BREASTFEEDING AND THE SUBSTANCE EXPOSED DYAD

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GRIFFIN SYMPOSIUM
U Mass
Disclosure
Dr. Jansson receives medication (buprenorphine) from the manufacturer (Reckitt-Benckiser) for current study related purposes.

Acknowledgement
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The incidence of, and costs associated with NAS are increasing nationally

- Mean hospital charges for NAS have increased from $39,400 in 2000 to $53,400 in 2009 (p for trend <.001)
- Medicaid was the primary payor (68.7% of charges in 2000 to 77.6% in 2009)
- The LOS remained unchanged in this time (~16 days; p for trend =.06)

*From Patrick et al., Neonatal abstinence syndrome and associated health care expenditures US, 2000-2009; JAMA 2012*
We must find ways to mitigate the severity of NAS expression in substance exposed infants

- Improved treatment for opioid dependent women
  - Identification
  - Treatment
  - Pharmacotherapy

- Improved treatment for opioid exposed infants
  - Identification
  - Pharmacotherapy for NAS
  - Follow-up

- Breastfeeding

- Non-pharmacologic care
Lactation and the substance exposed dyad

- Substance-exposed infants and their mothers are particularly likely to benefit from breast milk and breastfeeding:
  - Health benefits for mothers/infants (i.e. decreased infections, improved maternal regulation)
  - Developmental benefit for infants
  - Enhanced maternal-infant attachment/communication
  - May reinforce maternal abstinence in some women
  - May reinforce self-concept as a caregiver
  - Convenience/financial benefit
  - Calming hormones release during lactation may decrease stress
  - Reduced incidence and/or severity of NAS (McQueen, 2012)

- Yet, breastfeeding rates are generally low (24-46%) in this population...
The substance exposed dyad: challenges to lactation

**Infants**
- NAS and other neurobehavioral effects of exposures:
- Poor state control
- Disorganized movements
- Irritability
- Hypertonicity
- Feeding problems

**Mothers**
- Guilt
- Victimization/abuse
- Conflicting advice
- Lack of self-confidence
- Lack of role models
- Low tolerance for setbacks & discomfort
- Logistical concerns

**Providers**
- Lack of clear guidelines
- Stigma
- Lack of skills to facilitate lactation in a mother/infant dyad with special needs
The substance exposed infant: considerations

- NAS and neurobehavioral alterations related to substance exposures
  - Difficulty in positioning on the breast
  - Maternal guilt/anxiety related to NAS display can potentiate the NAS display
  - Poor ability to transmit interpretable cues

When lactation is recommended a consultant experienced with NAS and features of neurobehavioral dysregulation related to in utero drug exposure is important.
The mother: considerations

- Substances in breast milk
- Secondary exposures, adulterants
- Maternal psychopathology
- Maternal brain changes related to addiction
- Sexual victimization
- PTSD
- Poor self-concept as a caregiver
- Conflicting advice and miscommunication
- Lack of family support and role models
- Postpartum relapse
- Maternal behaviors related to active addiction
The mother: considerations

- **Fears:** pain, disappointment if the infant rejects the breast, concerns re: drying up, latching problems, the infant might “OD”
- **Barriers:** Partner trepidation, lack of time, stigma, daily commutes to MAT programs
- **Misconceptions:** methadone/buprenorphine, Hep C, smoking
- **Motivations:** infant health, atonement, NAS
- **Information/Misinformation:** Pediatricians, nurses
  - ***Lack of support from hospital based nurses***

**BEWARE OF OVERTLY OR COVERTLY UNDERMINING THE PROCESS**

*From: Demirci et al, 2014*
Factors affecting the substance dependent mother

- Loss of control over drug intake and compulsive drug seeking
- Poor judgment and planning
- Poor decision making
- Emotional dysregulation
The role of brains changes in the relationship between drug use and parenting

Reproduced with permission from:
Post partum relapse to substance use: Past-Month Substance Use by Pregnancy Status

(NSDUH, Combined 2002 to 2007)
Drug use and lactation?

Do women use illicit substances while breastfeeding?
- **Yes**
  - National Maternal and Infant Health Survey 1988
    - revealed that the prevalence of drug use during pregnancy was comparable to the prevalence of drug use among women who breastfed their infants

Does drug use affect the decision to breastfeed?
- **No**
  - Frank et al. 1992
    - Among 1,210 urban women indicating their intention to breastfeed /not breastfeed, use of cocaine and marijuana was high enough among those intending to breastfeed to suggest that the choice of breastfeeding did not indicate that the mother's lifestyle was sufficiently health oriented that the infant would not be at risk for prenatal and potentially postnatal exposures.
Maternal Psychopathology: Prevalence of Psychiatric disorders and Violence Among Substance Abusing Pregnant Women at the Center for Addiction and Pregnancy

Jansson, 2007; unpublished
Velez; 2004
The sexual abuse survivor and lactation

- **Shame/self blame re: nudity, breasts, childbirth, breastfeeding sensations**
  - “My body in the baby’s mouth is disgusting”
  - I need to protect my baby, who cannot give consent
  - Feeding infants only expressed milk
- **Poor self esteem/self-efficacy**: early cessation
- **Mistrust/hostility** re: the baby’s need for her body
- **Revictimization**: be alert for ongoing abuse
- **Depression**: increased risk of suicide
- **PTSD**: Birth and breastfeeding can be triggers
  - Tactile, olfactory, auditory, visual
  - Flashbacks
  - Uncomfortable periods: early post partum, nighttime feedings, playful older infants
- **Infant care issues**, particularly with infant girls

*Kendall-Tackett*
Maternal behaviors related to active addiction

- Altered maternal responses → developmental harm
- Somnolence, decreased reaction time
- Poor judgment, risk minimization
- Chaotic environment

- Poor positioning
- Substance use while breastfeeding resulting in toxic exposures via BM or secondary exposures
The substance exposed dyad: considerations

- Breastfeeding will mean that the dyad is necessarily physically together, and the breastfed infant requires more attention and more frequent attention.
- For the medically, psychiatrically, addiction unstable woman, this means:
  - Infant exposure to violence
  - Drug seeking/drug trade
  - Maternal prostitution
- The environment and support systems may not support breastfeeding
Substances of abuse found in Breast milk

- **Cocaine:**
  - Variability in levels of cocaine in BM. High concentrations possible \((\text{Winecker, 2001})\)
  - Intoxication reported \((\text{Chasnoff, 1987})\)

- **Amphetamines:**
  - Frequently contain adulterants
  - Amphetamine found in breast milk \((\text{Bartu, 2009})\) at concentrations 2.8-7.5 times plasma \((\text{ACOG, 2011})\)
  - Infant symptoms (irritability/agitation) \((\text{AAP, 2001})\) and death \((\text{Ariagno, 1995})\) reported
Substances of abuse found in Breast milk

- **PCP:** high concentrations in BM (case report) \( (Kaufman, 1983) \)

- **Benzodiazepines**
  - Based on relatively small numbers, adverse event rates of 0-50% reported for various agents: lethargy, irritability, poor weight gain, apnea \( (Rubin, 2004) \)
  - When used as an adjunctive medication, there exists the potential for drug-drug interactions and increased risk for CNS depression, but alone may present minimal risk \( (Kelly, 2012) \)

- **Alcohol** \( (Giglia, 2006; Menella, 2012) \)
  - Alters infant’s milk intake
  - Diminished infant growth (animal models only)
  - Alterations in sleep-wake cycles \( (Menella, 1998) \) and development \( (Little, 1990) \) reported
Substances of abuse found in Breast milk

- **Opioids**
  - Codeine: 39 events, 1 infant death (mother ultra-rapid CY2D6 metabolizer) \( (Hendrickson, 2012) \)
  - Oxycodone: 20% mothers report neonatal CNS depression \( (Lam, 2012) \)
  - Methadone: 1 death after maternal self-medication \( (West, 2009) \)
  - Morphine: Limited data, Mean M/P = 2.45, no reported infant toxicity
    - Human milk concentrations:
      - ORAL: BM: 10-100 ng/mL; infant serum morphine 4 ng/mL
      - EPIDURAL: BM: 82 ng/mL
      - IV: not detectable to 500 ng/mL
      - Intrathecal: Not detected in BM
Opioid Prescriptions Dispensed by Retail Pharmacies—United States, 1991–2011

Primary Substance of Abuse at Treatment Admission—United States, 2000–2010

SAMHSA Treatment Episode Data Set, 2000-2010.
### Maternal opioid addiction treatment agents

<table>
<thead>
<tr>
<th>Medication</th>
<th>Methadone</th>
<th>Buprenorphine</th>
<th>Naltrexone</th>
<th>Buprenorphine-Naloxone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n=8; Jansson, 2008)*</td>
<td>(n=7; Ilett, 2012)</td>
<td>(n=1; Chan, 2004)</td>
<td>(n=3, Debelek, 2013)</td>
</tr>
<tr>
<td>Conc. in Breast Milk</td>
<td>21.0-463.0 ng/mL*</td>
<td>0.83 -8.27 ng/mL</td>
<td>1.7 ng/mL</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>40.0-612.0 (1130.0) ng/mL**</td>
<td>Low</td>
<td>(Metabolite 46 ng/mL)</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td></td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Infant dose (theoretic)</td>
<td>.004 - .0152 mg/day*</td>
<td>0.12 – 1.24 μg/kg/day</td>
<td>0.26 μg/kg/day</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>0.038 mg/kg/day**</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>M/P: 0.36-0.49*</td>
<td>Buprenorphine is poorly bioavailable</td>
<td>M/P: 1.9</td>
<td>No data</td>
</tr>
<tr>
<td></td>
<td>M/P: 0.40**</td>
<td>Concentration in infant plasma low: 2.2 – 8.1 ng/mL*</td>
<td>Naltrexone not detected in infant plasma (metabolite at 1.1 ng/mL)</td>
<td></td>
</tr>
</tbody>
</table>
Substances of abuse found in breast milk

- **Marijuana:**
  - $\Delta^9$-THC is main compound in marijuana but there are many other compounds in smoke
    - 6-53% of $\Delta^9$-THC is released into the air during smoking
  - THC is concentrated ($M/P=8$) and secreted in BM and absorbed by the infant (Perez-Reyes, 82)
  - Marijuana exposure in BM:
    - Breastfeeding in the 1st month associated with decreased motor development at 1 year (Astley, 1990) or no effects (Tennes, 1985)
    - Infant effects: sedation, growth delay (Hale, 2006) low tone, poor sucking (Liston, 1998)


In animal models, early exposure to THC can recalibrate the sensitivity of the reward system to other drugs (Dinieri, 2012)
Marijuana

- Potency of marijuana has increased fourfold between the 1980’s and 2012 (Volkow, 2014)
- May be laced with other harmful substances (Gilbert, 2013)
- Perinatal exposure related to many negative health outcomes related to complex cognitive functioning (Campolongo, 2009)
For chronic THC users

- Altered maternal consciousness
  - Altered ability to respond appropriately to infant cues/communication over time
  - Psychopathology + poor judgment + acute effects of THC

- 50% of users have “impaired control” over their use
- Use associated with a range of psychiatric disorders
Special problems with THC

- THC has a long half-life (67 days) \(^{(Huestis, 1992)}\) and stays positive in the urine for a long time
  - Pumping and dumping problematic for the establishment of lactation
  - Can’t define who is a chronic vs “recreational” user by tox screens
    - Maternal self-report data of drug use in the post partum period can be unreliable
Are THC users at the end of gestation more likely to be THC dependent or chronic/heavy users?
Other issues with THC use and lactation

- THC remains an illicit substance in most areas
  - There are federal guidelines that do not permit breastfeeding in women using illicit substances
    - SAMHSA TIP 43
  - These are used by judges and DAs and can place a THC using lactating woman and a recommending provider at legal risk
Considerations…

- It may be ill-advised to allow mothers using marijuana to breastfeed
  - Still a Category I controlled drug
  - Illegal under federal law (despite state laws)
  - CDC and AAP guidelines advise mothers not to use marijuana (medical or not) and breastfeed
  - “Given uncertainties and current guidelines it is difficult to prove that professional caregivers are acting in the best interest of the child” by encouraging breastfeeding in THC using women
So what do I do?
(this answer likely depends on your population and your available resources, so it is important to understand both)

**Discourage breastfeeding***
- The recommendation for regular users (*Garry, 2009*)
- Consideration of THC an illicit exposure like any other
- Recommend drug treatment or continued drug treatment for the mother
- Carefully follow the dyad

**Encourage breastfeeding**
- Fully evaluate the dyad
- Maternal environment and support systems key
- Carefully follow the dyad
- Multidisciplinary communication/care
- Assess legal risk
  - To providers *and* mothers
- Be prepared to act if mother returns to active use
Recommendations

Thorough evaluation of each prior to initiation of breastfeeding:

- Mother
- Infant
- Dyad
Recommendations for thorough assessment of the mother prior to initiation of breastfeeding:

- Medical and psychiatric status and medications
  - Sexual abuse
- Maternal drug use hx, SATx hx, MATx hx
- Family and community supports
- Plans for postpartum care
  - SA treatment
  - Obstetric care and contraception
  - Pediatric care

TALK TO TREATMENT PROVIDERS WITH APPROPRIATE MATERNAL CONSENT
Recommendations for thorough assessment of the infant prior to initiation of breastfeeding:

- Health status
- Medications
- NAS display

NAS DISPLAY IS VARIABLE AND STATE DEPENDENT

- Symptoms displayed
- Intensity of display
- Impact on breastfeeding capabilities
Recommendations for thorough assessment of the dyad prior to initiation of breastfeeding:

- Infant capacity to transmit cues
- Maternal interpretation of and response to cues

Also evaluate the environment and available support systems.
The drug exposed dyad is likely to receive significant benefit from breast milk and breastfeeding.
There are risks to lactation in substance dependent women that may outweigh even large benefit in some dyads. We should strive to increase breastfeeding rates in the right population (where benefit outweighs risk) and not the entire population (where risk may outweigh benefit) of women with substance use disorders.
It becomes our task to identify which drug exposed dyad should be encouraged to breastfeed

Adequate prenatal care

No medical/psychiatric contraindications

Supportive environment

Woman in substance abuse treatment
  - Gives consent for discussion with providers
  - Counselor agrees with plan for breastfeeding

Drug abstinent for 90 days prior to delivery
  - Sober in an outpatient setting
  - Negative toxicology screen at delivery
And which should not be encouraged

- No prenatal care
- No SA treatment or unwilling to provide consent for discussion with counselor
- Relapse in the 30 days prior to delivery or evidence of active drug use (urine or clinical+)
- No plans for postpartum SA treatment
- Relapse to drug use after establishment of lactation
- Maternal sobriety at risk

Benefits

Risks
And which should require special consideration?

- Late prenatal care
- Women in SA treatment but relapsing within the 90-30 day period prior to delivery
- Concomitant use of other prescription medications
- Sobriety only in an inpatient setting
- Non-supportive environment
Thank you