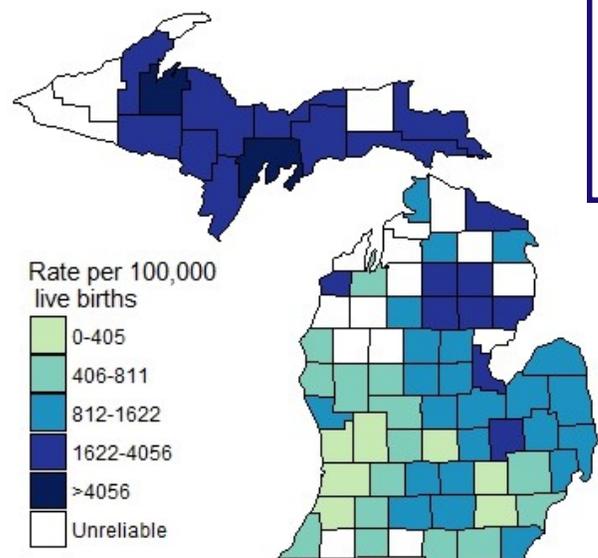


# Neonatal Abstinence Syndrome Among Michigan Infants

- When mothers use illicit or prescription drugs during pregnancy, infants can present with drug withdrawal symptoms after birth, called neonatal abstinence syndrome (NAS).
- The risk for NAS is greatest when the mother uses prescription pain relievers known as opioids analgesics or heroin during the pregnancy, with higher risk associated with long term use and later term use.<sup>1,2</sup>
- Between 2010 and 2016, there were a total of 5,458 infants in Michigan hospitalized with a diagnosis of NAS\*.

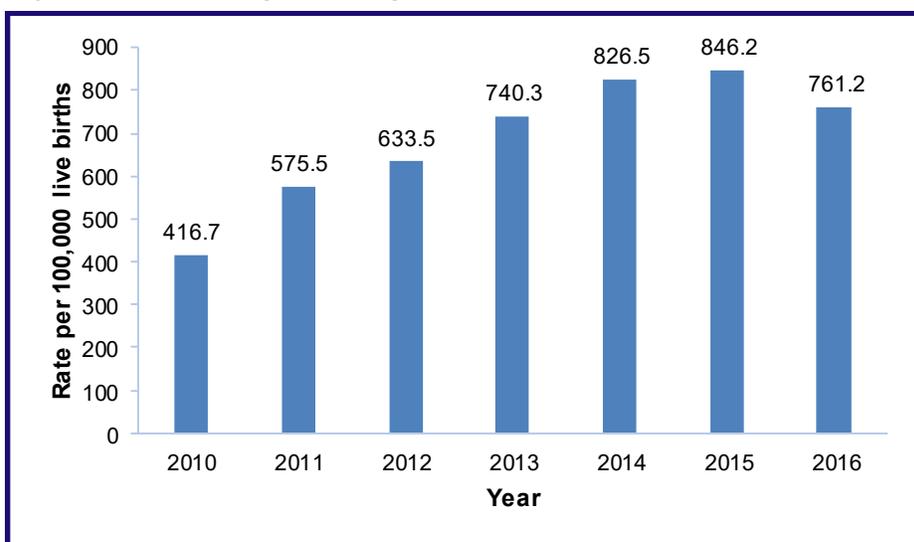
\*NAS was identified using the ICD-9-CM diagnosis code 779.5 and the ICD-10-CM diagnosis code P96.1

**Figure 2. Rate of Neonatal Abstinence Syndrome Among Michigan Infants by County, 2014-2016**



Note: Counties in white indicate that rate could not be calculated due to low reported numbers of hospitalizations of infants with NAS.

**Figure 1. Rate of Neonatal Abstinence Syndrome by Year Among Michigan Infants, 2010-2016**



- The rate of NAS among Michigan infants peaked at 846.2 per 100,000 live births in 2015, and decreased to 761.2 in 2016 (Figure 1).
- Three-year rates of NAS between 2014 and 2016 varied by county (Figure 2). The highest county rates were in the northern portion of the Lower Peninsula and in the Upper Peninsula.
- Infants with NAS have longer hospital stays, with costs near \$1.5 billion nationally in 2012.<sup>3</sup>

References: 1. Desai RJ, Huybrechts KF, Hernandez-Diaz S et al. Exposure to prescription opioid analgesics in utero and risk of neonatal abstinence syndrome: population based cohort study. *The BMJ*. May 2015; 350:h2102. 2. Hudak ML & Tan RC. Neonatal Drug Withdrawal. *American Academy of Pediatrics*. Feb 2012; 129(2) e540-e560 3. Patrick SW, Davis MM, Lehmann CU, & Cooper WO. Increasing incidence and geographic distribution of neonatal abstinence syndrome: United State 2009-2012. *Journal of Perinatology*. July 2015; 35: 650-655.