

Findings from the

Colorado Maternal Mortality Review Committee: 2008-2013

Committee overview

The Colorado Maternal Mortality Review Committee is a multi-disciplinary committee of experts that reviews all pregnancy-associated deaths in the state. Maternal deaths are identified from death certificates, linkages to birth and fetal death certificates, and the National Violent Death Reporting system. De-identified case summaries are created from death certificates, birth certificates, medical records, and autopsy and toxicology reports. Committee members review each case in order to:

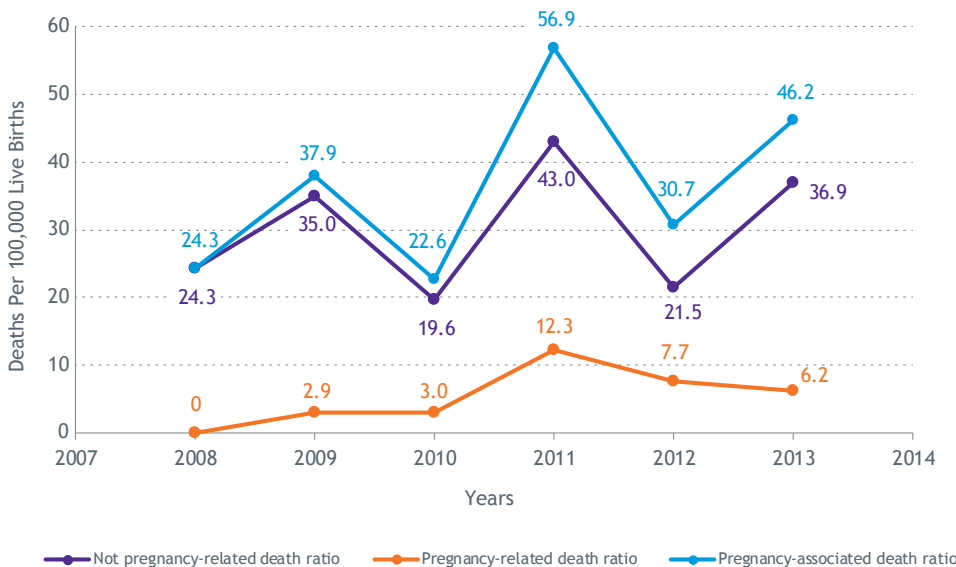
- Determine the annual number of pregnancy-associated deaths according to whether or not the deaths are related to pregnancy.
- Identify trends and risk factors among all deaths.
- Develop actionable strategies for prevention and intervention.

This comprehensive review process reveals critical factors associated with maternal death and provides a foundation for determining what is required to reduce maternal mortality in Colorado.

Maternal mortality trends

The total maternal mortality ratio rose from 24.3 to 46.2 deaths per 100,000 live births, nearly doubling between 2008 and 2013. Both pregnancy-related and not pregnancy-related ratios increased. The not pregnancy-related ratio rose from 24.3 to 36.9; the pregnancy-related ratio rose from 0.0 to 6.2.

Maternal mortality ratios by type of pregnancy association, Colorado, 2008-2013.



Maternal mortality definitions

Pregnancy-associated death: The death of a woman while pregnant or within one year of the end of pregnancy, regardless of the cause. These deaths make up the universe of maternal mortality. Within the universe, deaths are classified as not pregnancy-related and pregnancy-related.

Not pregnancy-related: The death of a woman while pregnant or within one year of the end of pregnancy due to a cause unrelated to pregnancy. For example, a pregnant woman dies in a train crash. The Centers for Disease Control use the term “pregnancy-associated but not pregnancy-related” for this category.

Pregnancy-related death: The death of a woman while pregnant or within one year of the end of pregnancy, regardless of the duration and site of the pregnancy, from any cause related to or aggravated by her pregnancy or its management. For example, a pregnant woman dies due to eclampsia.

Maternal characteristics

Mothers who died were significantly more likely to have a high school education or less, have incomes under \$15,000 a year, live in rural areas, be unmarried, and be black. In addition, they were significantly more likely to be obese, obtain delayed or inadequate prenatal care, have preterm or low birth weight infants, be on WIC, and have four or more children. The average age of the mothers who died was 27.3 years.

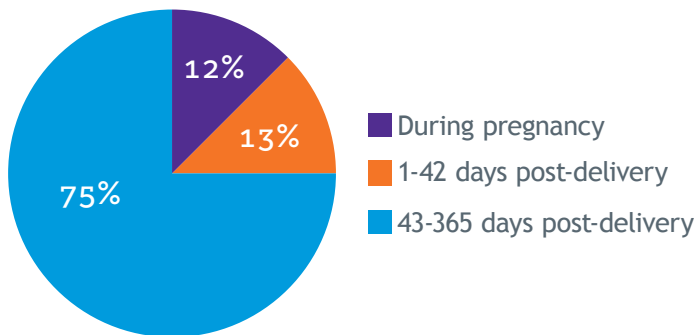
Maternal mortality causes and timing

The leading causes of not pregnancy-related death were mental health conditions, motor vehicle crashes and homicide. Lethal amounts of prescription and recreational drugs were identified in more than one-quarter (28.3%) of all such not pregnancy-related deaths. Among drug-related deaths nearly one-half had both recreational and prescription drugs present.

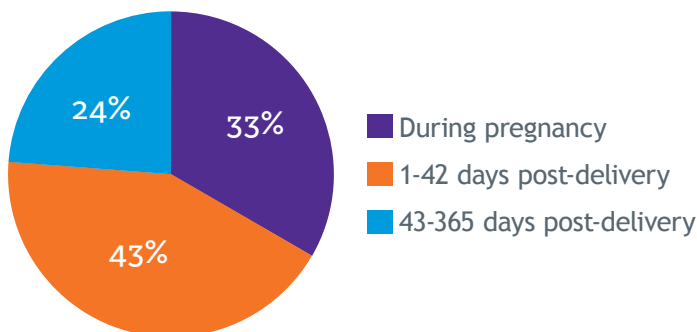
The leading causes of pregnancy-related death were cardiovascular conditions, hemorrhage, infection and mental health conditions.

The timing of death differs greatly according to whether or not the death was related to the pregnancy. Among not pregnancy-related maternal deaths, only one-quarter occurred during pregnancy or within the first six weeks after delivery. By contrast, among pregnancy-related deaths, three-quarters occurred during pregnancy or soon after.

Timing of death among not pregnancy-related deaths, Colorado, 2008-2013, N=120.



Timing of death among pregnancy-related deaths, Colorado, 2008-2013, N=21.



Between 2008 and 2013, 145 pregnancy-associated deaths occurred to Colorado mothers, between 15 and 37 deaths each year. Fewer than 1 out of 5 deaths (n=21) were pregnancy-related; the vast majority were not related to pregnancy.

Nearly 80 percent of all pregnancy-associated deaths were deemed preventable by the Colorado Maternal Mortality Review Committee.