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Neonatal abstinence syndrome: *on the evidence to add breastfeeding to any clinical pathway*

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Dear editor

We read the paper of Bhatt-Mehta *et al.* and the accompanying editorial of Ista *et al.* on a clinical pathway with methadone for treatment of neonatal abstinence syndrome (NAS) following in utero opioid exposure with great interest (1,2). We fully agree that this specific population of neonates warrants a tailored, protocol driven approach. However, while both papers refer to issues related to maternal-newborn bonding, we were struck by the absence of any firm opinion on the use of breastfeeding to achieve bonding as well as to reduce the incidence and duration of NAS. To further stress this, we summarized the data as reported in 3 population studies (Table 1) (3–5). Based on a pooled dataset of 400 neonates (218 breastfed, 54.5 %), there is a significant reduction in NAS (54 vs 77 %, number needed to treat 5–6). The same trends are observed when the duration of opioid treatment (–18 to –23 days) or the length of hospital stay (–4 to –10 days) are considered.

Based on our background as clinical pharmacologists with specific interest in neonates, we hereby would like to emphasize that it is questionable if these effects can be reduced to only transfer of opioids through mother's milk. Methadone is indeed excreted into human milk, but the infant only receives about 2–3 % of the weight-adjusted maternal dose. Irrespective of its causality, there is a consistent reduction in incidence and severity of NAS in breastfed

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infants. Consequently, methadone maintenance therapy itself is not a contraindication to breastfeeding and the risks and benefits of breastfeeding should be weighted on an individual basis. One of these benefits is impact on the incidence and severity of NAS.

Another, frequently overlooked, benefit is that administering methadone to the neonate and young infant through breastfeeding results in much more gradual exposure to this drug and surely will prevent inadvertent misdosing by the mother or caregiver. This misdosing may result in underdosing that will aggravate the symptoms of NAS whereas overdosing may result in life-threatening adverse events such as diminished breathing and alertness.

Finally, in light of the current epidemic in the abuse of prescription opioids there clearly will be a major increase in neonates presenting with NAS and as such the incorporation of breastfeeding as a first pillar of treatment for relieving the NAS symptoms seems to be a very natural way of addressing this. In many countries across the globe the need to administer methadone orally to a newborn infant will preclude the discharge of these infants. This is not only disturbing for the necessary bonding but surely also will increase the health care expenses related to this rapidly increasing health problem.

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Table 1

Neonatal management and outcome among infants of opioid dependent (methadone, buprenorphine) mothers.

	Abdel-Latif <i>et al.</i> (3)	Wachman <i>et al.</i> (4)	Welle-Strand <i>et al.</i> (5)
cases	n = 190	n = 86	n = 124
breast/formula (B/F) fed	85/105	38/48	95/29
assessment tool	Finnegan score	modified Finnegan score	modified Finnegan
threshold for postnatal opioids	Finnegan = 8 (2x) or 10 (1x)	Finnegan = 8 (3x) or 10 (2x)	<i>unreported</i>
need for postnatal opioids (B/F)	53 vs 79 %	50 vs 77 %	57 vs 69 %
duration of postnatal opioids	85 vs 108 days	<i>unreported</i>	29 vs 47 days
length of stay (days)	15 vs 19 days	16 vs 26 days	<i>unreported</i>