

Pregnancy-Associated Suicide Deaths in Virginia, 1999-2009

Each year, the Virginia Department of Health, Office of Health Statistics identifies all deaths of Virginia residents that occur during a pregnancy or within one year of pregnancy (termed *pregnancy-associated death*). These deaths are reported to the Centers for Disease Control and Prevention for the ongoing nationwide surveillance of maternal mortality. The deaths are also reported to the Virginia Pregnancy-Associated Mortality Surveillance System (PAMSS) and the Virginia Maternal Mortality Review Team (MMRT). Both of these projects are located within the Office of the Chief Medical Examiner. The Pregnancy Mortality Surveillance System is designed to provide up-to-date information on patterns and trends related to deaths of Virginia's residents that occur during or within one year of pregnancy. The Maternal Mortality Review Team is a multidisciplinary team that conducts comprehensive, in-depth reviews of each of these deaths to improve our understanding of the circumstances surrounding them so that prevention and intervention strategies can be developed.

This report provides surveillance data from the Virginia PAMSS on pregnancy-associated suicide deaths in Virginia that occurred between 1999 and 2009. Over this 11 year period, a total of 506 women died a pregnancy-associated death. Thirty-five of those deaths (6.9%) were a result of suicide. This information was obtained primarily from death certificates. Detailed information on pregnancy-associated deaths that have been reviewed by the Maternal Mortality Review Team, including those due to suicide, is available on the Maternal Mortality Review Team website: <http://www.vdh.virginia.gov/medExam/MaternalMortality.htm>

Who is at Risk?

Table 1 provides demographic characteristics for the women who died by suicide within one year of pregnancy in Virginia between 1999 and 2009. Ages of decedents ranged from 17 to 45 years old. The average age was 28.6. The highest rates of suicide were among the oldest and youngest group of women (12.3/100,000 live births and 8.9/100,000 live births respectively). The majority of pregnancy-associated suicide deaths occurred among White women (71.4%) though rates of suicide deaths per 100,000 live births indicate a higher rate of pregnancy-associated suicide among Black

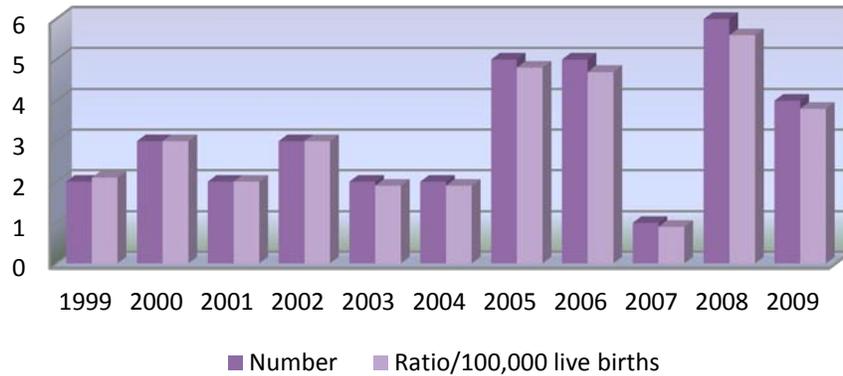
women (3.6 per 100,000 live births to Black women compared to 3.2 deaths of White women per 100,000 live births). The women were equally likely to be single or married when they died. The Eastern and Central Regions of Virginia had the highest rates of pregnancy-associated suicide deaths.

| Table 1. Demographic Characteristics of Pregnancy-Associated Suicide Deaths in Virginia, 1999-2009 (N=35) | | | |
|--|-------------------------|----------------------------------|-------------------------------------|
| | Number of Deaths | Percent of Suicide Deaths | Rate per 100,000 Live Births |
| Age | | | |
| <20 | 5 | 14.3 | 8.9 |
| 20-24 | 9 | 25.7 | 5.4 |
| 25-29 | 7 | 20.0 | 3.3 |
| 30-34 | 4 | 11.4 | 1.9 |
| 35-39 | 7 | 20.0 | 6.2 |
| 40-45 | 3 | 8.6 | 12.3 |
| Race/Ethnicity | | | |
| White | 25 | 71.4 | 3.2 |
| Black | 9 | 25.7 | 3.6 |
| Hispanic | 1 | 2.8 | - |
| Marital Status | | | |
| Single | 16 | 45.7 | - |
| Married | 16 | 45.7 | - |
| Divorced | 1 | 2.8 | - |
| Unknown | 2 | 5.7 | - |
| Health Planning Region of Residence | | | |
| Northwest | 4 | 11.4 | 2.5 |
| Northern | 10 | 28.6 | 2.8 |
| Southwest | 5 | 14.3 | 3.1 |
| Central | 6 | 17.1 | 3.3 |
| Eastern | 10 | 28.6 | 3.6 |

Year of Death

Figure 1 shows the number of pregnancy-associated suicide deaths by year of death along with the ratio of suicide deaths for every 100,000 live births in Virginia for the same time period. Numbers and ratios per 100,000 live births of women committing suicide were highest in 2005, 2006 and 2008 with a slight drop in 2009.

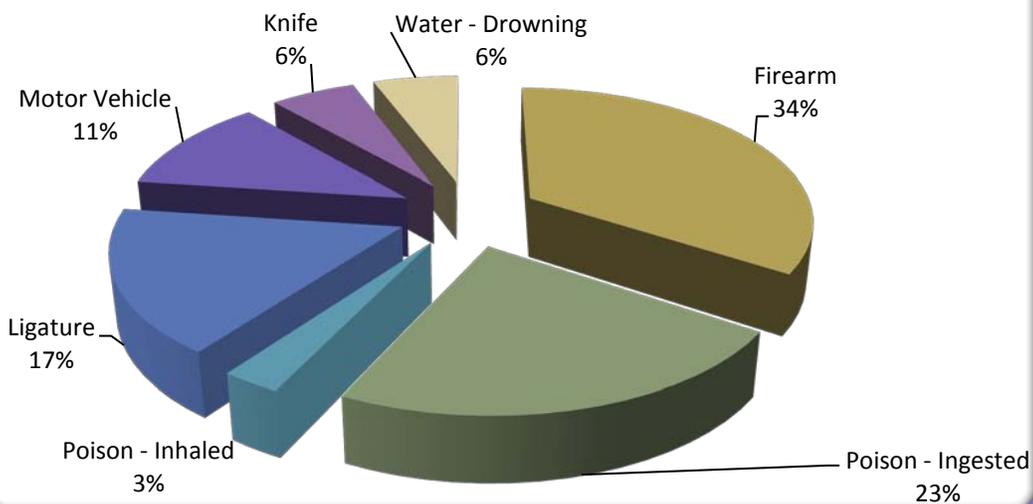
Figure 1. Number and Ratio Per 100,000 Live Births of Pregnancy-Associated Suicides in Virginia, 1999-2009 (N=35)



Method of Death

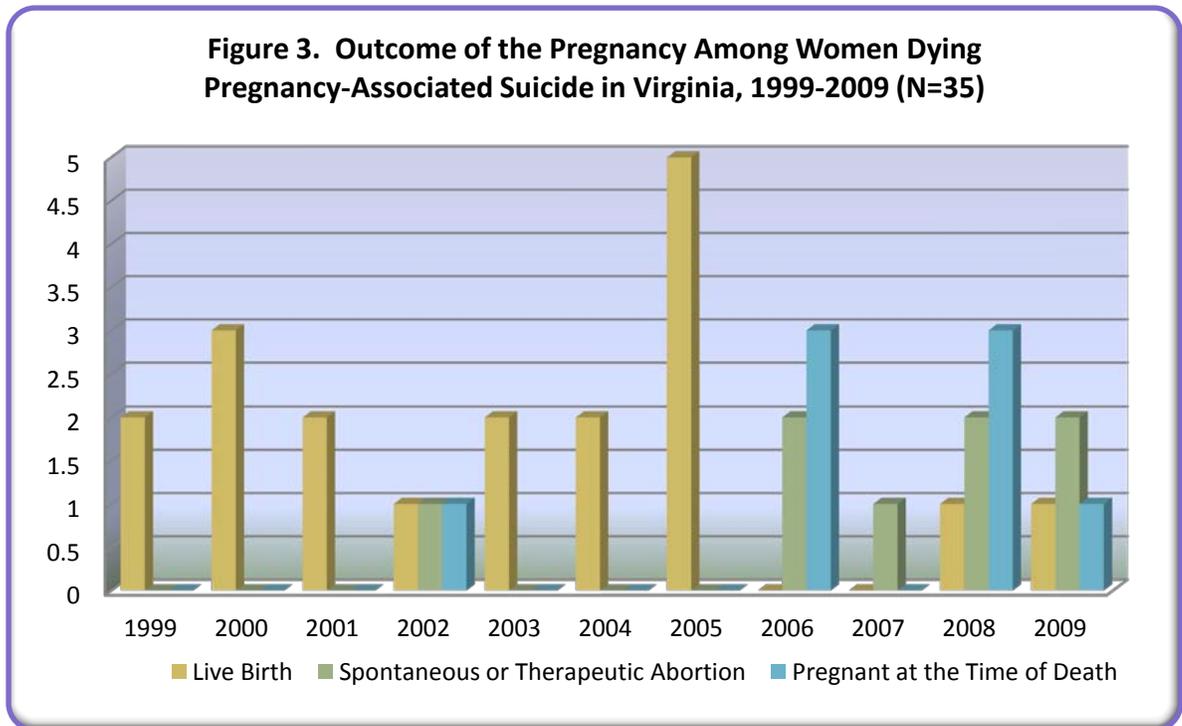
As shown in Figure 2, most victims died from gunshot wounds (34.3%, n=12) followed by poisoning by overdoses (22.8%, n=8). The third leading method of suicide was hanging by ligature (17.1%, n=6). Four women stepped into moving traffic or drove a vehicle into a tree. Two women died by stabbing with knives and drowning, and one death resulted from inhaled poison.

Figure 2. Fatal Agent in Pregnancy-Associated Suicides in Virginia, 1999-2009 (N=35)



Timing of Death and Outcome of the Pregnancy

Figure 3 shows the outcome of the pregnancy for women who died by suicide. Overall, most suicides occurred after a live birth (54.3%, n=19). These deaths occurred between 33 and 365 days after delivery. Seven deaths (20.0%) occurred after pregnancy loss from spontaneous or therapeutic abortion. Nine suicides (25.7%) occurred among women who were pregnant when they died. Eight out of the nine deaths to pregnant women occurred between 2006 and 2009, surpassing the numbers of deaths among women following live births for those years.¹ Women who died while pregnant tended to be either among the youngest (19-22 years old, n=4) or oldest (36 to 45 years old, n=3) of the group. Five of the nine suicide deaths among pregnant women resulted from gunshot wounds, two from overdoses, one by hanging, and one by stabbing.



¹ This may suggest an emerging phenomenon, or the increase could reflect better identification of women dying while pregnant through improved compliance with the pregnancy question on Virginia's death certificate. The death certificate provides a check box to answer whether a female decedent was pregnant at the time of fatal injury or had a pregnancy in the past 3 months.

Conclusions

Numbers of suicide deaths among pregnant or recently pregnant women in Virginia appears to be on the rise. This is reflected by numbers of deaths as well as by examination of the ratio of pregnancy-associated suicide deaths per 100,000 live births. Over the 11 year period, most deaths occurred after a live birth. Recently, however, there has been an increase in the number of women who killed themselves during pregnancy and a reduction in the numbers of women who died within the year after delivering a live infant. These results suggest that recent emphasis on provider screening and referral for postpartum depression has been effective in identifying women at risk for suicide after delivery but implies that earlier screening and referral is necessary to identify women suffering with perinatal depression and other conditions that may be associated with suicide risk.

More detailed Information available from the 22 pregnancy-associated suicide deaths that have been reviewed by the Maternal Mortality Review Team shows 6 of 22 women were diagnosed with depression during pregnancy while 13 were diagnosed after delivery. Nine of the 22 women who died by suicide between 1999 and 2005 were known to have a disorder other than depression which included anxiety (n=3), bipolar disorder (n=5), and schizophrenia (n=1). Close to half (n=10) of the 22 women whose cases were reviewed had a known previous suicide attempt. These risk factors, preexisting mental health conditions and/or previous suicide attempts, may indicate a need for more intensive management to reduce the incidence of suicide among the population of pregnant and postpartum women.

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