

# Methadone in Pregnancy: A Review of Literature

Women's Health: Practice and Policy Series

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# Search Terms

- pregnan\* and heroin, methadone, and harm reduction, then additional terms related to specific questions, including:
  - Risks/Benefits
  - Setting (inpatient vs outpatient)
  - Take away doses
  - Screening
  - Use/interaction with other drugs
  - Dosing
  - Maintenance vs Tapering
  - Breastfeeding
  - Diverted methadone
  - Prescribing guidelines

# Risk/Benefit Analyses

- Key studies citing benefits:
  - Minimizes peaks and troughs in maternal serum opioid levels, minimising the harm the fetus encounters as a result of repeated intoxication and withdrawal (1)
  - Reduces heroin use, criminal activity, and days of hospitalization (2)
  - Prevents relapses, improves adherence to obstetrical care, enhances neonatal outcomes (3)
  - Pregnancy as a “window of opportunity” (4)
    - **Key review article:** Jones, H. E., Martin, P. R., Heil, S. H., Kaltenbach, K., Selby, P., Coyle, M. G., et al. (2008). Treatment of opioid-dependent pregnant women: Clinical and research issues. *Journal of Substance Abuse Treatment*.

(1) Berghella, & Finnegan, 1998; (2) cited Gerstein, 1992, Binder & Vavrinkova, 2008; (3) Burns, Mattick, Lim, & Wallace, 2007) (4) Daley, Argeriou, & McCarty, 1998)

# Risk/Benefit Analyses

- Key studies citing risks:
  - More prolonged withdrawal (1)
  - Alteration of fetal activity and heart rate (2)
  - Higher incidence of prematurity, IUGR, microcephaly (3)
  - Substance use associated with increased risks for antepartum haemorrhage and poor perinatal outcomes
- Risk/Benefit conclusions: (H. E. Jones et al., 2008)
  - “benefits that methadone provides within a comprehensive care setting to this patient population far outweigh the potential risks of treatment.” (4)

(1) Wilson Desmond and Wait, 1981; (2) Jansson, Dipietro, & Elko, 2005 and others; (3) Kennare, Heard, & Chan, 2005; (4) J. J. McCarthy, Leamon, Stenson, & Biles, 2008

# Setting

- Outpatient studies stressed the importance of comprehensive and coordinated care
  - “MMT by itself is insufficient to deal with all the issues that confront a pregnant heroin addict. The patient must be referred to a comprehensive program that includes prenatal and medical care, nutritional counselling, and attention to resolving the many medical, personal and social problems that the patient presents.” (1)
- Inpatient studies
  - Benefits of rooming in for NAS treatment (2)
  - No consensus on inpatient vs outpatient but there is consensus that treatment should be single-gender, comprehensive (medical care, life skills training, trauma treatment)
  - The accumulation of risk factors is more important than one single risk factor (3)

(1) Joseph, Stancliff, & Langrod, 2000; (2) Abrahams et al., 2007; (3) H. E. Jones, Johnson, & Milio, 2006

# Take away Doses

- Methadone carries associated with longer retention in MMT which leads to better fetal outcomes <sup>(1)</sup>
- Split dosing recommended in pregnancy because of hypermetabolism and increased volume of distribution
- However, split dosing challenging if carry doses are not allowed as it requires 2 clinic visits per day <sup>(2)</sup>

(1) Burns et al., 2007; (2) Adinoff, 2008

# Screening

- Multiple studies stressed the importance of urine testing or meconium testing (e.g. K. Johnson, Gerada, & Greenough, 2003; Bell & Harvey-Dodds, 2008; G. Fischer et al., 1999)
- Conversely: “positive urine tests for opiates must always be interpreted with caution as some non-prescription analgesic or anti-diarrhoeal preparations can produce positive results.” (Sherwood, Keating, Kavvadia, Greenough, & Peters, 1999)
- There is significant other literature on screening and self report of substance use in pregnancy, not specific to methadone (Parkes, Poole, Salmon, Greaves, & Urquhart, September 2008)

# Interactions with Other Drugs

- Tobacco - in almost every study, the negative effects of smoking are highlighted (infant morbidity and mortality, increased NAS) <sup>(1)</sup>
- Benzodiazapines – Risk for overdose when high doses of benzodiazepines are combined with opioids <sup>(2)</sup>

(1) Winklbaaur, Jung, & Fischer, 2008; (2) (H. E. Jones et al., 2008)

# Dosing

- Arbitrarily limiting methadone dose is unwarranted as high doses of methadone are not associated with increased risks of neonatal abstinence symptoms (1)
- Maintenance vs. Tapering
  - Medication-assisted withdrawal can be conducted during any pregnancy trimester without significant obstetrical or fetal consequences
  - As a group, medication-free patients had poorer maternal outcomes than did MMT
  - Poorer maternal outcomes may place the mother-child dyad at risk for long-term negative consequences. “Thus, methadone maintenance should be strongly considered as the primary treatment approach for opioid-dependent pregnant women” (2)

# Breastfeeding

- Amount of methadone in breast milk is very small
- Benefits of breastfeeding outweigh the risks
- MMT not a contraindication to breastfeeding
- Caveat: We do not know the effects of long term exposure to small amounts of methadone on infant's developing brain
  - **Key review article:** Jansson, L. M., Velez, M., & Harrow, C. (2004). Methadone maintenance and lactation: a review of the literature and current management guidelines. *Journal of Human Lactation*, 20(1), 62-71.

# Other Issues

- Diverted methadone
- Child custody as a motivator/barrier to care
- Contingency awards and enhanced treatment
- Including partners in treatment
- Heroin-assisted treatment

# Opioid Prescribing Guidelines

- Center for Substance Abuse Treatment. (2005). *Medication-assisted treatment for opioid addiction in opioid treatment programs*. (Treatment improvement protocol series 43). Rockville, MD: U.S. Department of Health and Human Services
- *National Clinical Guidelines for the Management of Drug Use during Pregnancy, Birth and the Early Development Years of the Newborn*. (2006). NSW. Department of Health. North Sydney: Australia
- Martin, G., B. Brands, et al., Eds. (2003). *Methadone Maintenance: A Counsellor's Guide to Treatment*. Toronto, ON, Centre for Addiction and Mental Health.
- Brands, B., J. Brands, et al., Eds. (2008). *Methadone Maintenance: A Physician's Guide to Treatment*. Toronto, ON, Centre for Addiction and Mental Health.