State of Alaska Epidemiology Bulletin

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Pregnancy-Related Mortality in Alaska, 2000–2011

Background

Pregnancy-*related* mortality refers to the death of a woman while pregnant or within 1 year of pregnancy termination from causes related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Pregnancy-related mortality represents a sub-set of pregnancy-*associated* mortality, which is described in a companion *Bulletin*.[1] Alaska's pregnancy-related mortality rate during 1990–1999 was 7.4 per 100,000 live births.[2]

Methods

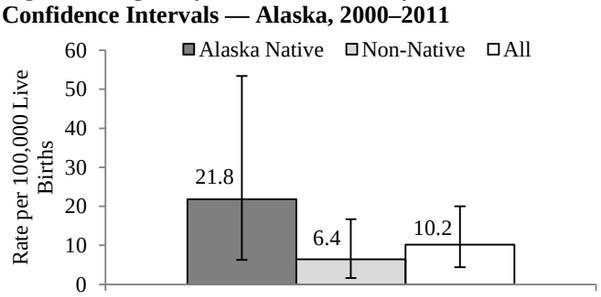
We reviewed pregnancy-related mortality events identified in Alaska during 2000–2011. Pregnancy-related mortality events were identified by 1) reviewing death certificates for obstetrical ICD-10 cause of death codes A34, O00-O96, and O98-O99; and 2) matching women's death certificates with birth/fetal death certificates dated within 1 year prior to the woman's death.

The Alaska Maternal-Infant Mortality Review (MIMR) Committee reviewed pregnancy-related deaths for consensus on cause, contributing factors, and preventability. We examined pregnancy-related mortality rates by Alaska Native and non-Native race, as documented on birth/death certificates, and presented 99% (rather than 95%) confidence intervals (CI) to account for uncertainty in the point estimates resulting from small numbers and substantial annual variation in case counts.

Results

We identified 13 pregnancy-related deaths during 2000–2011 (10 per 100,000 live births). The median number of pregnancy-related deaths per year was 1 (range 0–4). Seven deaths occurred in Alaska Native women and six occurred in non-Native women (22 and 6 per 100,000 live births, respectively; rate ratio: 3.4, 99% CI: 0.8–14.2; Figure). Five lived in the Northern or Southwest regions of the state, four lived in Anchorage, and four lived in the Interior or Gulf Coast regions. All nine women who delivered their infant did so at a hospital.

Figure. Pregnancy-Related Mortality Rates and 99% Confidence Intervals — Alaska, 2000–2011



Causes of death for the 13 pregnancy-related deaths during 2000–2011 were denoted as follows:

- Cardiomyopathy, n=4 (31%)
- Pregnancy-induced hypertension, n=2 (15%)
- Embolism, n=2 (15%)
- Hemorrhage, n=1 (8%)
- Ectopic pregnancy, n=1 (8%)
- Septic shock, n=1 (8%)
- Hemorrhagic stroke, n=1 (8%)
- Undetermined, n=1 (8%)

The MIMR Committee determined that two pregnancy-related deaths were preventable, three were probably preventable, one was possibly preventable, two were not preventable, and five were "unknown" with respect to their preventability. Potentially modifiable factors that were probably or definitely associated with one or more of the deaths included: alcohol abuse (n=2), methamphetamine use (n=1), problems with access to care (n=1), and inadequate medical care (n=1). Committee recommendations for preventing similar deaths included more timely access to medical care and addressing social and behavioral health issues prior to pregnancy.

Discussion

The MIMR Committee found that 5 (38%) of the pregnancy-related deaths during 2000–2011 were definitely or probably preventable. Also, more pregnancy-related deaths were associated with chronic conditions than those identified during 1990–1999.[2] The preventability of most deaths due to chronic conditions that were aggravated by pregnancy (e.g., heart disease) was unknown; however, some of the deaths directly related to pregnancy could have been prevented if substance abuse and other social issues were addressed or if appropriate medical care had been sought or provided earlier. The overall rate of pregnancy-related deaths in Alaska increased compared to 1990–1999, and was higher for Alaska Native women compared to non-Native women; however, caution should be used when interpreting these rate differences due to the small numbers.

Nationally, the pregnancy-related mortality rate has increased since surveillance began in 1979; the most recent rate from 2008 was 15.5 per 100,000 live births.[3] Similar to our findings in Alaska, pregnancy-related deaths from chronic conditions that may be aggravated by pregnancy have been increasing nationally, while deaths due to obstetric complications have been declining.[4] Maternal *near misses*, obstetric complications so severe that the woman almost died, also increased in the U.S. from 1998–1999 to 2008–2009.[5] Near miss events may be a more comprehensive and stable indicator of overall maternal health due to the greater number of cases. The MIMR Committee does not currently review near misses, so it is unknown whether these have increased in Alaska.

MIMR Advisory Committee Recommendations

1. Health care providers should counsel all women of child-bearing age about the importance of healthy behaviors and management of chronic conditions for their future health and the health of their future children.
2. Health care providers should recommend and provide preconception and interconception visits for women to discuss health conditions that may worsen during pregnancy, and to help patients get chronic medical conditions under control prior to pregnancy.
3. Including *near misses* in the MIMR process may identify additional points of intervention for improving care and could supplement pregnancy-associated mortality as an indicator of maternal health in Alaska.

References

1. Alaska Section of Epidemiology Bulletin. Pregnancy-Associated Mortality in Alaska, 2000-2011. No. 17, July 9, 2013. Available at: http://www.epi.alaska.gov/bulletins/docs/b2013_17.pdf
2. Pregnancy-Associated and Pregnancy-Related Mortality in Alaska. WCFH Fact Sheet. Vol 1, No 9. March 2005. Available at: http://dhss.alaska.gov/dph/wcfh/Documents/mchepi/pubs/facts/fs2005na_v1_09.pdf
3. CDC, Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion, http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PMSS.html
4. Berg CJ, Callaghan WM, Syverson C, Henderson Z. Pregnancy-related mortality in the United States, 1998 to 2005. *Obstet Gynecol* 2010;116:1302–9.
5. Callaghan WM, Creanga AA, Kuklina EV. Severe Maternal Morbidity Among Delivery and Postpartum Hospitalizations in the United States. *Obstet Gynecol* 2012;120:1029–36.

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