Methadone (and pregnancy care) For Women With Problematic Substance Use

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Regina Qu’Appelle Health Region
OBJECTIVES

For substance using women on methadone who are pregnant:

What changes during/because of pregnancy?

Use the opportunity

What are we doing about it?
Ostrich Protocol

What approach can we take?
Figure 1: Annual incidence of neonatal abstinence syndrome (NAS) Ontario, 1992–2011.
Few diseases can compete with addiction in their capacity to generate misinformation, misjudgment, or misunderstanding.

Lancet Editorial, 2012
Why Be A User?

• Life hurts
• Substances reduce pain/increase pleasure
• Rapid delivery to the brain (e.g. IV or inhaled) gives a more pleasurable effect
• Everyone else is using
Effects of Drugs on Dopamine Release

**Amphetamine**

![Graph showing the effects of Amphetamine on dopamine, DOPAC, and HVA in Accumbens.](image1)

**Cocaine**

![Graph showing the effects of Cocaine on dopamine, DOPAC, and HVA in Accumbens.](image2)

**Nicotine**

![Graph showing the effects of Nicotine on dopamine and DOPAC in Accumbens and Caudate.](image3)

**Morphine**

![Graph showing the effects of Morphine at different doses (0.5mg/kg, 1.0mg/kg, 2.5mg/kg, 10mg/kg) on dopamine, DOPAC, and HVA in Accumbens.](image4)

Di Chiara and Imperato, PNAS, 1988
Information about Problematic Substance Use in Pregnancy

Proportional Contribution toPremature Death

- Genetic predisposition: 30%
- Social circumstances: 15%
- Behavioral patterns: 40%
- Environmental exposure: 5%
- Health care: 10%

Figure 1. Determinants of Health and Their Contribution to Premature Death.
Adapted from McGinnis et al. 10

Steven A. Schroeder
Information about Problematic Substance Use in Pregnancy

Steven A. Schroeder
NEJM 2007

Figure 2. Numbers of U.S. Deaths from Behavioral Causes, 2000.
Some Relevant Information About Regina

Population and Public Health Services: Health Status Report

The Report provides information on the health of the population in the Regina Qu'Appelle Health Region. This provides not only a “benchmark” about where the health of the population stands, but also serves as a basis for future health planning in terms of recognizing diverse needs associated with demographic structure, health status, health behaviours and prevention measures, and determinants of health.
What are some of the markers of our problems
Care For Substance Using Women

Some Relevant Information About Regina

Selected Diseases

The people in the poorer neighbourhoods bear a huge burden of disease

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Care For Substance Using Women

Some Relevant Information About Regina

And reproductive casualty

Teen (15-19) Births**
Low Birth Weight (%)
Infant Mortality**
Care For Substance Using Women
Some Relevant Information About Regina

Physician Visits

It is not that poorer people don’t get care
They must be getting ineffective care
In summary, our study shows that, despite the availability of essential health care services at no out-of-pocket expense, family income and other socioeconomic factors are strongly associated with some adverse perinatal outcomes, including gestational diabetes, small-for-gestational-age live births and infant death. These findings highlight potential gaps in health information and in social support for socioeconomically vulnerable mothers and families in the year after birth.

KS Joseph et al. CMAJ 2007;177(6):583-90
HIV in Saskatchewan

- Provincial rates of new HIV infections:
  - steady increase in rates from 5.4 to 19.3 per 100,000 population
  - significantly different from Canadian rates which remained steady
  - more younger Aboriginal women are becoming infected
Medical Diseases in Pregnancy: HIV

Fig. 8 Saskatchewan HIV Cases by Selected Risk Factors, Saskatchewan 2000-2009
Medical Diseases in Pregnancy: **HIV**

### Risk Factors and Aboriginal Status

<table>
<thead>
<tr>
<th>Circumstance</th>
<th>Aboriginal</th>
<th>Non-aboriginal</th>
</tr>
</thead>
<tbody>
<tr>
<td>New HIV Infection Caused by IDU</td>
<td>53%</td>
<td>14%</td>
</tr>
<tr>
<td>Female Affected</td>
<td>45%</td>
<td>20%</td>
</tr>
</tbody>
</table>

CMAJ November 2006:175:1359
Regina Qu’Appelle Health Region Covered Population, 2006

Total RQHR Population: 243,767
Males: 118,992
Females: 124,775

Age Group

Population

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Regina Qu’Appelle Health Region Registered Indian Persons Covered Population, 2006

Total RQHR Population: 22,019
Males: 10,573
Females: 11,446
ABORIGINAL HEALTH

This both is and is not an aboriginal health issue.

Clearly substance use is not limited to First Nations people and First Nations people are not necessarily substance users.
ABORIGINAL HEALTH

BUT
it is a poverty, disadvantaged issue
and First Nations are
disproportionately disadvantaged

And
there are particular factors of
a post-colonial country, marginalization,
cultural fragility, decreased sense of self-worth etc.
Some Things We Can Do
Care that is Harm Reducing and Women Centered
Harm Reduction

Expecting a woman to stop using drugs and/or alcohol when she is not ready is unrealistic and can be harmful.

Sarah Payne in *With Child*, 2007
Some Things We Can Do

Best Practices
Some Things We Can Do: Best Practices
# Some Things We Can Do: Best Practices

<table>
<thead>
<tr>
<th>INTERVENTION</th>
<th>Poor Effect</th>
<th>Indeterminate/Insufficient</th>
<th>Good Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social skills</td>
<td></td>
<td></td>
<td>+18</td>
</tr>
<tr>
<td>Self-Control training</td>
<td></td>
<td></td>
<td>+17</td>
</tr>
<tr>
<td>Stress Management</td>
<td></td>
<td></td>
<td>+6</td>
</tr>
<tr>
<td>Accupuncture</td>
<td></td>
<td>+1</td>
<td></td>
</tr>
<tr>
<td>Psychotropic medication</td>
<td></td>
<td>--2</td>
<td></td>
</tr>
<tr>
<td>Aversion therapy</td>
<td></td>
<td>--2</td>
<td></td>
</tr>
<tr>
<td>Psychotherapy</td>
<td>--4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Lectures</td>
<td>--5</td>
<td></td>
<td>Holder et al.</td>
</tr>
</tbody>
</table>
Some Things We Can Do
A Philosophy Of Care
Some Things We Can Do

A Philosophy of Care for Problematic Substance Use in Pregnancy

Our goal is to provide the best care reasonably possible, including harm reduction.
Some Things We Can Do: Methadone

Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence (Review)  
Mattick RP, Breen C, Kimber J, Davoli M

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in The Cochrane Library 2007, Issue 3

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### Analysis 01.01. Comparison 01 Methadone maintenance treatment vs no methadone maintenance treatment, Outcome 01 Retention in treatment

**Review:** Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence  
**Comparison:** 01 Methadone maintenance treatment vs no methadone maintenance treatment  
**Outcome:** 01 Retention in treatment

<table>
<thead>
<tr>
<th>Study</th>
<th>Methadone MT ( n/N )</th>
<th>Control ( n/N )</th>
<th>Relative Risk (Random) ( 95% CI )</th>
<th>Weight (%)</th>
<th>Relative Risk (Random) ( 95% CI )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newman 1979</td>
<td>38/50</td>
<td>5/50</td>
<td></td>
<td>22.6</td>
<td>7.60 [ 3.26, 17.71 ]</td>
</tr>
<tr>
<td>Strain 1993a</td>
<td>44/84</td>
<td>17/81</td>
<td></td>
<td>35.2</td>
<td>2.50 [ 1.56, 3.99 ]</td>
</tr>
<tr>
<td>Varichseni 1991</td>
<td>91/120</td>
<td>41/120</td>
<td></td>
<td>42.2</td>
<td>2.22 [ 1.70, 2.90 ]</td>
</tr>
<tr>
<td><strong>Total (95% CI)</strong></td>
<td><strong>254</strong></td>
<td><strong>251</strong></td>
<td></td>
<td><strong>100.0</strong></td>
<td><strong>3.05 [ 1.75, 5.35 ]</strong></td>
</tr>
</tbody>
</table>

- Total events: 173 (Methadone MT), 63 (Control)  
  - Test for heterogeneity chi-square=8.01 df=2 p=0.02  
  - Test for overall effect z=3.91 p=0.000009

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**The Cochrane Library 2007, Issue 3**
A Model of Care For Substance Using Women In Regina
Some Things We Can Do: Methadone

Analysis 01.02. Comparison 01 Methadone maintenance treatment vs no methadone maintenance treatment, Outcome 02 Morphine positive urines

Review: Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence
Comparison: 01 Methadone maintenance treatment vs no methadone maintenance treatment
Outcome: 02 Morphine positive urines

<table>
<thead>
<tr>
<th>Study</th>
<th>MMT n/N</th>
<th>Control n/N</th>
<th>Risk Difference (Random)</th>
<th>Weight (%)</th>
<th>Risk Difference (Random)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanichseni 1991</td>
<td>70/120</td>
<td>109/120</td>
<td>0.32 [-0.43, -0.22]</td>
<td>66.5</td>
<td>-0.32 [-0.40, -0.23]</td>
</tr>
<tr>
<td>Yancowitz 1991</td>
<td>22/75</td>
<td>56/94</td>
<td>0.30 [-0.45, -0.16]</td>
<td>33.8</td>
<td>-0.30 [-0.45, -0.16]</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>195</td>
<td>214</td>
<td>-0.32 [-0.40, -0.23]</td>
<td>100.0</td>
<td>-0.32 [-0.40, -0.23]</td>
</tr>
</tbody>
</table>

Total events: 92 (MMT), 165 (Control)
Test for heterogeneity chi-square=0.06 df=1 p=0.80 I² = 0.0%
Test for overall effect z=7.48 p<0.000001

The Cochrane Library 2007, Issue 3

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Maternal and Fetal Benefits of Methadone Treatment

Reduces illegal opiate use as well as the use of other drugs, thus diminishing the risk of hepatitis, HIV/AIDS, and other sexually transmitted diseases
Helps to remove the opiate-dependent woman from the drug-seeking environment
May eliminate illegal behaviors, such as prostitution
Prevents fluctuation of the maternal drug level over the course of the day
Reduces maternal mortality and severe morbidity
Permits a more stable intrauterine environment for the fetus, with a decreased the risk of hypoxia
Leads to improvement in the mother's nutrition and infant birth weight
Maternal and Fetal Benefits of Methadone Treatment

Improves the woman's ability to participate in prenatal care and substance abuse treatment
Enhances the woman's ability to prepare for the birth of her infant and begin homemaking.
Stabilized mothers on methadone are more likely to retain custody of their children.
Children are more closely monitored when the mother is part of a rehabilitation program
Some Things We Can Do

Antepartum Care
Use the opportunity
   Infections
   Anemia
   Dental
   Life skills/ prepare for parenting

Establish dating         LMP “sometime”
   Cycle irregular

Follow fetal growth
   Use ultrasound images to “make it real”

Be the methadone prescriber
   Enhance compliance
   Make getting care easier
Problematic Substance Use in Pregnancy

- Medical detoxification
- Leave untreated
- Methadone programs

Pregnancy is an opportunity to bring women into obstetrical, medical and drug treatment.
Explain about methadone changes
The clearance increases
She is not more addicted, she is more pregnant
Involve the partner
Use split dosing
It may be necessary to take chances
Clinical Study

Evaluation of a Low-Threshold/High-Tolerance Methadone Maintenance Treatment Clinic in Saint John, New Brunswick, Canada: One Year Retention Rate and Illicit Drug Use

Timothy K. S. Christie,¹,² Alli Murugesan,¹,³ Dana Manzer,⁴ Michael V. O’Shaughnessey,⁵ and Duncan Webster⁶

95% retention  67% abstinent from illicit opioids

The one-year retention rate was 95%, 67% of the cohort achieved abstinence from illicit opioids and an additional 13% abstained from cocaine use. Conclusion. The novel feature of the LTHT MMT clinic is that patients are not denied methadone because of lack of ancillary services. Traditional comprehensive MMT programs invest the majority of financial resources in ancillary services that support the biopsychosocial model, whereas the LTHT approach utilizes a medical model and directs resources at medical management.
Figure 1. Plasma methadone concentration versus time for the subject.

Altered Methadone Pharmacokinetics in Pregnancy: Implications For Dosing
Table 2. Predicted Peak and Trough Plasma Methadone Values for Various Doses and Dosing Intervals

<table>
<thead>
<tr>
<th>Dose</th>
<th>30 mg QD</th>
<th>15 mg BID</th>
<th>45 mg QD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone (ng/ml)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak</td>
<td>76.5</td>
<td>52.1</td>
<td>115</td>
</tr>
<tr>
<td>Trough</td>
<td>9.9</td>
<td>18.8</td>
<td>14.8</td>
</tr>
</tbody>
</table>

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Manage the pregnancy issues
   Indomethacin for pain
   Nausea with and without the methadone
   Constipation

Partner issues and safety

Anticipate social services/custody
   I would hate to be a social worker
   Will the child be safe? How did she do as a pregnant woman

Contraception planning
   Give the prescription
Ultrasound Scans

Dating  Will often be unsure

Anatomy

Motivational - with feed back and pictures
Screen for MRSA
   If enough negatives then avoid isolation

Prenatal classes  Select carefully

Prepare for coming to the hospital
Some Things We Can Do

Care in Labour
PPO for methadone
Any one can continue it

Lots of non-judgmental support

Epidural analgesia

Point of care HIV testing
Some Things We Can Do: Pain Relief in Labour

Intrapartum and Postpartum Analgesia for Women Maintained on Methadone During Pregnancy

OBJECTIVE: To determine whether methadone maintenance alters intrapartum or postpartum pain or medication requirements.

Labor and delivery is a painful process. The treatment of acute pain during hospitalization has emerged as an important health care concern among both providers and patients.

Marjorie Meyer, MD, Katherine Wagner, MD, Anna Benvenuto, Dawn Plante, RN, and Diantha Howard, MS

VOL. 110, NO. 2, PART 1, AUGUST 2007 OBSTETRICS & GYNECOLOGY
Labour Hurts For Everyone

An Epidural Regional Anesthetic Works For Almost Everyone

An Epidural Does Not Use Systemic Narcotics so patients and staff feel better about that
CONCLUSION:  
Methadone-maintained women have similar analgesic needs and response during labor, but require 70% more opiate analgesic after cesarean delivery.

Meyer et al Analgesia for Methadone-Maintained Pregnancy
OBSTETRICS & GYNECOLOGY 2007
Some Things We Can Do

Care After Delivery
Caring After Delivery

It is a long-term commitment

Safe care and custody

Babies are: delightful

scary

stress causing

It takes a team

It takes preplanning

It takes changing the plans
Rooming-in compared with standard care for newborns of mothers using methadone or heroin

PARTICIPANTS We selected 32 women in the city of Vancouver known to have used heroin or methadone during pregnancy between October 2001 and December 2002. Comparison groups were a historical cohort of 38 women in Vancouver and a concurrent cohort of 36 women cared for in a neighbouring community hospital.

MAIN OUTCOME MEASURES Need for treatment with morphine, number of days of treatment with morphine, and whether babies were discharged in the custody of their mothers.
### Table 4 Infant outcomes by study cohort and adjusted relative risks

<table>
<thead>
<tr>
<th>OUTCOMES</th>
<th>BCWH ROOMING IN (N = 32 N (%))</th>
<th>BCWH HISTORICAL (NOT ROOMING IN) N = 38 N (%)</th>
<th>RELATIVE RISK (95% CONFIDENCE INTERVAL)</th>
<th>SURREY HOSPITAL (NOT ROOMING IN) N = 36 N (%)</th>
<th>RELATIVE RISK (95% CONFIDENCE INTERVAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated with morphine*</td>
<td>8 (25.0)</td>
<td>21 (55.3)</td>
<td>0.40 (0.20–0.78)</td>
<td>19 (52.8)</td>
<td>0.39 (0.20–0.75)</td>
</tr>
<tr>
<td>Admitted to an NICU</td>
<td>12 (37.5)</td>
<td>34 (89.5)</td>
<td>0.41 (0.20–0.78)</td>
<td>19 (52.8)</td>
<td>0.39 (0.20–0.75)</td>
</tr>
<tr>
<td>Discharged in custody of mother</td>
<td>23 (71.9)</td>
<td>12 (31.6)</td>
<td>2.23 (1.43–3.46)</td>
<td>17 (42.5)</td>
<td>1.52 (1.15–2.53)</td>
</tr>
</tbody>
</table>

- **Less Morphine**
- **Less NICU Admission – more for others**
- **MORE BABIES WITH THEIR MOTHERS**
Caring After Delivery

Detox

Addiction counselling

Tapering methadone

Treat Hepatitis C

   Immunize for Hepatitis A and B

Continue HIV medication

Contraception

   Depo Pro Vera

   Long acting forgettable
Provide Care that is Harm Reducing and Women Centered
“The secret of caring for the patient is caring for the patient”

Sir William Osler