

Maternal Mortality in Alaska

Findings and recommendations of the Alaska Maternal-Infant Mortality Review



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Alaska's Maternal-Infant Mortality Review (MIMR) Process



- Located in the Alaska Division of Public Health
- Pregnancy-associated deaths identified using vital statistics data and reviewed in batches
- Expert committee reviews medical records, autopsy reports, police investigation reports, and other applicable records for all deaths
- Committee makes consensus determinations on cause, contributing factors, and preventability

MIMR Objectives



- Collect accurate and complete data on causes of and contributors to death
- Identify disparities, risk factors, and trends
- Identify preventable causes and contributors, including barriers and system issues
- Educate members of the review committee and improve quality of care, delivery of services and communication among agencies and providers
- Increase public awareness

Maternal mortality surveillance



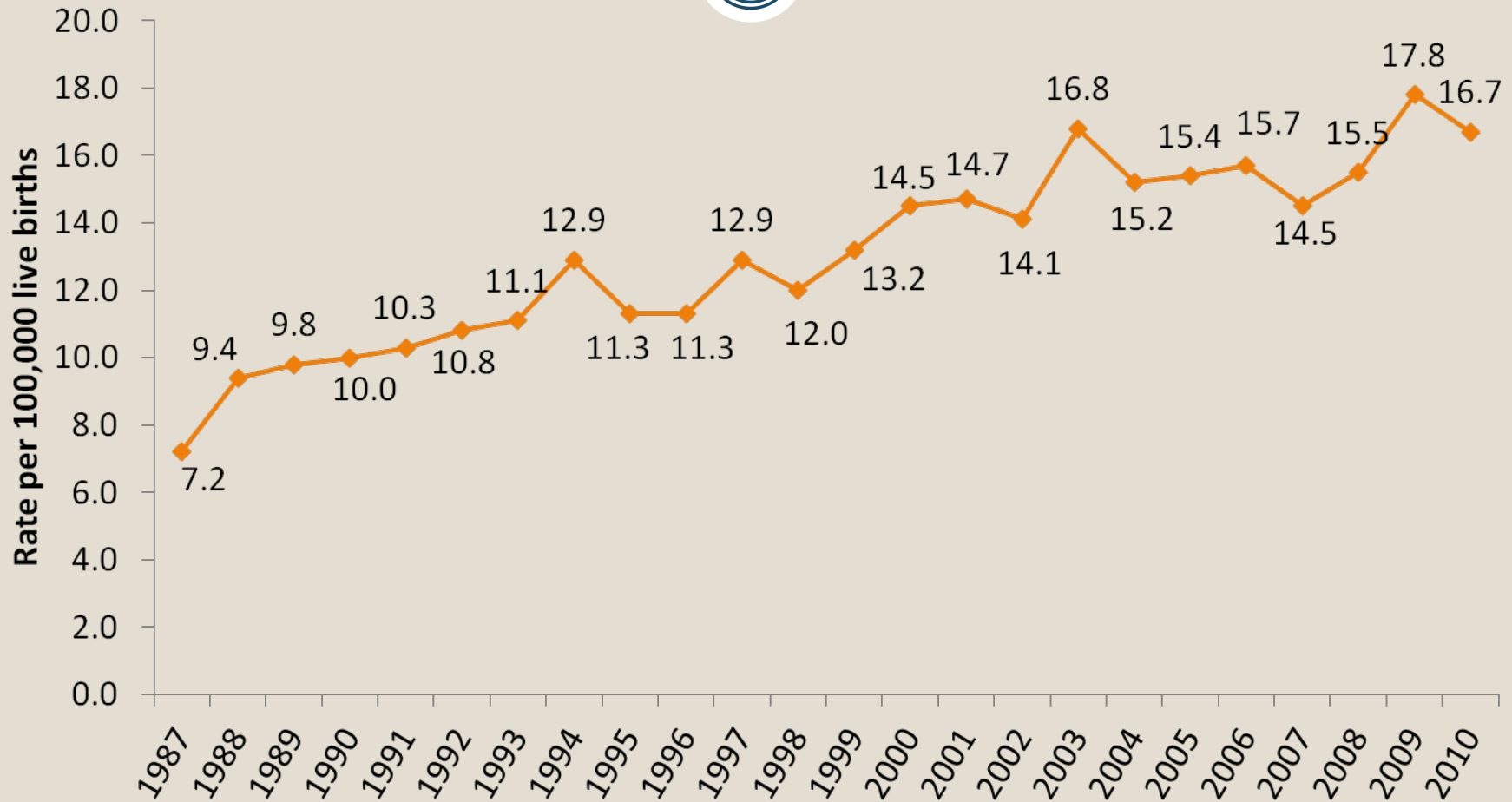
- **Pregnancy-associated mortality:** The death of a woman while pregnant or within 1 year of pregnancy termination *due to any cause*
 - Includes accidental or incidental causes
- **Pregnancy-related mortality:** The death of a woman while pregnant or within 1 year of pregnancy termination *from causes related to or aggravated by the pregnancy or its management*
 - Does not include accidental or incidental causes
 - A sub-set of pregnancy-associated mortality

National Data



- **Pregnancy-related mortality is increasing**
 - Most recent national rate (2010) was 16.7 per 100,000 live births
- **Increasing *near misses* – experiences of obstetric complications so severe the woman almost died**
- **Considerable racial disparities**
- **Increasing proportion of deaths related to chronic conditions aggravated by pregnancy**
- **Decreasing proportion of deaths related to obstetric complications**

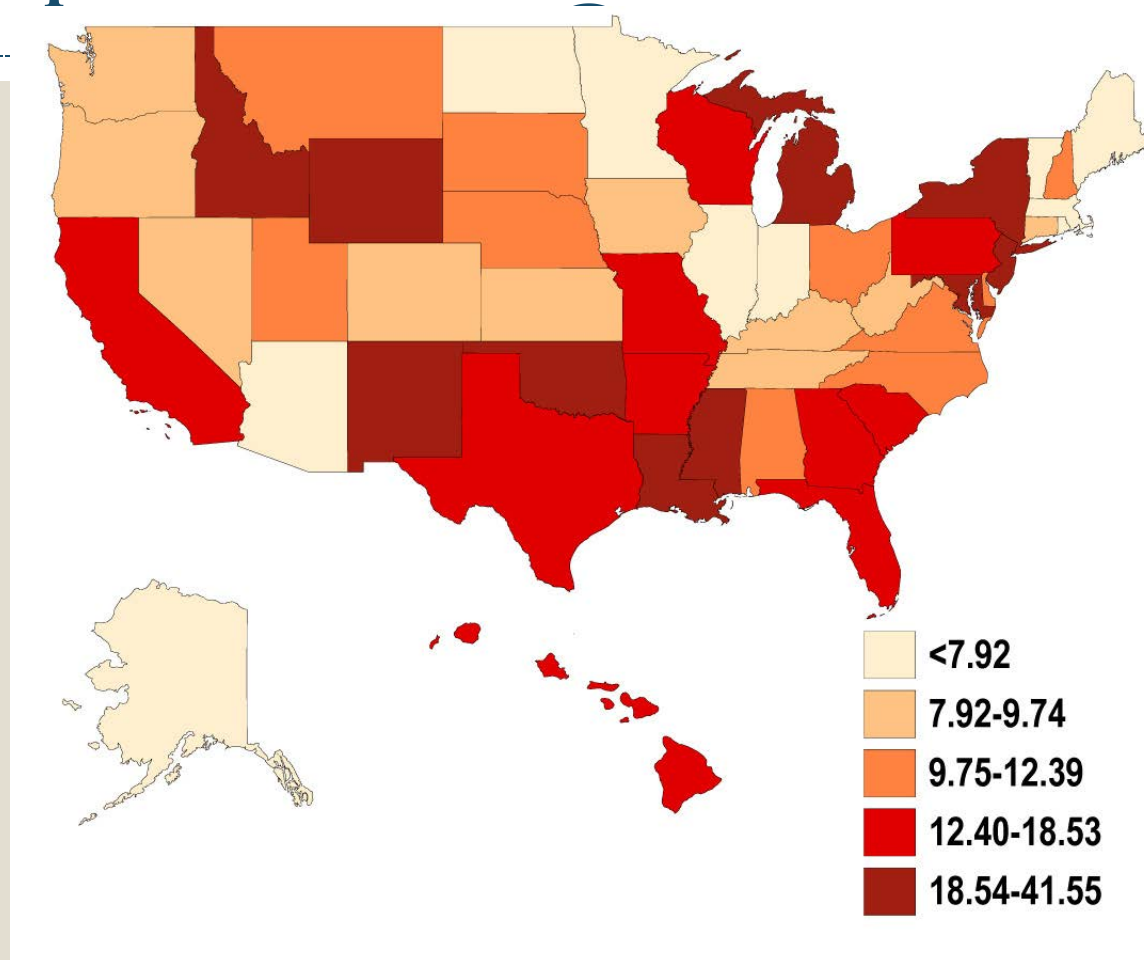
Trends in Pregnancy–Related Mortality in the United States, 1987–2010



Source: CDC, <http://www.cdc.gov/reproductivehealth/MaternalInfantHealth/PMSS.html>

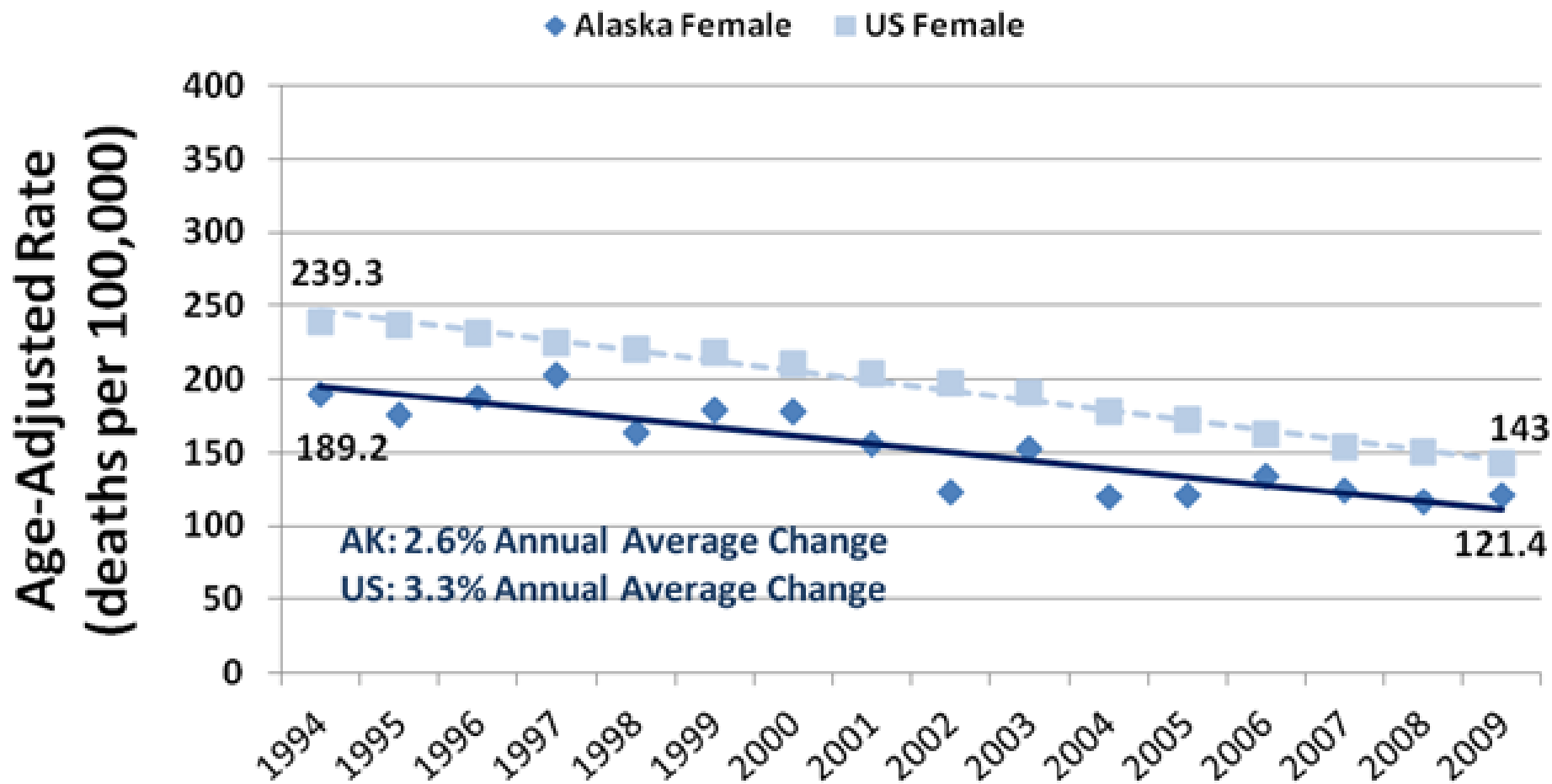


Maternal mortality (deaths \leq 6 weeks of pregnancy) rate per 100,000 live births, 2003-2007



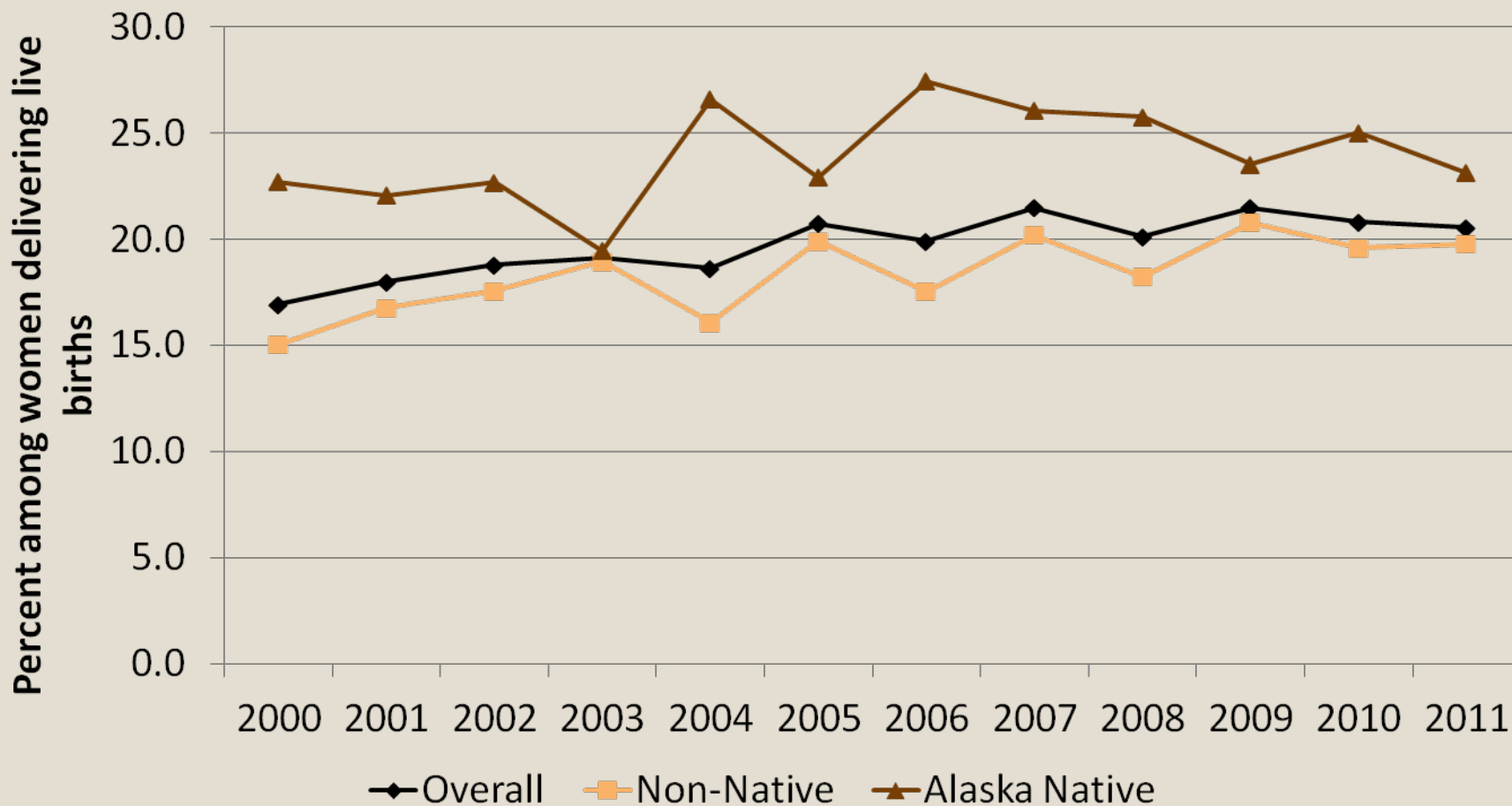
Source: Singh GK. Maternal Mortality in the United States, 1935-2007: Substantial Racial/Ethnic, Socioeconomic, and Geographic Disparities Persist. A 75th Anniversary Publication. HRSA, MCHB. Rockville, MD: US DHSS;2010.
<http://www.hrsa.gov/ourstories/mchb75th/mchb75maternalmortality.pdf>

Age-adjusted heart disease mortality trend among all adult females, 1994-2009



Source: Alaska Bureau of Vital Statistics & CDC, National Center for Health Statistics

Pre-pregnancy obesity (BMI ≥ 30) by year, Alaska, 2000-2011



Source: Alaska PRAMS





MIMR Findings

Number of Pregnancy-Related Deaths by Year, Alaska 2000-2011



Case characteristics

Pregnancy-related mortality, 2000-2011 (n=13)



- **Region of residence**
 - Northern or Southwest regions – 5
 - Anchorage – 4
 - Interior or Gulf Coast – 4
- **15% (n=2) were women >34 years**
- **Timing of death relative to pregnancy**
 - Prior to delivery – 4
 - 0-6 weeks of delivery – 4
 - >6 weeks after delivery – 5
- **All 9 deliveries were in hospitals**

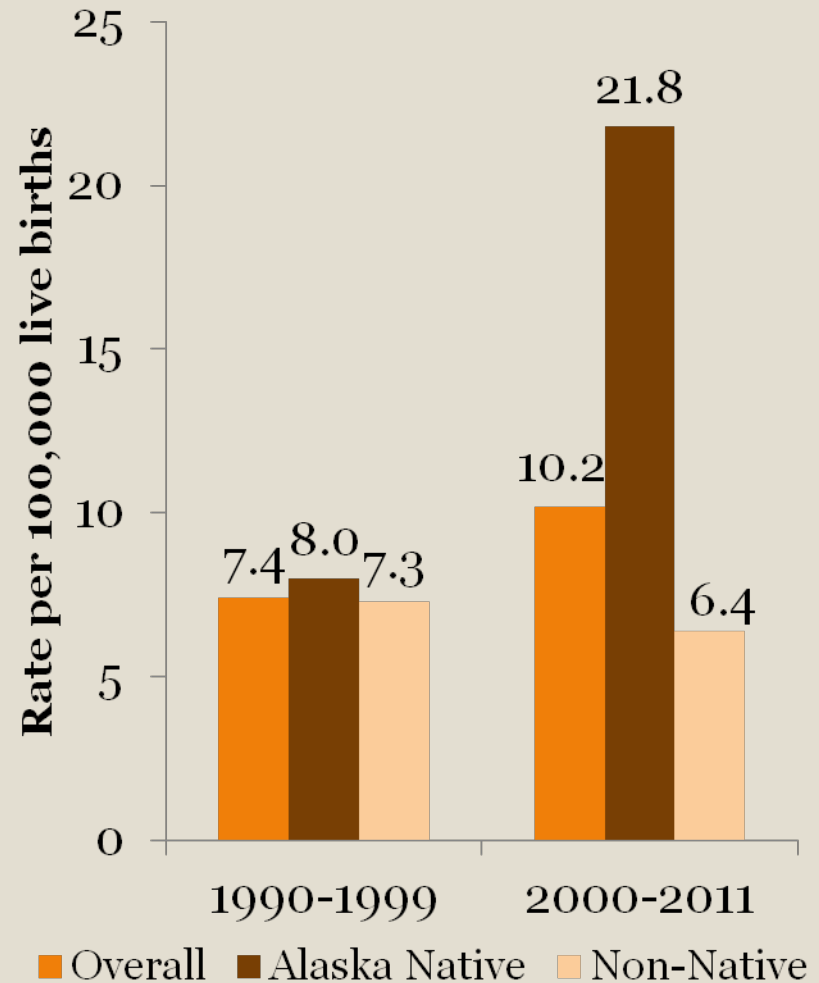
Pregnancy-Related Mortality Rates, 1990-1999 & 2000-2011

1990-1999 (n=8)

- 2 Alaska Native women
- 6 Non-Native women

2000-2011 (n=13)

- 7 Alaska Native women
- 6 Non-Native women

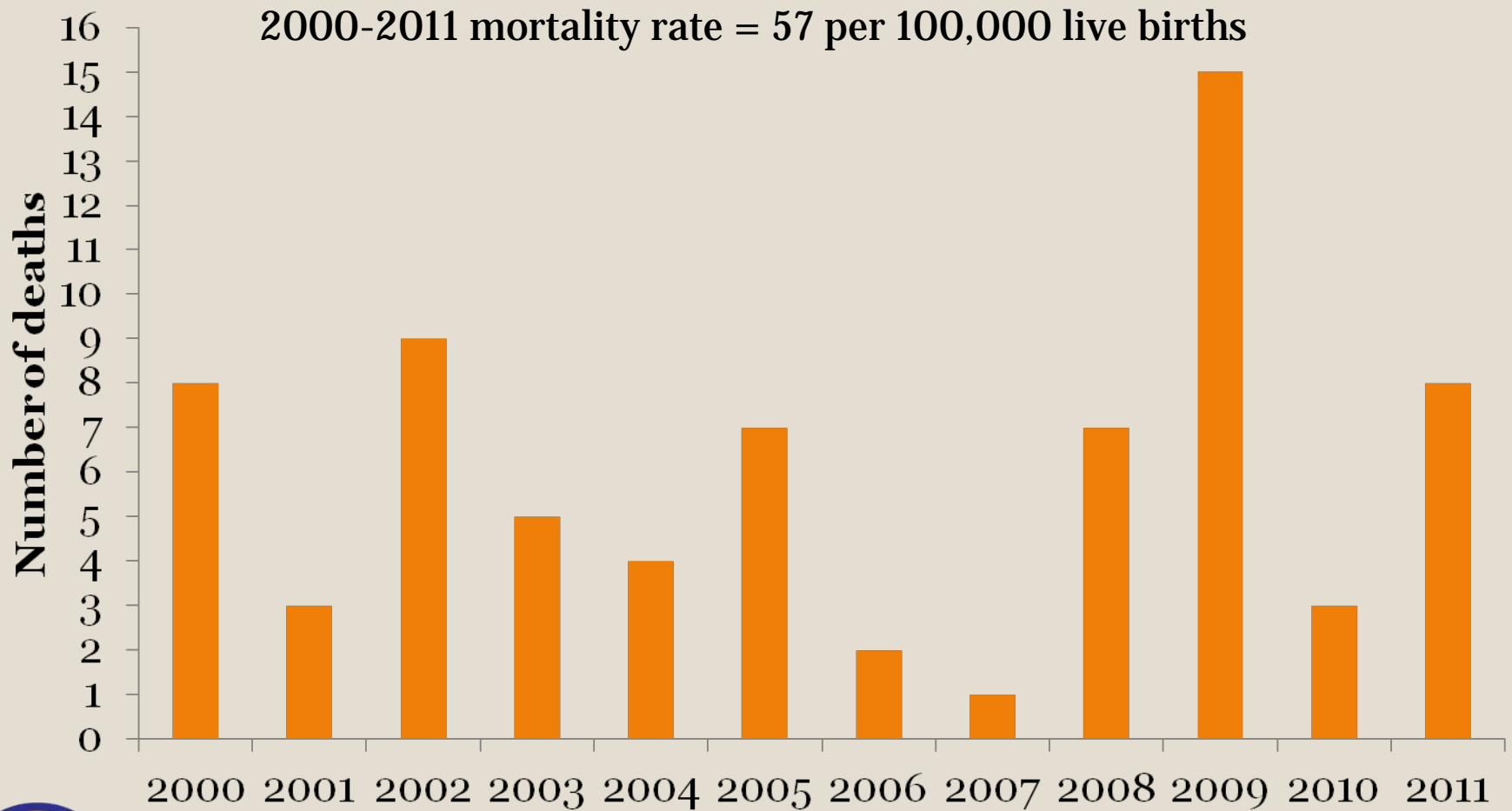


Causes of pregnancy-related mortality, 2000-2011



- Peripartum or post-partum cardiomyopathy, n=4
- Pregnancy-induced hypertension, n=2
- Embolism, n=2
- Hemorrhagic stroke, embolism, and postpartum and/or alcohol cardiomyopathy, n=1
- Hemorrhage, n=1
- Ectopic pregnancy, n=1
- Septic shock, n=1
- Undetermined, n=1

Number of Pregnancy-Associated Deaths by year, Alaska 2000-2011



Pregnancy-associated mortality, 2000-2011 (n=72)



- **33 (46%) deaths due to injuries**
 - 13 suicides
 - 11 drug or alcohol overdoses
 - 6 unintentional injuries
 - 3 homicides
- **19 (26%) due to medical causes not pregnancy-related;**
- **13 (18%) pregnancy-related**
- **7 undetermined cause**

Case characteristics

Pregnancy-associated mortality 2000-2011 (n=72)



- **Race**
 - 37 Alaska Native women – **115 per 100,000** live births
 - 34 Non-Native women – **36 per 100,000** live births
 - Rate ratio – **3.2** (95% CI 2.1–4.9)
- **Region of residence**
 - Anchorage/Mat-Su – 35
 - Southwest – 14
 - Northern – 9
 - Interior – 8
 - Gulf Coast – 5
- **71% occurred >6 weeks after delivery**

Associated factors

Pregnancy-associated mortality



	Alaska Native (n=37)	Non-Native (n=34)
Alcohol abuse	38%	15%
Drug abuse	11%	29%
Mental health conditions	19%	9%
Domestic violence or other forms of abuse	8%	6%

Underlying causes/contributing factors



- Alcohol abuse
- Methamphetamine use
- Depression
- Problems with access to care or inadequate medical care
- No prenatal care
- Obesity
- Previous heart disease
- Anemia
- Short interconception interval

Preventability



- 38% of the 13 pregnancy-related deaths were definitely or probably preventable (n=5)
- 68% of the remaining 59 pregnancy-associated deaths were definitely or probably preventable (n=40)
- Most of those with clear preventability were related to social issues such as alcohol and drug abuse
- One pregnancy-related death with inadequate medical care

Maternal Mortality Summary



- **Native/non-Native disparity**
 - Pregnancy-related mortality rate ratio: 2.5 (95% CI 1.0–6.4)
 - Pregnancy-associated mortality rate ratio: 3.2 (95% CI 2.1–4.9)
- **Comparison to 1990-1999 data**
 - Pregnancy-related mortality rate higher
 - No change in pregnancy-associated mortality rate
- **Increasing contribution of “indirect” causes, including cardiovascular disease, to pregnancy-related mortality**
- **Importance of social risk factors**

MIMR Committee Recommendations



- Preconception and interconception health care provider visits, in addition to regular, high quality prenatal care
- Identification of chronic medical conditions prior to pregnancy
- Providers need to be aware that women with certain chronic conditions are at higher risk of pregnancy-related mortality
- Providers should use established tools to screen mothers for mental health conditions, alcohol and illicit drug use, intimate partner violence

Next Steps for MIMR



- **Continued surveillance**
 - Changes to death certificates in 2014 may identify more maternal deaths
 - Changes to birth certificates in 2013 may better identify pregnancy-related risk factors
- **Review maternal *near misses*?**
- **Ongoing recruitment of new members**

Acknowledgements



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- **MIMR Committee members**

Thank You



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