-style-type: none"> <li>Inhaled</li> </ul>
Psychoactive Effects	<ul style="list-style-type: none"> <li>Similar to alcohol intoxication: disinhibition, euphoria</li> <li>Onset within minutes, duration several hours</li> </ul>
Acute Medical Complications	<ul style="list-style-type: none"> <li>Dysrhythmias related to catecholamine release</li> <li>Asphyxia, aspiration</li> <li>Acute encephalopathy</li> <li>Psychosis, delirium</li> <li>Aggression, trauma</li> </ul>
Symptoms of Withdrawal	<ul style="list-style-type: none"> <li>Similar to alcohol: tremor, anxiety</li> </ul>
Treatment of Withdrawal	<ul style="list-style-type: none"> <li>Clinical presentation similar to alcohol withdrawal</li> <li>Treatment with benzodiazepines may be warranted</li> </ul>
Chronic Complications:	<p>Neurological complications similar to alcohol, but more severe with earlier onset:</p> <ul style="list-style-type: none"> <li>Cerebellar degeneration</li> <li>Peripheral neuropathy</li> <li>Cognitive deficits</li> </ul> <p>Other complications:</p> <ul style="list-style-type: none"> <li>Hepatotoxicity</li> <li>Cardiomyopathy</li> </ul>
Fetal Effects	<ul style="list-style-type: none"> <li>Case reports and animal studies have found neurodevelopmental delay and facial abnormalities similar to Fetal Alcohol Spectrum Disorder</li> </ul>
Obstetrical Complications	<ul style="list-style-type: none"> <li>Spontaneous abortion, prematurity, low birth weight</li> </ul>
Breastfeeding	<ul style="list-style-type: none"> <li>Advise women not to breastfeed within several hours of using</li> </ul>

## Hallucinogens and Designer Drugs

Drug	Type	Acute Effects	Medical Complications	Chronic Effects	Fetal Effects
<b>Ketamine</b>	Dissociative anaesthetic	Sedation, delirium, hallucinations	Respiratory depression, dysrhythmias, seizures	Unknown	Possible neuro-developmental damage*
<b>Ecstasy</b>	Serotonergic effects	Feelings of warmth, empathy	Dehydration (common at "raves"), hyperthermia	? Long-term memory impairment	Possible cardiac, skeletal abnormalities
<b>Phencyclidine</b>	Dissociative anaesthetic	Delirium, delusions, hallucinations, sedation	Seizures, hyperpyrexia, hypertension, coma, rhabdomyolysis, violence	Memory impairment, depression	Possible neuro-developmental damage*
<b>Gamma Hydroxybutyrate (GHB)</b>	GABA effects (neuroinhibitory)	Sedation, disinhibition, delirium	Prolonged, severe withdrawal in daily users: tremor, psychosis, delirium, seizures	Coma, respiratory depression	Possible neuro-developmental damage*

\* Animal studies have found that intoxicating doses of NMDA antagonists and GABA-mimetic drugs cause apoptotic neuronal cell death in developing brains. These drugs include alcohol, ketamine, phencyclidine, benzodiazepines, barbiturates and anticonvulsants.

## Pain Management in Labour and Delivery

### **!! REMEMBER: HER PAIN IS REAL!**

Under-treatment of pain for those with dependence is more of a trigger than giving opiates. Ask and assess level of pain. Honour her choices.

### **Pain Management Options**

- Support by caregivers, family, friends, doulas (professional labour support)
- Comfort measures in labour (e.g., dim lights, back massage, change of position, walking, music, ice chips, showers, etc.)
- Opioid analgesia (fentanyl, meperidine, morphine) - variety of routes can be used
- Epidural anaesthesia usually works well for substance-dependent women and may be preferred
- **!! Mixed agonists-antagonists are CONTRAINDICATED for acute pain management of opiate-dependent patients e.g., nalbuphine (Nubain), pentazocine (Talwin), butorphanol (Stadol)**

### **In Labour**

- If on methadone or buprenorphine, maintain patient on regular dose
- If in withdrawal from opiates, treat appropriately (see pages 26-28)
- If analgesia required, use any option above and recognize that cross-tolerance to opiates may require increased dosing
- Many substance-using women have a lower pain threshold

- Fetal heart tones may have minimal variability with opiate, alcohol or sedative use; assess further for fetal compromise
- Consider consulting anaesthesia and pediatrics

### Postpartum

- Treat pain with ibuprofen and/or narcotics (e.g., acetaminophen & codeine, oxycodone, or hydromorphone – give a 3-5 day quantity); re-evaluate long-term use of analgesics
- Consider patient-controlled analgesia (PCA) or patient-controlled epidural anaesthesia (PCEA), if available, after a caesarean section

### Factors That May Affect Woman's Perception of Pain

#### Personal

- Past negative experience e.g., history of sexual abuse
- Occiput posterior (OP) labour
- Cultural perspective
- Fear
- Anxieties and apprehension
- Tolerance
- Partner issues

#### Hospital

- Lack of support
- Unwanted support
- Loss of control
- Hypervigilance
- Heightened vulnerability
- Lack of privacy

## Postpartum Care

### Schedule Frequent Postpartum Visits

Schedule extra visits to:

- Assess the woman and her substance use issues
- Determine if the basic needs of the woman are being met, e.g., food, safe place to stay, support
- Determine if the woman is being abused by her partner (pregnancy and postpartum are increased risk times for woman abuse)
- Assess the care the infant is receiving: hygiene, nutrition, comfort, etc.
- Assist the woman in contacting child protective services if she needs more support, or if child neglect or abuse suspected
- Discuss contraception needs
- Immunizations (See page 12 for Infectious disease section)

### Postpartum Mood and Anxiety Disorders

- Increased risk of postpartum depression (PPD) if the woman experienced depression during pregnancy, at another time in her life or after a previous pregnancy
- Monitor the woman to determine if she is developing a postpartum mood and anxiety disorder: appetite and sleep changes, depressed mood, panic attacks, thoughts of harming self or infant, increased calls about infant concerns, decreased coping skills, etc.
- Check throughout the first year; PPD can develop immediately or months after birth
- SSRIs linked to increased risk (1%) of persistent pulmonary hypertension of the newborn; some SSRIs associated with congenital malformations (see literature for updates)\* and self-limited neonatal adaptation syndrome e.g., jitteriness, respiratory distress, weak cry, seizures - benefit-risk decision should be made on individual case basis\*
- Use lowest dose of SSRI in pregnancy; consider starting an antidepressant immediately after birth if there is an increased risk of PPD
- Consider referral to a psychiatrist or PPD support group

### \*References

Wooltorton E. Persistent pulmonary hypertension of the newborn and maternal use of SSRIs. CMAJ 2006; 174(11): 1555-1556.

Einarson TR, Einarson A. Newer antidepressants in pregnancy and rates of major malformations: a meta-analysis of prospective comparative studies. Pharmacoeconomics & Drug Safety 2005; 14(12):823-7.

Louik C, Lin AE, et al. First - Trimester use of selective serotonin - reuptake inhibitors and the risk of birth defects. NEJM 2007; 356(26): 2675 - 2683.

## Breastfeeding

<b>Medical Issues</b>	<b>Safety</b>
Hepatitis B	<ul style="list-style-type: none"> <li>• Safe, no risk</li> </ul>
Hepatitis C	<ul style="list-style-type: none"> <li>• Safe, HCV RNA detected in breast milk</li> </ul>
HIV	<ul style="list-style-type: none"> <li>• Absolute CONTRAINDICATION</li> </ul>
<b>Substance Issues</b>	<b>Safety</b>
Active Heavy Alcohol or Drug Use	<ul style="list-style-type: none"> <li>• Relative CONTRAINDICATION to breastfeeding due to infant toxicity</li> <li>• Abstinence recommended while breastfeeding</li> </ul>
Occasional Moderate Alcohol or Drug Use	<ul style="list-style-type: none"> <li>• All agents are detected in breast milk</li> <li>• Abstinence recommended while breastfeeding</li> <li>• Alcohol may decrease let-down reflex and suppress lactation; delay nursing for 1-2 hours per drink to minimize infant exposure</li> <li>• Stimulants: advise women not to breastfeed within 3 days of using (pump and dump)</li> <li>• Marijuana: may cause lethargy and poor feeding in infants</li> </ul>
Methadone	<ul style="list-style-type: none"> <li>• Safe no risk</li> </ul>
Buprenorphine	<ul style="list-style-type: none"> <li>• Safe, limited data available</li> </ul>

Refer to individual substances for more detailed information

## National Resources

### Clinical Resources

Montreal	Herzl Family Practice Centre	514 340 8253
	Centre de recherche et aide aux narcomanes (CRAN) <a href="http://www.cran.qc.ca">www.cran.qc.ca</a>	514 527 6939
	Service d'appuie à la methadone (SAM) <a href="http://www.info-sam.qc.ca">www.info-sam.qc.ca</a>	514 284 3426 or 1 888 726 2343
Toronto	Toronto Centre for Substance Use in Pregnancy (T-CUP)	416 530 6860
Vancouver	Sheway Project	604 216 1681
	FIR Square Combined Care Unit	604 875 2229
	Perinatal Addiction Services, BCWH, Doctor on call 24 hours	604 875 2161(doctor)
Alberta	AADAC Opioid Dependency Program –assistance with methadone management	

### Medical Education

[www.addictionmedicine.ca](http://www.addictionmedicine.ca): educational resources on teaching about substance use disorders

[www.addictionpregnancy.ca](http://www.addictionpregnancy.ca): information on substance use in pregnancy

### Specialized Resources

[www.motherisk.org](http://www.motherisk.org): Alcohol and Substance Use During Pregnancy and Lactation Help Line

1 877 327 4636

[www.pregnets.ca](http://www.pregnets.ca): Smoking resources

[www.beststart.org](http://www.beststart.org): Resource centre supporting service providers

[www.sogc.org](http://www.sogc.org): Society of Obstetricians and Gynaecologists of Canada

[www.hcip-bc.org](http://www.hcip-bc.org): Healthy Choices in Pregnancy – FASD prevention

### Fetal Alcohol Spectrum Disorders

[www.ccsa.ca/fas/](http://www.ccsa.ca/fas/): Directory of fetal alcohol spectrum disorder (FASD) information and consultation service in Canada

Fetal alcohol spectrum disorder information service: Tollfree 1 800 559 4514

For further inquiries about the PRIMA group, please contact us at [prima.medicine@utoronto.ca](mailto:prima.medicine@utoronto.ca)