

# “Causes of Death Among Stillbirths” (2011), by Stillbirth Collaborative Research Network Writing Group

In December 2011, the Stillbirth Collaborative Research Network, or SCRN, published the article “Causes of Death Among Stillbirths” in *The Journal of the American Medical Association*. The authors of the article investigate the causes of stillbirth and possible reasons for the racial, ethnic, and geographic disparities in stillbirth rates. According to the Centers for Disease Control and Prevention, or CDC, stillbirth is the death of a fetus at twenty or more weeks during pregnancy. “Causes of Death Among Stillbirths” explores the common causes of stillbirth in different racial and ethnic groups, and provides a framework for future research into medical interventions to help reduce racial and ethnic stillbirth disparity.

Stillbirth is the absence of signs of life in the fetus, such as absence of respiration, heartbeat, movements, or umbilical cord pulse. Medically, stillbirths are classified as antepartum if they happen before labor begins or intrapartum if they happen after labor begins. In 2003, the National Institutes of Health, or NIH, created the SCRN to increase understanding of the causes of stillbirth, improve stillbirth reporting, and develop preventative interventions for the condition. The SCRN’s research seeks to identify risk factors for stillbirth, including environmental and geographical factors. The network includes five clinical research sites at universities across the United States. In addition, the SCRN’s work provides a standardization for protocols to examine a fetus after death to ensure more accurate data on fetal deaths. The SCRN was the first in the United States to conduct a large study comparing the circumstances around stillbirths and other births which included fetal autopsy and placental pathology examinations.

The article is divided into four sections. In the introduction, the authors state that non-Hispanic Black women have a higher stillbirth rate than Hispanic women, and Hispanic women have a higher stillbirth rate than non-Hispanic White women. By analyzing data using these categories, the authors aimed to investigate possible causes of that disparity. In Methods, the authors describe the study they conducted and how they collected maternal demographic information and conducted postmortem exams of the fetuses to draw conclusions between race or ethnicity and stillbirth rates and causes. In the Results section, the authors reveal that issues with labor and delivery were the most common causes of stillbirth among all participants. Additionally, they reveal that non-Black Hispanic women had the highest rates of intrapartum stillbirth. In the Comment section, the authors discuss the strengths and weaknesses of the study while also explaining that reducing the preterm birth rate for non-Hispanic Black women could also reduce stillbirth rate overall and lower the racial disparity in stillbirth rates specifically.

In the introduction, the authors state that stillbirth affects one out of every 160 pregnancies in the United States, resulting in around 26,000 stillbirths every year. The authors also explain that stillbirth prevalence in the United States shows significant racial and ethnic disparity. For example, non-Hispanic Black women are over twice as likely to experience stillbirth compared to non-Hispanic White women. Additionally, the stillbirth rate for Hispanic women is fourteen percent higher than non-Hispanic White women. According to the authors, much of the racial and ethnic disparity in stillbirth rate remains unexplained. In order to further study the disparity, the SCRN recruited women of different races at multiple locations who experienced either stillbirth or live birth. The article describes death among stillbirths according to gestational age at delivery along with race and ethnicity.

In the Methods section, the authors explain how they conducted their study of stillbirths. The researchers used a sample of stillbirths taken from their case-control study, a study that compares

a group that experiences a condition with one that does not, conducted between March 2006 and September 2008. The areas of study included portions of Texas, Rhode Island, Massachusetts, Georgia, and Utah. The SCRn researchers conducted the study through fifty-nine tertiary care hospitals, or hospitals for highly specialized medical care after patients have already seen a specialist, and community hospitals. The study included a comprehensive examination of the fetus after death and examination of the placenta, an organ in the uterus that is attached to the fetus through the umbilical cord and provides oxygen and nutrients to the fetus. For the participants in the study, the researchers collected information about maternal race and ethnicity, samples of maternal blood, samples of fetal blood from the umbilical cord, placental tissue, and fetal tissue. The biospecimen samples that the researchers collected went through clinical testing to screen for conditions known to be associated with stillbirth such as infections, structural anomalies in the fetus, and maternal disease. The researchers used the data they collected to group stillbirths according to maternal race and ethnicity and to different types of pregnancy complications.

In the Results section, the authors explain how stillbirth rates differed between women of different races and ethnicities. According to the authors, 953 women were eligible for the study. However, some requested privacy or refused participation in the postmortem exam, so there were ultimately 500 participating women, and 512 fetuses which underwent a complete examination after death. The participants were organized into four demographic groups: non-Hispanic White, Hispanic, non-Hispanic Black, and women of other races or ethnicities. Non-Hispanic Black women had around twenty-four percent higher intrapartum stillbirth rate compared to non-Hispanic White women and eighteen percent higher intrapartum stillbirth compared to Hispanic women. The authors also revealed that stillbirths in non-Hispanic Black women occurred the earliest in gestation compared to those of any other demographic. Of the stillbirths, the authors claimed that the most common causes for death were related to complications during childbirth, including preterm labor, recurring contractions before week thirty-seven of pregnancy, and cervical insufficiency, which is when the cervical tissue is weak enough that it contributes to preterm birth. Placental abnormalities, which restrict the ability of the placenta to deliver adequate nutrients and oxygen to the fetus, were also a common cause of death. According to the authors, other causes of fetal death included infection, structural abnormalities in the fetus, maternal medical complications, and umbilical cord abnormalities.

Finally, in the Comment section, the authors discuss how the probable causes of fetal death were distributed differently across gestation and racial or ethnic groups and the possible implications of that distribution. The authors first explain that the racial and ethnic stillbirth disparities are still largely unexplained, as many persist even despite prenatal care. Based on their results, the rate of stillbirth in non-Hispanic Black women can be attributed to stillbirth occurring before week twenty-five of gestation, complications during childbirth, and infection. Non-Hispanic Black women had a higher rate of preterm birth, which is when a fetus is born before thirty-seven weeks of pregnancy, compared to other demographics. The authors suggest that administering medications that mimic progesterone, a hormone associated with the regulation of ovulation and menstruation, and which can inhibit contraction of the uterus may be one strategy to reduce the rate of preterm birth in non-Black Hispanic women, which may also reduce the rate of stillbirth. The authors also describe the strengths and weaknesses of the study. One limitation was that many women who were experiencing stillbirth in the locations of the study chose not to participate, limiting the number and diversity of participants. However, each patient included in the study had an extensive evaluation for causes of stillbirth, which, according to the authors, allowed for a high level of detail and accuracy. Additionally, the study was geographically, racially, and ethnically diverse, which made the results more generalizable.

The “Causes of Death Among Stillbirths” article by the SCRn provides insight into the uncertainty of the causes of stillbirth, and how they differ between different demographic groups. The study, incorporating data on ethnic and racial categories, provides a framework for studying the racial and ethnic disparities in stillbirth rates. As of 2021, the article has been cited over 300 times, primarily in other research investigating the causes and risk factors for stillbirth.

## Sources

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