

Breastfeeding Exclusivity: Methodology and Interpretation

Methodology

Minnesota WIC began collecting data on in-hospital infant feeding in 2012. In 2015, the options for the question “[When was] the first time formula/other given to infant (meds ok)” included “Breastmilk only since birth”, “BF & Formula given in the hospital”, “BF & Formula given after discharge”, and “Never Breastfed”. In 2021 an additional option, “BF & Donor milk given in the hospital”, was added. Exclusive breastfeeding during the hospital stay includes those who reported one of three options: “Breastmilk only since birth”, “BF & Formula given after discharge”, or “BF & Donor milk given in the hospital”.

In 2021 data was collected on 7,551 (40%) of the infants born in that year who participated in Minnesota WIC and initiated breastfeeding. This includes 59% of Asian, 49% of Black, 28% of American Indian, 26% of White, and 44% of Hispanic breastfeeding participants.

Interpretation:

Because the number of agencies reporting data on exclusivity has changed from year to year, statewide trends in exclusivity do not accurately reflect actual increases or decreases in exclusivity. Patterns of disparities between locations and between racial and ethnic groups are, however, apparent. Trends within individual agencies where data has been consistently collected across years are more reliable.

Rates of exclusive breastfeeding during the hospital stay among WIC participants of all races and ethnicities remain well below the goal of 85.8% laid out in the Healthy People 2020 indicators. Breastfed WIC participants are much more likely to be given formula during the hospital stay than non-participants. While the CDC’s [Breastfeeding Report Card, 2022](#) reports the rate of hospital formula supplementation in Minnesota as 18.1% for 2019 births, more than three times that many, 57.1% of infants in Minnesota WIC born in 2019, were supplemented with formula during the postpartum hospital stay. Among some groups rates are even higher. For example, among Hmong WIC participants, supplementation was ubiquitous at 81.7% in 2019.

Supplementation of breastfed infants in the first two days of life is associated with increased morbidity and mortality, and with shortened duration of breastfeeding.

Formula supplementation of breastfed infants during the hospital stay can lead to:

- **Increased risk of necrotizing enterocolitis** Formula-fed infants develop necrotizing enterocolitis (NEC) 6 to 10 times more often than exclusively breastfed infants. Each case of NEC in extremely premature infants costs an estimated \$74,004 plus an additional \$124,036 for those who require surgery.¹ One in eight cases of NEC in these infants results in death.²
- **Disruption of the infant microbiome** Even a small amount of formula given during the first three days of life decreases protective lactobacillus and increases levels of E. coli and C. difficile,

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differences still detectable at three months of age. A healthy microbiome is essential to immune and metabolic health.^{3,4}

- **Increased risk of severe engorgement** Supplementation decreases the frequency of breastfeeds in the first few days. This increases the risk of severe engorgement and can negatively affect milk supply.⁵
- **Increased risk of allergy** Avoiding cow's milk formula in the first three days of life is protective against allergy at 2 years of age.⁶
- **Continued supplementation after hospital discharge** Mothers who intend to exclusively breastfeed after discharge are more likely to achieve that goal if their infant is exclusively breastfed during the hospital stay.⁷
- **Earlier cessation of breastfeeding** In-hospital supplementation more than doubles the risk of early weaning.⁸ In 2018, by 3 months of age only one in four breastfed WIC infants fed formula in Minnesota hospitals continued breastfeeding (27%), while three of four (72%) of those exclusively breastfed in the hospital continued to breastfeed.⁹
- **Increased risk of SIDS** The AAP recommends exclusive breastfeeding to reduce the risk of SIDS, stating that "the protective effect of breastfeeding increases with exclusivity."¹⁰ Compared to exclusively breastfed infants, partially breastfed infants have 2.5 times, and formula-fed infants 3.7 times, the odds of dying from SIDS.¹¹

See [The Importance of Exclusive Breastfeeding during the Hospital Stay](#) for more information on the impact of early formula supplementation on breastfeeding and health.

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