Study suggests health care access is not preventing deaths among pregnant and postpartum people

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The majority of research and public discourse on US maternal mortality focuses on pregnancy-related maternal deaths—deaths caused or accelerated by a pregnancy—rather than the broader category of

pregnancy-associated maternal deaths, which are deaths from any cause during pregnancy or up to one year postpartum, including those that are pregnancy-related.

As US maternal mortality continues to worsen at an alarming and inequitable rate, clinical and public health communities should expand their research to include pregnancy-associated maternal deaths to better identify the factors that contribute to this worsening epidemic, according to a new study led by Boston University School of Public Health.

Published in the journal *Obstetrics & Gynecology*, the study examined deaths among Massachusetts birthing people during pregnancy or postpartum and found that severe maternal morbidity (SMM), opioid use, and prior hospital care were all linked to pregnancy-associated but not pregnancy-related deaths.

From the study period of 2002–2019 in the Commonwealth, there were nearly four times as many pregnancy-associated deaths—which result from incidents such as gun violence, intimate partner violence, suicide, and drug overdose—than pregnancy-related deaths, which occur from complications such as stroke, heart attacks, preeclampsia, and heavy bleeding.

Lack of access to health care services is an often-cited barrier in maternal health research, but these findings suggest that utilizing health care is not enough to prevent the majority of deaths for pregnant or postpartum people; the quality and type of maternal care that this population receives is just as important as the amount of care to prevent deaths during pregnancy or the first year of motherhood.

"There is justifiable concern with health care access problems for pregnant and postpartum people, but this study identified a high rate of hospital admission, observational stays, and emergency room visits for

those who ultimately died during pregnancy through a year postpartum," says study lead and corresponding author Dr. Eugene Declercq, professor of community health sciences at BUSPH.

"There is a clear need to expand the focus of maternal mortality to the much larger group of pregnancy-associated deaths to understand the risk factors and events that lead to many of these preventable deaths."

For the study, Dr. Declercq and colleagues utilized hospital birth data, as well as data on nonbirth hospital care and deaths from a database led by BUSPH, the Massachusetts Department of Public Health, and the Centers for Disease Control and Prevention.

Among the nearly 1.3 million deliveries in Massachusetts between 2002 and 2019, 384 were linked to pregnancy-associated deaths. The researchers investigated factors connected to these pregnancy-associated deaths, and then they conducted a second analysis of pregnancy-associated deaths that excluded pregnancy-related deaths.

The results showed that birthing people with SMM (which includes hypertension, diabetes, blood clots, and infections, among other conditions), were more than nine times as likely to die of any cause during the pregnancy or postpartum period, compared to birthing people without SMM. Birthing people who used opioids during pregnancy or postpartum were six times more likely to experience a pregnancy-associated death than those who did not use opioids.

Notably, individuals with pregnancy-associated, but not pregnancy-related, deaths were nearly twice as likely to have been hospitalized before they became pregnant, and also more likely to receive frequent hospital care and spend longer times in the hospital before and during pregnancy.

Almost twice as many individuals with pregnancy-associated deaths (49%) visited an emergency department during their pregnancy compared to those who did not die (25%).

The fact that the majority of birthing people in Massachusetts receive hospital care prior to their delivery suggests there are missed opportunities for health care providers to provide comprehensive care to this population.

But the US maternal health crisis is fundamentally a "systems" issue that the health care system cannot solve on its own, says study coauthor Dr. Audra Meadows, an obstetrics-gynecologist and professor of obstetrics, gynecology, and reproductive sciences at UC San Diego Health and the University of California San Diego School of Medicine.

"A system of high-quality, comprehensive, and well-coordinated care is necessary, yet insufficient," says Dr. Meadows, who is also codirector of the Perinatal Neonatal Quality Improvement Network of Massachusetts (PNQIN) and leads the PNQIN Maternal Equity Project. "Issues of gun violence, intimate partner violence, and overdose point to the importance of the broader 'system' of public health in collaboration with health care delivery systems to elevate public safety, community prevention, support services, and education."

The researchers also say that the strong link they identified between SMM and pregnancy-associated, but not pregnancy-related, deaths warrants further scrutiny on these deaths from Maternal Mortality Review Committees in Massachusetts and in other states to better recognize and treat these risk factors with a goal of reducing maternal deaths.

"The problem of pregnancy-associated deaths isn't just a lack of access to care, but also the inability to address the problems of high-risk

individuals when they do have multiple contacts with the system," Dr. Declercq says.

More information: Eugene R. Declercq et al, Prior Hospitalization, Severe Maternal Morbidity, and Pregnancy-Associated Deaths in Massachusetts From 2002 to 2019, *Obstetrics & Gynecology* (2023). DOI: 10.1097/AOG.0000000000005398

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