

Study analyzes opioid overdose risk during and after pregnancy among Massachusetts women

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A study of women giving birth in Massachusetts found a higher level of opioid use disorder than have studies conducted in other states. In a paper published in the journal *Obstetrics & Gynecology*, the research team—consisting of investigators from the Mass. Department of Public Health (DPH) and several academic medical centers, led by a MassGeneral Hospital for Children (MGHfC) physician—found that opioid overdose events decreased during pregnancy, reaching their lowest level during the third trimester, but then increased during the postpartum period, becoming significantly higher during the second six months after delivery.

"Our findings suggest we need to develop extended and long-term services to support women and families impacted by substance use disorder," says Davida Schiff, MD, MSc, an MGHfC pediatrician and the lead and corresponding author of the paper. "We need additional research to determine the best ways to

improve retention in treatment and adherence to medication therapy after delivery, and we need to enhance our medical and [public health](#) infrastructure to provide support to women in achieving long-term recovery."

With the increasing levels of opioid-use disorder across the U.S., [overdose deaths](#) have quadrupled over the past 15 years, the authors note. In many states, opioid overdoses have been cited as major contributors to pregnancy-associated deaths. Estimates of opioid use disorder among pregnant women have ranged from 0.4 to 0.8 percent, and estimates for all women of reproductive age up to 2 percent. But pregnancy often serves as motivation for women to enter treatment for substance use, the standard of which is behavioral therapy combined with medications like methadone or buprenorphine.

While discontinuing medication therapy increases risks of relapse and [overdose](#), there has been little data available on either the timing of overdose events or the relationship of medication therapy to relapse during pregnancy and after delivery. To explore those factors, along with assessing characteristics of women with opioid use disorder who gave birth in Massachusetts, the team took advantage of a Department of Public Health dataset developed in response to a 2015 mandate from the state legislature.

"This unique dataset—which links statewide resources including hospital discharge data, ambulance trip records, birth and death certificates, and addiction treatment data—combines a rich array of data sources and illustrates multiple factors contributing to overdose, particularly the impact of receiving medication treatment with methadone or buprenorphine," says co-author Dana Bernson, MPH, of the Mass. DPH. "Additionally we were able

to include non-fatal overdose events that required medical attention, while other states have only reported overdose deaths."

From the dataset that included almost 178,000 deliveries of a live infant of 20 weeks or greater gestational age to Massachusetts resident women between Jan. 1, 2012 and Sept. 30, 2014, the research team identified 4,154 deliveries to women who had some evidence of an opioid use disorder in the year before delivery. While the 2.3 percent prevalence of opioid use disorder is more than double that reported in other states, the comprehensive dataset may have given a more accurate reflection of the level of opioid use disorder than previous studies have provided.

Among all women in the dataset, 184 experienced an opioid overdose event—defined as either admission to a health care facility for overdose treatment or a death certificate listing opioid overdose as the cause of death—during the year before or after delivery. Around 25 percent of women with overdose events experienced two to four overdoses, leading to a total of 242 overdose events, 11 of which were fatal, during the study period.

Compared to women with evidence of an opioid use disorder who did not experience an overdose event, those who did experience an overdose were more likely to be younger, single, unemployed, less educated and less likely to have received adequate prenatal care. They were also more likely to have evidence of homelessness or a diagnosis of anxiety or depression. The risk of an overdose event decreased as a pregnancy progressed, reaching its lowest level during the third trimester, but increased during the postpartum period, becoming highest from 7 to 12 months after delivery. In fact, 78 women with no evidence of opioid use disorder during the year before delivery experienced an overdose event during the postpartum period.

Based on insurance claims, prescription records and methadone treatment records, more than 64 percent of women with evidence of an opioid use disorder received some type of medication therapy during the year before delivery. Overall, across the entire study period, overdose rates for women

receiving medication therapy were lower than those not receiving treatment.

"The first year postpartum is a particularly vulnerable year for women with opioid use disorder," says Schiff, who is an instructor in Pediatrics at Harvard Medical School. "Factors such as loss of access to specialized care, fragmented transitions from prenatal to postpartum providers, postpartum depression, other psychiatric [disorders](#) and homelessness can add to the normal stresses involved with having a new baby. Discontinuing [medication therapy](#) following [delivery](#) also may play a role in increased overdose events."

Massachusetts Commissioner of Public Health Monica Bharel, MD, MPH, a co-author of the *Obstetrics & Gynecology* paper, says that to effectively address the current [opioid](#) epidemic it's critical to gain a complete picture of the individuals who are at highest risk. "These findings help expand the lens from which we view the epidemic and allow us to tailor our policies and programs in ways that will increase opportunities for treatment and recovery for these [women](#) and their children."

More information: Davida M. Schiff et al, Fatal and Nonfatal Overdose Among Pregnant and Postpartum Women in Massachusetts, *Obstetrics & Gynecology* (2018). DOI: [10.1097/AOG.0000000000002734](https://doi.org/10.1097/AOG.0000000000002734)

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