

BREASTFEEDING & LEAD EXPOSURE

Issue Statement and Recommendations

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Paula K. Schreck, MD, IBCLC, FABM
Co-Chair, Michigan Breastfeeding Network

Julie Lothamer, MS, RD, IBCLC
Co-Chair, Michigan Breastfeeding Network

MIBFN
Michigan Breastfeeding Network

BACKGROUND

“Human milk is species-specific, and all substitute feeding preparations differ markedly from it, making human milk superior for infant feeding.” - American Academy of Pediatrics

This strong endorsement, taken from the 2005 American Academy of Pediatrics (AAP) Policy Statement, “Breastfeeding and the Use of Human Milk,” is the basis for the promotion of breastfeeding by the Michigan Breastfeeding Network (MIBFN). Extensive research, both laboratory and epidemiological, promotes compelling reasons for infants, mothers, families and society to embrace breastfeeding. The most commonly known benefits are that it reduces the incidence of pneumonia, otitis media, SIDS, and gastroenteritis in infancy. In addition, breastfeeding decreases the incidence of childhood obesity, hypertension, asthma and some malignancies.

Data from the Genesee County Women, Infants and Children (WIC) program reveals that the rate of breastfeeding initiation is well below the state average, 56.9 percent compared to 63.7 percent. Of the infants that initiated breastfeeding, only 35 percent are still breastfeeding at two months. The duration rates for breastfeeding in Genesee County are impacted by multi-system issues, including doctor support, family support, employment and breastfeeding education.



The Michigan Breastfeeding Network, in early 2015, was funded by W.K. Kellogg Foundation to provide a landscape analysis on breastfeeding support in three local communities, with one of the communities being Genesee County. This provides MIBFN with a unique opportunity, in the face of the Flint water crisis, to develop a plan that not only has state and federal influence, but a local voice from the data collected from the actual health professionals and mothers in Flint focus groups. The Genesee County analysis revealed that more support for breastfeeding was needed in the form of:

- 1) Culturally-competent and literacy-sensitive prenatal material on the benefits of breastfeeding and the risks for formula feeding
- 2) Education on maternity-care practices that support breastfeeding, such as skin-to-skin and feeding on cue
- 3) Supportive hospital environments that are consistent with the education provided prenatally
- 4) Increased community-based support for breastfeeding that also engages champions and families
- 5) Staff and provider education
- 6) Increased support for the local breastfeeding coalition that can provide not only support for mothers but also support for lactation staff, engaged nurses and providers

BREASTFEEDING & LEAD EXPOSURE



Flint water samples. Photo credit: Michigan Radio

Current conditions in Genesee County - particularly in the city of Flint - have resulted in pregnant mothers, breastfeeding mothers and their infants being exposed to lead via contaminated drinking water. The exposure has raised questions regarding the safety of initiating and continuing breastfeeding. Maternal feeding decisions in the face of lead exposure do require careful consideration on a case-by-case basis. Health care providers should have access to lead levels of mother and baby, when applicable, and use them to carefully weigh the risks of exposure to the significant risk of **not** breastfeeding.

The following facts, part of the most recent [Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women](#) issued by the Centers for Disease Control and Prevention (CDC), have been organized to help guide that risk-benefit analysis.

NOTE: All recommendations depend on the ability of mothers to limit exposure to unfiltered water to minimize continued exposure to lead. Breastfeeding mothers should drink only bottled water until instructed otherwise by their healthcare professional.

- 1) Lead in maternal plasma is indeed transferred to breast milk, however, the most recent studies indicate that very little maternal plasma lead is actually transferred to the milk, with a milk/plasma ratio usually no higher than 0.03.
- 2) Milk lead levels rise in a fairly linear fashion, with respect to maternal plasma levels, until maternal blood lead levels (BLL) rise above 40 (micrograms per deciliter).
- 3) Both maternal and infant lead levels are needed to make timely and informed clinical decisions about breastfeeding.
- 4) A BLL of greater than or equal to 5 during pregnancy or at delivery necessitate further monitoring of mother and infant. A rise in maternal BLL may occur immediately after delivery due to fluid shifts and hemo-concentration.
- 5) A rise in BLL of greater than or equal to 5 in the infant is considered significant and effects feeding recommendations.
- 6) Testing of breastmilk for lead is not recommended.

RECOMMENDATIONS

Initiation of Breastfeeding

Maternal Blood Lead Level (measured in mcg/dL)	Recommendation
BLL less than or equal to 40	Mothers are encouraged to initiate breastfeeding with follow-up recommendations dependent on lead levels.
BLL of 20 - 39	Sequential BLL should be done on mother and baby with mothers retested at 2 weeks, and then at 1 to 3 month intervals, depending on trends in infant's BLL.
BLL of 5 - 19	An initial infant BLL is warranted to establish baseline.
BLL greater than 40	Mothers should not initiate feeding at the breast immediately, but should pump and discard their milk as they seek interventions to lower their BLL. When their BLL is less than 40, they should be encouraged to re-initiate breastfeeding, with continued monitoring of the infant and maternal BLL.

Continuation of Breastfeeding

Blood Lead Level (measured in mcg/dL)	Recommendation
Maternal BLL greater than or equal to 5	All infants born to mothers with BLL greater than or equal to 5 mcg/dL should have BLL's done at birth. Breastfeeding should continue for all infants with BLL of less than 5 or trending downward.
Infant BLL greater than or equal to 5	For infants with BLL greater than or equal to 5 mcg/dL (or whose levels are rising or failing to decline) and mother's BLL is greater than 20, breast milk must be considered the source, and breastfeeding should be interrupted temporarily until maternal blood levels decline. Mothers should be supported during this interruption so that their milk supply can be maintained. Once breastfeeding is restarted, monitoring must continue.

RECOMMENDATIONS (cont.)

Monitoring

The CDC has developed recommendations for the continued monitoring of infants and breastfeeding women. The frequency of testing is dependent upon age and most recent BLL. For further details see pages 59-60 and 103 of the CDC [Guidelines for the Identification and Management of Lead Exposure in Pregnant and Lactating Women](#). Links to important tables are included in the guide.

For the Community

MIBFN makes the following recommendations to encourage and support breastfeeding during the lead emergency in Flint:

- 1) Prenatal providers, hospitals and the community should adopt strong, consistent messaging that is literacy-sensitive and culturally-competent for breastfeeding promotion to increase patient/family engagement as well as to counter concern and confusion.
- 2) Hospitals should offer evidence-based maternity care practices on the birthing center that improve breastfeeding initiation, exclusivity and continuation. Best practices for maternity centers is outlined in the [Baby-Friendly 10 Steps to Successful Breastfeeding](#).
- 3) A meaningful and seamless referral process should connect pregnant mothers, new breastfeeding mothers and infants to community resources that share in a common agenda and utilize the consistent breastfeeding message.
- 4) Post-partum breastfeeding mothers and infants should be encouraged to follow up with their primary care doctors to assure proper monitoring as recommended.
- 5) Health care staff, health care providers and community workers should be educated on the benefits of breastfeeding and the risks of formula feeding, in addition to best practice on the birthing centers for the promotion of breastfeeding.
- 6) The capacity of the community breastfeeding support should be expanded with increased numbers of WIC breastfeeding peer counselors, WIC-based IBCLCs and home visitors.
- 7) Peer-led breastfeeding support groups have been proven to improve breastfeeding outcomes. Community-based support groups should be created to allow for widespread participation.
- 8) Increased support for the local breastfeeding coalition can allow for broader support for mothers, lactation staff, nurses and providers as well as the community.
- 9) Investment should be made in data collection and evaluation of breastfeeding practices to allow for sharing and dissemination of this experience to aid other communities, nationally and internationally, who face similar issues with environmental exposures.

RECOMMENDATIONS (cont.)

Formula and Formula Supply Donations

In environmental and natural disasters, breastfeeding has been found to decrease infant morbidity and mortality. Breastfeeding should be promoted, protected and encouraged. Breastfeeding should continue as long as possible. The World Health Organization (WHO) recommends that care be taken to assure that any donations of formula be strictly limited to families in which formula-feeding is already firmly established. Donations of formula to pregnant mothers or breastfeeding mothers undermines breastfeeding support and promotion and puts the infants at risk. If formula donations are initiated to formula-feeding mothers, those donations must be sustainable for the entirety of the infant's formula feeding timeline - up to one year of age.

