

Number 6, August 2019

Induced Abortion & the Increased Risk of Maternal Mortality

After years of failure to obtain accurate statistics on maternal mortality, the United States has noted a sharp increase in its maternal mortality rate, with widening racial and ethic disparities. While some of this increase may be a result of improved data collection, pregnancy-related deaths are occurring at a higher rate in the United States than in other developed countries. In order to implement effective strategies to improve pregnancy outcomes, this must be investigated in an unbiased manner, and novel contributing factors need to be considered.

Background

A pregnancy question was added to the United States standard death certificate in 2003 in order to improve the identification of maternal deaths. The individual states were initially inconsistent in implementing a pregnancy checkbox on death certificates, rendering data so useless that the United States (U.S.) did not publish an official maternal mortality report between 2007 and 2016.¹

Using novel correction factors to standardize death certificate data, a 2016 report shocked the nation by documenting a 26% increase in maternal mortality from 18.8/100,000 live births in 2000 to 23.8 in 2014. Suggested etiologies of the rise included: artifact as a result of improved maternal death surveillance, 2 incorrect use of ICD-10 codes, 3 health care disparities, 4 lack of family support and

other social barriers, substance abuse and violence,⁵ depression and suicide,⁶ inadequate preconception care, patient noncompliance, lack of standardized protocols for handling obstetric emergencies,7 failure to meet expected standards of care,8 aging of the pregnant patient cohort with associated increase in chronic diseases and cardiovascular complications, 9 lack of a comprehensive national plan, and defunding women's healthcare by Planned Parenthood."10,11 "demonizing State maternal mortality review committees suggested that 60% of these deaths may be preventable.12

Maternal mortality definitions

Deaths are categorized based on their causation and proximity to the end of the pregnancy:

AAPLOG Committee Opinion. This document was developed by authors on the Research Committee. Committee Opinions summarize best practices that form an important part of pro-life practice.

- "Maternal death" is the death of a woman while pregnant or within 42 days of the end of her pregnancy, irrespective of the duration or site of the pregnancy or its management, excluding accidental or incidental causes.
- "Late maternal death" is the death of a woman from direct or indirect obstetric causes more than 42 days, but within 365 days of the end of the pregnancy.¹³
- "Pregnancy-related death" is the death of a woman while pregnant or within 365 days of the end of pregnancy, in which pregnancy may have contributed to the cause of the death.
- "Pregnancy-associated death" is the death of a woman while pregnant or within 365 days of the end of pregnancy from a cause that is either not related to pregnancy or pregnancyrelatedness cannot be determined.

The World Health Organization reports only deaths occurring during pregnancy or within 42 days of the end of pregnancy in defining maternal mortality, while the Division of Reproductive Health at the Centers for Disease Control and Prevention (CDC) reports all pregnancy-related deaths occurring within one year of the end of pregnancy. Both report maternal mortality rate as the number of maternal deaths/1000 women of reproductive age.¹⁴

An ideal mortality rate would be achieved by calculating the number of maternal deaths/100,000 pregnancies. That is not feasible because the number of spontaneous

pregnancy losses are difficult to record and induced abortion data is not shared. Since the number of live births can be accurately measured due to mandated reporting on birth certificates, epidemiologists assume that the number of live births is a good representation of the number of pregnancies. They developed a measure of disease known as the maternal mortality ratio and define it as the number of pregnancy-related deaths/100,000 live births. This is a mortality ratio, not a rate.

Similar to the total "number of pregnancies" needed in the denominator, the number of "pregnancy-related deaths" in the numerator is not known. Two out of three maternal deaths occur in conjunction with a live birth. The rest may be separated from the end of pregnancy by days, weeks, or even months, and include spontaneous and induced end of pregnancy events. The U.S. does a poor job of accurately detecting maternal deaths, and studies show as many as 50% of maternal deaths may be missed on death certificates. 18,19

Racial and ethnic disparity

Maternal mortality in minority women, particularly non-Hispanic Black women, has skyrocketed. Black women have maternal mortality rates 3.3 times higher than white women.²⁰ Unfortunately, there have been accusations that this is a result of implicit racism held by healthcare providers – the care provided to Black women or poor women is not as good as the care provided to non-Hispanic white women or affluent women. Limiting the discussion to implicit racism does a disservice to women of color

and women in poverty by ignoring other factors that contribute to maternal mortality.

Poverty is certainly a risk factor for failure to obtain appropriate medical care and might be expected to contribute to the excess maternal mortality rates in Black women (20% of whom live in poverty, compared to 16% Hispanics and 8% whites). Domestic violence and mental health disorders are also seen more commonly in impoverished communities. In 2011, Illinois reported that 13% of its maternal deaths were the result of homicide. Black mothers bore the greatest risk, accounting for 43% of the maternal homicide deaths while composing only 14% of the population.²¹ Texas has been noted to have extremely high maternal mortality rates, and an examination of deaths in 2011-2012 found that overdoses, homicide, and suicide accounted for almost 20% of the maternal deaths.²² Poverty and poor social and family support are causes of the disparity noted in maternal mortality rates.²³

Giving birth and caring for a child without a partner places a woman at an obvious disadvantage. She is more likely to live in poverty without the resources she may need to seek health care. If she should become ill during or after pregnancy, she may not seek emergency care due to lack of social support, childcare, or transportation. It should be noted that only 5% of married couples live in poverty. In 2017, 67% of Black women were unmarried when they gave birth to children, compared with 39% of Hispanic women and 27% of white women.²⁴ Prior to 1950, a Black woman was more likely to be married than a white woman, with marriage rates nearing 80%, but marriage rates for Black women have since plummeted.²⁵ Could the breakdown of the Black family be a root cause of the disparity in maternal mortality rates?

It is noteworthy that there are significant differences in birth outcomes in Black women compared with non-Hispanic white women. The rates of natural losses are similar (16%), but 34% of pregnancies in Black women end in induced abortion, compared to 11% for white women. Less than half of pregnancies in Black women result in the birth of a live baby (48%). Induced abortion is 3.7 times more common in Black than in non-Hispanic white women, and Black women more commonly have later abortions (13%) compared with white women (9%).26 It is known that the risk of death increases by 38% for every week after eight weeks gestation.²⁷ It is possible that the higher rate of legal induced abortion may account for most of the racial disparity noted in pregnancy mortality.

Genetic determinants of health are important. For example, thrombophilia is more prevalent in non-Hispanic Black women and this is a risk factor for pulmonary embolus or thrombotic strokes, both causes of maternal mortality.²⁸ Social determinants of health are paramount; poverty is linked to obesity, diabetes, and hypertension. Obesity is more prevalent in Black women (46.8%) and Hispanic women (47%) than white women (37.9%).²⁹ Diabetes is higher in Black (12.7%) and Hispanic (12.1%) than in non-Hispanic white women (7.4%).30 The rates of hypertension are higher among Black (40.4%) compared to non-Hispanic white (27.4%) or Hispanic women (26.1%).31 If a woman is predisposed to hypertension, the likelihood that she will develop preeclampsia or eclampsia increases substantially. Obesity,

diabetes, and hypertension predispose women to early obstetrical interventions and Cesarean sections, both of which are linked to increased maternal mortality.

A ten-year Harvard study completed in 2016 found that implicit bias based on race decreased by 17% and explicit bias decreased by 37%.32 If racial bias reported in the Harvard study was the sole cause of maternal mortality, pregnancy-related mortality in the non-Hispanic Black community should have decreased. It has not. To discuss the effects of years of legalized racism without identifying antecedent enslavement is implicit bias and it promotes the idea that Black and non-Black women start on an equal playing field. It confirms the stereotype that Black women, through their reckless behavior, place themselves far behind the rest of the population. Victim-blaming subtly diverts attention from racism, discrimination, segregation, and the powerlessness of the ghetto.³³ Victim-blaming leads to inappropriate ventures, such as placing abortuaries in Black neighborhoods. Abortionists are like carpetbaggers,34 nonresidents seeking gain by taking advantage of communities of color. Compounding structural inequality, abortion advocates effectively perpetuate Jim Crow era suppression.

The effects of family disruption by enslavement's forced displacement followed by a long history of voluntary migration due to legalized racism are still apparent in the separation of family units, structural inequality, and the resultant high prevalence of poverty. Poverty is a cause of physical disease, emotional stress, and mental health distress. Victim-blaming abortion advocacy organizations have a long history of targeting minority communities. Inflicting abortion, often in advanced pregnancy, is documented to lead to increased risk-taking behavior that results in death from drug overdose, suicide, or homicide. Induced abortion may be a root cause of the racial and ethnic pregnancy-related mortality disparity. Addressing contextual-level social determinants of health could eliminate this disparity.

Determining pregnancy-related deaths

The Centers for Disease Control and Prevention (CDC) rely heavily on death certificates to determine maternal deaths, but death certificates have been proven unreliable in accurately identifying all maternal deaths. Deaths due to live births are likely to be the most accurately recorded because most live births occur in a hospital setting or with the assistance of medical personnel. However, deaths from other pregnancy outcomes, such as induced abortion, are not accurately reported.³⁵ Inconsistent implementation of a pregnancy checkbox on death certificates and search engine failures to provide ICD-10 obstetric-specific codes for abortion-related deaths thwart this documentation.³⁶ For example, the Texas Maternal Mortality Task Force discovered that more than 50% of the maternal deaths identified by ICD-10 obstetric codes showed no evidence of pregnancy and another 10% had insufficient information to determine whether a pregnancy had occurred.³⁷ Either these deaths were erroneously coded as pregnancy-related, or the deaths were subsequent to spontaneous or induced losses early in pregnancy and not able to be correlated with fetal birth or fetal death certificates. Independent providers perform almost all abortions in Texas and these records are not available. In Finland,

73% of maternal deaths were not identified on death certificates, demonstrating the clear inadequacy of death certificate data alone.³⁸ The quality of U.S. pregnancy-related mortality data is poor.

Determining induced abortion deaths

Published abortion mortality rates are inaccurate because the total number of legal abortions performed in the U.S. is not known.³⁹ Estimated numbers of abortions are voluntarily reported to the CDC by state health departments. California, the state with the largest volume, does not report any data.⁴⁰ The Guttmacher Institute also tracks these numbers and it consistently reports higher numbers than the CDC. For example, the CDC reported 652,639 abortions in 2014 while the Guttmacher Institute reported 926,000.41,42 Twenty-seven states require abortion providers to report complications but there are no enforcement penalties for noncompliance. Only 12 states require coroemergency rooms, ners, healthcare providers to report abortion-related complications or deaths for investigation.43

If an abortion initiates a cascade of events resulting in death, only the closest antecedent events may be listed on the death certificate due to space limitations and provider time constraints. Since most abortion providers lack hospital admitting privileges, other healthcare providers are required to provide hospital care. The physician certifying the death may be unaware of the abortion or mistakenly believe that a miscarriage led to the complications. Furthermore, ideological commitments may lead a certifier to omit this information. 44,45 Due to the social

stigma surrounding abortion, families of women dying from complications are unlikely to initiate malpractice lawsuits. Correlating public documentation of malpractice cases with autopsy reports, an investigative reporter was able to document 30% more abortion-related deaths nationwide than the CDC. The reported death rate from abortion represents only the tip of the iceberg, a problem much larger than it appears.

There has been widespread misinformation about abortion. It seems as if deaths rarely occur and abortion is perceived to be a very safe procedure. When discussing maternal and induced-abortion-related mortality, consideration is often given only to complications that can occur in a term, gravid uterus rather than recognizing that physiologic changes begin as soon as a pregnancy commences. Induced abortion interrupts this normal physiology and there are unique risks due to this intervention. Historically, surgical dilation and sharp curettage (utilizing a sharp curette rather than a suction catheter) had been used in the first trimester of pregnancy, but this more frequently resulted in uterine trauma.46

Significant complications may occur with a surgical abortion, so it is not surprising that women opt to have mifepristone-induced pregnancy terminations (medical abortions) performed instead. Accounting for 31% of U.S. abortions, medical abortions are performed until 10 weeks gestation by administering mifepristone and misoprostol. A medical abortion disrupts hormones that maintain the pregnancy and causes uterine contractions that eventually expel the baby and the placenta. Yet, most women are unaware that the complication rate is four times

higher with this procedure than with surgical abortion. The most common complication is hemorrhage with almost 8% of women experiencing incomplete abortions requiring surgical completion. Other serious complications of medical abortions include uterine perforation (0.2-0.5%) and uterine rupture (0.28%) in women who have had prior Cesarean sections.⁴⁷ Animal models of medical abortion warn of the potential for long-term negative well-being indicative of depression and anxiety.⁴⁸ Both mifepristone and misoprostol disrupt innate immunity and fatal cases of septic shock following medical abortion have occurred. 49,50 In 2003, 40% of legal induced abortion deaths occurred following medical abortions.51

Beginning in the second trimester, dilation and evacuation (D&E) is the surgical method necessary because the pre-born baby has grown large enough that it cannot be removed through a suction cannula.⁵² The risks of D&E abortions include hemorrhage and cervical laceration (3.3%) and retained body parts and/or placental tissue (1%). Non-intact D&E is commonly referred to as a "dismemberment" abortion because the preborn baby is removed in a piecemeal fashion with instruments. Intact D&E, also known as dilation and extraction (D&X) or "partial birth" abortion, has been illegal in the U.S. since 2003.53 During that procedure, the preborn baby's feet first appear, which the abortionist grabs and pulls until the body delivers. Once the bottom of the baby's head is exposed, the abortionist evacuates its brain with a vacuum, causing its skull to collapse, which finally enables delivery. The increased size of the pre-born baby and increased amount of placental tissue requires a greater degree of cervical dilation, while the thin, relaxed uterine myometrium is more likely subject to mechanical perforation and resulting catastrophic hemorrhage.^{54,55}

Historically, saline or prostaglandin was infused into the amniotic sac in late-term abortions to kill the pre-born baby and induce labor. Maternal deaths occurred due to fluid imbalances and infections. Hysterotomy abortion (performing a Cesarean section to complete a late-term abortion) is rarely used because it is a major surgical procedure.

Labor induction is the method used to perform extreme late-term abortions. Labor-induction abortions are often complicated by immediate maternal hemorrhage, requiring an invasive surgical procedure to extract retained placental tissue. A large European study documented that more than half of the babies survived delivery in post-viability induced abortions. If a baby is born alive, the abortionist may complete the abortion by performing active or passive infanticide. Many abortionists perform feticide via intracardiac or intra-amniotic injections to avoid this dreaded complication.

Severe physical injuries occur from surgical abortion. Experienced abortionists not infrequently damage adjacent organs or major blood vessels as they insert suction curettes or grasping forceps into the soft, gravid uterus. ^{58,59} Injury to adjacent major blood vessels and/or gynecologic, genitourinary, or gastrointestinal organs requires emergency abdominal surgical exploration to perform a hysterectomy, bowel resection, bladder repair, or other repair. ^{60,61} Death from induced abortion can occur due to vaginal and intra-

abdominal hemorrhage, sepsis, thrombotic emboli, intravascular amniotic or air emboli, complications of anesthesia, and cardiac or cerebrovascular events.

Forcibly opening a cervix that is designed to remain closed until natural childbirth may result in cervical trauma and cervical incompetence in future pregnancies. This weakened cervix may dilate early in a subsequent pregnancy, predisposing the woman to premature rupture of membranes, intrauterine infections, and possible sepsis. Statistically significant studies show a connection with preterm birth. One meta-analysis found that there was a 25% increased risk of premature birth in a subsequent pregnancy after one abortion, 32% after more than one, and 51% after more than two abortions. 62 Another meta-analysis found a 35% increased risk of delivery of a very low birth weight infant after one abortion, and 72% after two or more abortions. 63 Obstetrical interventions for the management of preterm birth raise the risk of maternal mortality.

Instrumental trauma to the endometrium may result in faulty placentation in subsequent pregnancies. The Placenta Accreta Spectrum (PAS) is abnormal placentation in which the placenta invades into the cervix, uterine wall, or other adjacent organs; it includes placenta accreta, placenta increta, and placenta percreta. In 1950, the incidence of PAS was 1:30,000 deliveries, but in 2016, the incidence was reported to be 1:272 deliveries.⁶⁴ This 110-fold increase in incidence raises the risk of pregnancy-related mortality, occurring in women with a history of uterine surgery, including induced abortion.65 PAS can cause massive hemorrhage. Deaths occur even in high-level hospitals, and the fortunate survivors often require transfusion of scores of units of blood to save their lives.⁶⁶

The frequency of abortion complications increases as the pregnancy advances due to greater technical complexity related to the anatomical and physiologic changes that occur.⁶⁷ Compared to early abortions, the relative risk of death was 76.6 times higher beyond 21 weeks (rate 8.9/100,000). It is known that the risk of death from abortion increases by 38% for each additional week beyond 8 weeks. 68,69,70 The American Board of Medical Specialties recognizes the inherent danger of late-term abortions. In 2018, it approved the new American Board of Obstetrics & Gynecology subspecialty "Complex Family Planning" to train abortionists to perform late-term abortions.71

In addition to the immediate physical risks to a woman from an abortion, there are longterm complications that increase a woman's risk of death. Stress accompanying voluntary or spontaneous pregnancy loss may adversely impact a woman's health and wellness.⁷² Delivering a baby may have a protective emotional effect, whereas induced abortion may have a deleterious emotional effect.⁷³ A large meta-analysis found that women experienced an 81% increased risk of mental health problems after induced abortions: 34% increased risk of anxiety, 37% increased depression, 110% increased alcohol abuse, 230% increased marijuana abuse, and 155% increased suicidal behavior.⁷⁴ An eight-year retrospective study showed that those who aborted had significantly higher age-adjusted risks of death from suicide (254%) compared to those who delivered a baby.⁷⁵ A comprehensive record-linkage

study from Finland found that following an abortion, a woman was two to three times as likely to die within a year, six times as likely to commit suicide, 76 four times as likely to die from an accident, and fourteen times as likely to be murdered,77 compared with a woman who carried to term. 78 Finnish studies also revealed that the risk of death from abortion (101 deaths per 100,000 ended pregnancies) was almost four times greater than the risk of death from childbirth (27 deaths per 100,000 ended pregnancies).79 Mental health issues may contribute to drug overdoses, suicides, homicides, or even accidents due to risk-taking behavior, but our current system of data collection is not capable of linking these events to induced abortion.

Due to the paucity of complication data available in the U.S., the actual abortion-related mortality rate is undoubtedly much higher than reported.80 Legal or ideological motivation can obscure the initiating event that led to death. In addition, the failure of most abortion providers to maintain hospital privileges forces a different hospital-based healthcare provider to treat the resulting complications.81 It is not possible to link deaths related to early pregnancy events to an infant's birth or death certificate. Even in Finland, a country with single-payer healthcare and exceptional data linkage, 94% of abortion-related deaths are not identified on death certificates.82 Due to restricted data access, poor record keeping, and lack of mandatory complication reporting, the actual induced abortion-related mortality rate in the U.S. cannot be determined.

Report of the National Academies of Sciences, Engineering, and Medicine (NAS)

In spite of these documented risks of abortion-related mortality, the NAS published a book that stated that induced abortion is extremely safe.83 They concluded that serious complications or long-term physical or mental health effects are virtually non-existent; specifically, they denied that abortion increases the risk of preterm delivery or mental health disorders. They did not consider the increased risk of hemorrhage due to PAS that can occur with subsequent pregnancies. Abortion is so safe, they wrote, that it does not need to be performed by physicians. Trained midlevel practitioners can perform abortions in an office-based setting via telemedicine without the need for hospital admitting privileges, special equipment, or protocols for emergency transport of women with complications. They wrote that the only risks associated with abortion are the imposition of "barriers to safe and effective care" by some state legislatures.

Selection bias against the existence of delayed morbidity is obvious in the literature chosen by the NAS. A meta-analysis revealed a curious lack of interest by most investigators in the question of whether abortion is safer than childbirth. They purposefully excluded the eleven studies that provided results allowing comparison between the death rates associated with all possible pregnancy outcomes. These studies showed that the risk of death within 180 days is over twice as high following abortion compared to delivery and this risk remains elevated for at least ten years.84 Compared with those who delivered a baby, those who underwent induced abortion had significantly higher

age-adjusted risks of death from all causes (162%), from suicide (254%), as well as from natural causes (144%). ⁸⁵ The risk of death in a given year for a woman who was not pregnant was 57/100,000 women, but after an abortion, the risk was 83/100,000; after miscarriage, 52/100,000; and for those who carried a pregnancy to term, 28/100,000. ⁸⁶

Danish studies reported that the risk of death within 180 days after a first trimester abortion was 244% higher than the risk of death after childbirth; the risk of death after a late-term abortion was 615% higher than that after childbirth.87 Stringent selection criteria allowed the NAS to disqualify these and other valid reports due to "study defects." For immediate morbidity, they allowed abortionists to control the dialogue by only discussing reports authored by them or their aligned organizations. This is known as "incestuous citing," allowing abortionists to cite each other to prove their points.88 In California, Planned Parenthood aborts an alarming number of pregnancies and 317,000 of these abortions were reviewed.^{89,90} Severe complications deaths, particularly from nonaligned lateterm abortion providers, have been reported in the media.⁹¹ The refusal of California to report and the paucity of voluntary reporting nationwide yield the outcome that abortion advocates demand: most abortion complications are never identified. The NAS was aware of its selection bias and should have made a call for more studies, not a categorical dismissal that abortion complications are nonexistent.

Safety of abortion vs. childbirth

Epidemiologists define the abortion mortality rate as the number of induced abortionprocedure deaths/100,000 induced abortions. There are many pregnancy events that may result in mortality that are excluded from the denominator "100,000 induced abortions." If abortion-procedure deaths were erroneously or intentionally classified as pregnancy-related maternal deaths, this would inflate the maternal mortality ratio and decrease the abortion mortality rate. For example, a death from an induced abortion following intentional feticide could be coded as a death caused by a procedure to evacuate an intrauterine fetal demise. The abortion death rate must be higher than published because deaths from abortion are underreported and the numbers of abortions are inflated.

A widely-reported study concluded that abortion was 14 times safer than childbirth.92 Abortion advocates even argue that since childbirth is so dangerous, abortion should be readily available so women can "opt out" of being pregnant. Is abortion really safer than childbirth? Abortion-related deaths were compared to the number of legal abortions, whereas pregnancy deaths were compared to the number of live births. One cannot compare the abortion-related mortality rate to the pregnancy-related mortality ratio – this is a meaningless exercise. Of the four variables used in the abortion-related mortality rate and the pregnancy-related mortality ratio, the number of live births is the only variable that can be accurately determined. The study used three impossible-to-quantify variables to compare

two disparate outcomes – a false equivalence.

Finland has universal health and data linkage, allowing it to use "ended pregnancies" as a common denominator when studying abortion-related vs. childbirth-related mortality. They reported that the risk of death from abortion (101 deaths per 100,000 ended pregnancies) was almost four times greater than the risk of death from childbirth (27 deaths per 100,000 ended pregnancies).⁹³

This data is not available in the U.S., so one must implement different methodology to compare outcome-specific rates of abortionrelated and childbirth-related mortality. Since abortion and most childbirth deliveries are done vaginally, and since abortion may increase the percentage of women undergoing Cesarean section in subsequent pregnancies due to preterm birth and abnormal placentation, Cesarean deliveries should be excluded when comparing the safety of childbirth and abortion. To make a valid comparison, an outcome-specific rate for maternal mortality must be used: mortality associated with vaginal childbirth. The vaginal delivery maternal mortality rate is calculated as the vaginal-childbirth-maternal number deaths/100,000 vaginal deliveries.94 Using outcome-specific rates, the mortality rate for vaginal delivery is 3.6 deaths/100,000 vaginal deliveries, 95 while the rate for abortion performed at 18 weeks or later is 7.4 deaths/100,000 abortions.96 Put another way, the risk of death from these abortions is more than double that for women who deliver vaginally.

Summary of Recommendations and Conclusion

Recommendations:

- 1. Advocate for better data collection, especially correlating current outcomes and historic early pregnancy events. Since the risk of death within 180 days of the end of pregnancy is over twice as high following induced abortion compared to childbirth, death certifiers must document early pregnancy events in order to increase the accuracy of mortality data. Access to study all deaths occurring within one year of the end of pregnancy will allow unbiased researchers to correlate current pregnancy outcome with early pregnancy and prior pregnancy adverse events, including legal induced abor-
- Enforce mandatory reporting of abortion complications and abortion-related deaths, with strict noncompliance penalties, to improve data collection and more accurately reflect abortion-related deaths.
- Direct attention to the association of legal induced abortion with subsequent pregnancy complications requiring obstetrical interventions that increase risk of maternal mortality – sepsis and catastrophic hemorrhage.
- Raise awareness that induced abortion is also associated with very preterm deliveries in subsequent pregnancies, forcing obstetrical interventions that

- could increase the risk of maternal mortality.
- Be aware that a woman's mental health status following legal induced abortion may be associated with increased risk-taking behavior leading to becoming a victim of homicide, suicide, or drug overdose.
- Encourage additional research of the abortion-linked complications that have not been adequately studied, such as the abortion and breast cancer link.
- Consider social determinants of health disparities, particularly as they contribute to the increased mortality of ethnic/racial minority mothers. Particular emphasis should be given to encouraging paternal engagement and increasing familial support.

Conclusion

Biased academic physicians have led the discussion on maternal mortality. Having economic ties to the abortion industry, these elite abortion advocates publish articles that document "safety" for an industry that profits from widespread abortion access. To increase their credibility, each one quotes the others' poor data. Journal editors frequently have conflicts of interest, 97 and readers are not assured that independent reviewers have critically evaluated submissions by academic abortion advocates before publication. People were not content to blindly believe the tobacco industry when reassured that smoking was

safe and did not cause cancer. People must refuse to be deluded by the abortion industry as it protects its product by reassuring that abortion is safe, an assertion based on deliberately deceitful and inadequate data. The politics of pregnancy-related mortality and induced abortion must not be allowed to continue to obstruct root cause analyses of maternal mortality.

References

- MacDorman M, Declercq E, Cabral H, Morton C. 2016. Recent increases in the U.S. maternal mortality rate: disentangling trends from measurement issues. Obstet Gynecol. 2016 Sep;128(3):447-55. doi: 10.1097/AOG.00000000000001556. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5001799/
- Joseph K, Lisonkova S, Muraca G, Razaz N, Sabr Y, Mehrabadi A, Schisterman E. 2017. Factors underlying the temporal increase in maternal mortality in the U.S. Obstet Gynecol. 2017 Jan;129(1):91-100. doi: 10.1097/AOG.0000000000001810. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5177465/
- Creanga A, Callaghan W. 2017. In reply: recent increases in the U.S. maternal mortality rate: disentangling trends from measurement issues. Obstet Gynecol. 2017 Jan;129(1):206-207. doi: 10.1097/AOG.00000000000001831. Free full

- https://journals.lww.com/greenjournal/Citation/2017/01000/Recent_Increases_in_the_U_S__Maternal_Mortality.36.aspx
- Moaddab A, Dildy G, Brown H, Bateni Z, Belfort M, Sandi-Haghpeykar H, Clark S. 2016. Health care disparity and state-specific pregnancy-related mortality in the U.S., 2005-2014. Obstet Gynecol. 2016 Oct;128(4):869-75. doi: 10.1097/AOG.0000000000001628. Free full text: https://journals.lww.com/greenjournal/fulltext/2016/10000/Health_Care_Disparity_and_State_Specific.25.aspx
- 5. Chescheir N. 2016. Drilling down on maternal mortality. Obstet Gynecol. 2016 Sep;128(3):427-8. doi: 10.1097/AOG.0000000000001600. Free full text: https://journals.lww.com/greenjournal/Citation/2016/09000/Drilling_Down_on_Maternal_Mortality.2.aspx
- Perlow J, Lesmes H. 2014. Maternal mortality: time for national action. Obstet Gynecol. 2014 Feb;123(2 Pt 1):362. doi: 10.1097/AOG.00000000000000112. Free full text: https://journals.lww.com/greenjournal/Citation/2014/02000/Maternal_Mortality__Time_for_National_Action.23.aspx
- 7. Main E, Menard K. 2013. Maternal mortality: time for national action. Obstet Gynecol. 2013 Oct;122(4):735-6. doi: 10.1097/AOG.0b013e3182a7dc8c. Free full text: https://journals.lww.com/greenjournal/Citation/2013/10000/Maternal_Mortality__Time_for_National_Action.2.aspx
- 8. Berg C, Harper M, Atkinson S, Bell E, Brown H, Hage M, Mitra A, Moise K,

- Callaghan W. 2005. Preventability of pregnancy-related deaths: results of a state-wide review. Obstet Gynecol. 2005 Dec;106(6):1228-34. DOI: 10.1097/01.AOG.0000187894.71913.e8 https://www.ncbi.nlm.nih.gov/pubmed/?term=Obstet+Gynecol+106%3A1228-1234.
- 9. Kushnir V, Barad D, Gleicher N. 2015. Advanced reproductive age and maternal mortality. Obstet Gynecol. 2015 Apr;125(4):984. doi: 10.1097/AOG.0000000000000771. Free full text: https://journals.lww.com/greenjournal/Citation/2015/04000/Advanced Reproductive Age and Maternal Mortality.42.aspx
- 10. Clark S, Belfort M. 2017. The case for a national maternal mortality review committee. Obstet Gynecol. 2017 Jul;130(1):198-202. doi: 10.1097/AOG.00000000000002062. https://insights.ovid.com/cross-ref?an=00006250-201707000-00027
- 11. Boulware D. 2017. Recent increases in the U.S. maternal mortality rate: Disentangling trends from measurement issues. Obstet Gynecol. 2017 Feb;129(2):385-386. doi: 10.1097/AOG.000000000001879. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6445540/
- 12. Brantley MD, Callaghan W, Cornell A, et al. 2018. Building U.S. capacity to review and prevent maternal deaths report from nine maternal mortality review committees. MMRIA. Atlanta, GA: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. Retrieved from:

- https://www.cdcfoundation.org/sites/default/files/files/ReportfromNineMMRCs.pdf
- Maternal mortality World Health Organization. Retrieved from: http://apps.who.int/gho/data/imr.jsp?id=26
- 14. Creanga AA, Berg Cj, Ko JY, Farr SL, Tong VT, Bruce FC, Callaghan WM. 2014. Maternal mortality and morbidity in the United States: where are we now? J Womens Health (Larchmt). 2014 Jan;23(1):3-9. doi: 10.1089/jwh.2013.4617. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3880915/
- Patel DA, Burnett NM, Curtis KM. Reproductive Health Epidemiology Series Module 2.Maternal Health Epidemiology. DHHS. CDC. DRH. Atlanta 2003:21.
- Jatlaoui TC, Boutot ME, Mandel MG, Whiteman MK, Ti A, Petersen E, Pazol K.
 2018. Abortion surveillance United States, 2015. MMWR Surveill Summ.
 2018 Nov 23;67(13):1-45. doi: 10.15585/mmwr.ss6713a1. Free full text:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6289084/ Retrieved from: https://www.cdc.gov/mmwr/volumes/67/ss/ss6713a1.htm

- 17. Op. cit. Endnote 1 MacDorman et al.
- Horon IL. 2005. Underreporting of maternal deaths on death certificates and the magnitude of the problem of maternal mortality. Am J Public Health. 2005 March; 95(3): 478–482. doi: 10.2105/AJPH.2004.040063 Free full text:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1449205/

- 19. Dye TD, Gordon H. 1992. Retrospective maternal mortality case ascertainment in West Virginia, 1985 to 1989. Am J Obstet Gynecol. 1992 Jul;167(1):72-6. https://www.ajog.org/article/S0002-9378(11)91629-9/pdf
- 20. Petersen EE, Davis NL, Goodman D, Cox S, Mayes N, Johnston E, Syverson C, Seed K, Shapiro-Mendoza CK, Callaghan WM, Barfield W. 2019. Pregnancy-related deaths, United States, 2011-2015, and strategies for prevention, 13 States, 2013-2017. MMWR Morb Mortal Wkly Rep. 2019 May 10;68(18):423-429. doi: 10.15585/mmwr.mm6818e1. Retrieved from: https://www.cdc.gov/mmwr/volumes/68/wr/mm6818e1.htm?s cid=m m6818e1_w Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6542194/
- 21. Koch A, Rosenberg D, Geller S. 2016. Higher risk of homicide among pregnant and postpartum females aged 10-29 years in Illinois, 2002-2011. Obstet Gynecol. 2016 Sep;128(3):440-6. doi: 10.1097/AOG.00000000000001559. Free full text: https://journals.lww.com/greenjournal/fulltext/2016/09000/Higher Risk of Homicide Among Pregnant and.5.aspx
- 22. Baeva S, Saxton D, Ruggiero K, Kormondy M, Hollier L, Hellerstedt J, Hall M, Archer N. 2018. Identifying maternal deaths in Texas using an enhanced method. Obstet Gynecol. 2018 May;131(5):762-769. doi: 10.1097/AOG.000000000000002565. Free full text:

- https://journals.lww.com/greenjournal/fulltext/2018/05000/Identifying_Maternal_Deaths_in_Texas_Using_an.3.aspx
- 23. Op. cit. Endnote 11 Boulware.
- 24. Births to unmarried women. Child Trends. 2018. Retrieved from https://www.childtrends.org/indicators/births-to-unmarried-women
- 25. Ricketts E. 1989. The origin of Black female-headed families. Focus 12:32-36. Retrieved from https://www.irp.wisc.edu/publications/focus/pdfs/foc121e.pdf
- 26. Jones R, Finer L. 2012. Who has second trimester abortions in the U.S.? Contraception. 2012 Jun;85(6):544-51. doi: 10.1016/j.contraception.2011.10.012. Epub 2011 Dec 15. https://www.contraceptionjournal.org/article/S0010-7824(11)00625-1/fulltext
- Bartlett L, Berg C, Shulman H. 2004. Risk factors for legal induced abortion related mortality in the U.S. Obstet Gynecol. 2004 Apr;103(4):729-37. https://www.ncbi.nlm.nih.gov/pubmed/?term=Obstet+Gynecol+103%3A729-737.
- 28. Phillipp C, Faiz AS, Beckman MG, Grant A, Bockenstedt PL, Heit JA, James AH, Kulkami R, Manco-Johnson MJ, Moll S, Ortel TL. 2014. Differences in thrombotic risk factors in Black and white women with adverse pregnancy outcome. Thromb Res. 2014 Jan;133(1):108-11. doi: 10.1016/j.thromres.2013.10.035. Epub 2013 Nov 1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4405792/
- Craig M. Hales CM, Carroll MD, Fryar CD, Ogden CL. 2017. Prevalence of obesity among adults and youth: United States,

- 2015–2016. NCHS Data Brief. 2015 Feb;(188):1-8. Retrieved from: https://www.cdc.gov/nchs/data/databriefs/db288.pdf
- 30. Centers for Disease Control and Prevention. 2017. National diabetes statistics report, 2017. Atlanta, GA: Centers for Disease Control and Prevention, U.S. Dept of Health and Human Services. Retrieved from http://www.diabetes.org/assets/pdfs/basics/cdc-statistics-report-2017.pdf
- 31. Centers for Disease Control and Prevention. 2013. Racial/ethnic disparities in the awareness, treatment, and control of hypertension United States, 2003—2010. MMWR 62:351-355. Retrieved fromhttps://www.cdc.gov/mmwr/preview/mmwrhtml/mm6218a2.htm
- 32. Charlesworth TES, Banaji MR. 2019. Patterns of implicit and explicit attitudes: I. long-term change and stability from 2007 to 2016. Psychol Sci 2019;30:174–192. DOI 10.1177/0956797618813087
- 33. Ryan W. Blaming the Victim. Random House. New York. Vintage Books Edition 1976:5.
- 34. Retrieved from:

 https://www.google.com/search?q=car
 petbagger&spell=1&sa=X&ved=0ahUKEwij4JKX
 2lzjAhUnhlQKHRIWC9AQBQgtKAA&biw=812
 &bih=874
- 35. Gerberding JL. Appendix A, letter. July 20, 2004 Retrieved from https://aftera-bortion.org/2005/cdc-abortion/mortal-ity-reports-flawed-new-study-and-head-of-cdcs-admission/
- 36. WHO Working Group on Maternal Mortality and Morbidity Classification. The WHO Application of ICD-10 to deaths

- during pregnancy, childbirth and the puerperium. 2012:25-27. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/70929/9789241548458 eng. pdf;jsessionid=3CE28164998A87B2D1E2AE13D 7552325?sequence=1
- 37. Ricketts E. 1989. The origin of Black female-headed families. Focus 12:32-36. Retrieved from https://www.irp.wisc.edu/publications/focus/pdfs/foc121e.pdf
- 38. Gissler M, Berg C, Bouvier-Colle MH, Buekens P. 2004. Methods for identifying pregnancy-associated deaths: population-based data from Finland 1987-2000. Paediatr Perinat Epidemiol. 2004 Nov;18(6):448-55. DOI:10.1111/j.1365-3016.2004.00591.x https://onlinelibrary.wiley.com/doi/abs/10.1111/j.136 5-3016.2004.00591.x?sid=nlm%3Apubmed
- 39. Studnicki J, Fisher JW, Donovan C, Prentice DA, MacKinnon SJ. 2017. Improving maternal mortality: comprehensive reporting for all pregnancy outcomes. Open J of Prev Med 7:162-181. OJPM Vol.7 No.8, August 2017 DOI:10.4236/ojpm.2017.78013 Free full https://file.scirp.org/pdf/OJPM_201708
 - 2814360159.pdf
- 40. Op. cit. Endnote 16 Jatlaoui et al.
- 41. Jatlaoui TC, Shah J, Mandel MG, Drashin JW, Suchdev DB, Mamieson DJ, Pazol K. 2017. Abortion Surveillance - United States, 2014. MMWR Surveill Summ. 2017 24;66(24):1-48. doi: Nov 10.15585/mmwr.ss6624a1.

- https://www.ncbi.nlm.nih.gov/pubmed/?term=MMWR+Surveill+Summ+66(No.SS-24)%3A1-48. DOI: 10.15585/mmwr.ss6624a1
- 42. Dreweke J. 2017. U.S. abortion rate reaches record low amidst looming onslaught against reproductive health and rights. Guttmacher Policy Review Vol 20. Retrieved https://www.guttmacher.org/gpr/2017 /01/us-abortion-ratereaches-recordlow-amidst-looming-onslaught-againstreproductive-health
- 43. Guttmacher Institute. Abortion reporting requirements. 2019. Retrieved from https://www.guttmacher.org/state-policy/explore/abortion-reporting-requirements.
- 44. Calhoun B. 2013. Systematic review: the maternal mortality myth in the context of legalized abortion. Linacre Q. 2013 Aug;80(3):264-276. doi: 10.1179/2050854913Y.0000000004. Epub 2013 Aug 1. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6027002/
- 45. Reardon DC, Strahan T, Thorp J, Shuping M. 2004. Deaths associated with abortion compared to childbirth - a review of new and old data and the medical and legal implications. J Contemp Health Law Policy. 2004 Spring;20(2):279-327. Free full text: https://scholarship.law.edu/cgi/viewcontent.cgi?article=1159&=&context=jchlp&=&seiredir=1&referer=https%253A%252F%252 Fwww.bing.com%252Fsearch%253Fq% 253DDeaths%252Bassociated%252Bwith%252Babortion%252Bcompared%252Bto%252Bchildbirth%252B-

%252Ba%252Breview%252Bof%252Bnew%252Band%25 2Bold%252Bdata%252Band%252Bthe% 252Bmedical%252Band%252Blegal%252Bimplications%2526form%253DED-NTHT%2526mkt%253Denus%2526https msn%253D1%2526msnews%253D1%25 26rec search%253D1%2526plvar%253 D0%2526refig%253D3ebd2cc503a941d2f0bfaaf8bb 4827da%2526PC%253DHCTS%2526sp% 253D1%2526pq%253Ddeaths%252Bassociated%252Bwith%252Babortion%252Bcompared%252Bto%252Bchildbirth%252B-%252Ba%252Breview%252Bof%252Bnew%252Band%25 2Bold%252Bdata%252Band%252Bthe% 252Bmedical%252Band%252Blegal%252Bimplications%2526sc%253D0-124%2526qs%253Dn%2526sk%253D%2 526cvid%253D3ebd2cc503a941d2f0bfa af8bb4827da#search=%22Deaths%20as sociated%20abortion%20compared%20childbirth%20-%20review%20new%20old%20data%20medi-

46. Ireland L, Gatter M, Chen A. 2015. Medical compared with surgical abortion for effective pregnancy termination in the first trimester. Obstet Gynecol. 2015 Jul;126(1):22-8. doi: 10.1097/AOG.00000000000000910. Free full text: https://journals.lww.com/greenjournal/fulltext/2015/07000/Medical_Compared_With_Surgical_Abortion for.5.aspx

cal%20legal%20implications%22

ACOG. 2014. Practice bulletin 143: medical management of first-trimester abortion.
 Obstet Gynecol. 2014

- Mar;123(3):676-92. doi: 10.1097/01.AOG.0000444454.67279.7d .https://journals.lww.com/greenjournal/Abstract/2014/03000/Practice_Bulletin_No__143___Medical_Management_of.40.aspx
- 48. Camilleri C, Beiter RM, Puentes L, Aracen-Sherck P, Sammut S. 2019. Biological, behavioral and physiological consequences of drug-induced pregnancy termination at first-trimester human equivalent in an animal model. Front Neuro-2019 May 29;13:544. 10.3389/fnins.2019.00544. eCollection 2019. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6549702/
- 49. Aronoff DM, Hao Y, Chung J, Coleman N, Lewis C, Peres C, Serezani CH, Gwo-Hsiao C, Flamand N, Brock TG, Peters-Golden M. 2008. Misoprostol impairs female reproductive tract innate immunity against Clostridium sordellii. J Immunol. 2008 Jun 15;180(12):8222-30. DOI:10.4049/jimmunol.180.12.8222 Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2667109/
- 50. Miech RP. 2008. Disruption of the innate immune system by mifepristone and lethal toxin of Clostridium sordellii. Journal of Organ Dysfunction 4(2):122-126 · July 2009 DOI: 10.1080/17471060701200402 https://www.researchgate.net/publication/232083221_Disruption_of_the_innate_immune_system_by_mifepristone_and_lethal_toxin_of_Clostridium_sordellii
- 51. Strauss LT, Gamble SB, Parker WY, Cook DA, Zane AB, Hamdan S. 2007. MMWR Surveill Summ. 2007 Nov 23;56(9):1-33.

- Retrieved from https://www.cdc.gov/mmwr/pre-view/mmwrhtml/ss5609a1.htm
- 52. ACOG. 2013. Practice bulletin 135: second trimester abortion. Obstet Gynecol. 2013 Jun;121(6):1394-406. DOI: 10.1097/01.AOG.0000431056.79334.cc Free full text: https://journals.lww.com/greenjournal/Citation/2013/06000/Practice_Bulletin_No__135___Second_Trimester.42.aspx
- 53. Retrieved from https://en.wikipedia.org/wiki/Partial-Birth_Abortion_Ban_Act
- 54. Hilgers T, Horan D, Mall D. Abortion related maternal mortality: an in-depth analysis. New Perspectives on Human Abortion. University Publications of America. Frederick, Maryland. 1981;69-91.
- 55. Peterson W, Berry F, Grace M. 1983.Second-trimester abortion by dilation and evacuation: an analysis of 11,747 cases. Obstet Gynecol. 1983 Aug;62(2):185-90. https://www.ncbi.nlm.nih.gov/pubmed/?term=.Secondtrimester+abortion+by+dilation+and+evacuation%3A+an+analy-sis+of+11%2C747+cases.
- 56. Springer S, Gorczyca M, Arzt J. 2018. Fetal survival in second trimester termination of pregnancy without feticide. Obstet Gynecol. 2018 Mar;131(3):575-579. doi: 10.1097/AOG.00000000000002503. Free full text: https://journals.lww.com/greenjournal/fulltext/2018/03000/Fetal_Survival_in_Second_Trimester_Termination_of.25.aspx
- 57. Cole D. Virginia governor faces backlash over comments supporting late-term

- abortion bill. CNN. January 31, 2019 Retrieved from https://www.cnn.com/2019/01/31/politics/ralph-northam-third-trimesterabortion/index.html
- 58. Lalitkumar S, Bygdeman M, Gemzell-Danielsson K. 2007. Mid-trimester induced abortion: a review. Hum Reprod Update. 2007 Jan-Feb;13(1):37-52. Epub 2006 Oct 17. DOI:10.1093/humupd/dml049 Free full text: https://academic.oup.com/humupd/article/13/1/37/751686
- 59. Autry A, Hayes E, Jacobson G, Kirby R. 2002. A comparison of medical induction and dilation and evacuation for second trimester abortion. Am J Obstet Gynecol. 2002 Aug;187(2):393-7. https://www.ajog.org/article/S0002-9378(02)00140-0/fulltext
- 60. Niinimaki M, Pouta A, Bloigu A, Gissler M, Hemminki E, Suhonen S, Heinkinheimo O. 2009. Immediate complications after medical compared with surgical termination of pregnancy. Obstet Gynecol. 2009 Oct;114(4):795-804. doi: 10.1097/AOG.0b013e3181b5ccf9. Free full text: https://journals.lww.com/greenjournal/fulltext/2009/10000/Immediate_Complications_After_Medical Compared.14.aspx
- 61. Cunningham F. Williams Obstetrics. 19th edition. Appleton & Lange. Norwalk, CT. 1993; 81-246.
- 62. Swingle H, Colaizy R, Zimmerman M, Morriss F. 2009. Abortion and the risk of subsequent preterm birth: a systematic review and meta-analysis" J Reprod Med. 2009 Feb;54(2):95-108

- https://www.ncbi.nlm.nih.gov/pub-med/?term=J+Reprod+Med+54%3A95-108.
- 63. Liao H, Wei Q, Ge J, Zhou Y, Zeng W. 2011. Repeated medical abortions and the risk of preterm birth in the subsequent pregnancy. Arch Gynecol Obstet. 2011 Sep;284(3):579-86. doi: 10.1007/s00404-010-1723-7. Epub 2010 Oct 27. https://link.springer.com/article/10.1007%2Fs00404-010-1723-7
- 64. Mogos MF, Salemi JL, Ashley M, Witeman VE, Salihu HM. 2016. Recent trends in placenta accreta in the United States and its impact on maternal-fetal morbidity and healthcare-associated costs, 1998-2011. J Matern Fetal Neonatal Med. 2016;29(7):1077-82. doi: 10.3109/14767058.2015.1034103. Epub 2015 Apr 21. https://www.tandfonline.com/doi/full/10.3109/14767058.2015.1034103
- 65. Baldwin HJ, Patterson JA, Nippita TA, Torvaldsen S, Ibiebele I, Simpson JM, Ford JB. 2018. Antecedents of abnormally invasive placenta in primiparous women: risk associated with gynecologic procedures. Obstet Gynecol. 2018 Feb;131(2):227-233. doi: 10.1097/AOG.0000000000002434. Free full https://jourtext: nals.lww.com/greenjournal/fulltext/2018/02000/Antecedents_of_Abnormally_Invasive_Placenta_in.6.aspx
- 66. Klemetti R, Gissler M, Niinimaki M, Hemminki E. 2012. Birth outcomes after induced abortion: a nationwide register-based study of first births in Finland. Hum Reprod. 2012 Nov;27(11):3315-20. doi: 10.1093/humrep/des294. Epub 2012 Aug 29. Free full text:

- https://academic.oup.com/humrep/article/27/11/3315/809139
- 67. Zane S, Creanga AA, Berg CJ, Pazol K, Suchdev DB, Jamieson DJ, Callaghan WM. 2015. Abortion-related mortality in the United States: 1998-2010. Obstet Gynecol. 2015 Aug;126(2):258-65. doi: 10.1097/AOG.00000000000000945. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4554338/
- 68. Bartlett L, Berg C, Shulman H. 2004. Risk factors for legal induced abortion related mortality in the U.S. Obstet Gynecol. 2004 Apr;103(4):729-37. DOI:10.1097/01.AOG.0000116260.8157 0.60 https://www.ncbi.nlm.nih.gov/pubmed/?term=Obstet+Gynecol+103%3A729-737.
- 69. Sykes P. 1993. Complications of termination of pregnancy: a retrospective study of admissions to Christchurch Women's Hospital, 1989 and 1990. N Z Med J. 1993 Mar 10;106(951):83-5.
- 70. Grossman D, Blanchard K, Blumenthal P. 2008. Complications after second trimester surgical and medical abortion. Reprod Health Matters. 2008 May;16(31 Suppl):173-82. doi: 10.1016/S0968-8080(08)31379-2. https://www.tandfonline.com/doi/full/10.1016/S0968-8080(08)31379-2
- 71. Frieden J. 2018. Ob/Gyn board seeks new family planning subspecialty. Med-Page Today. Retrieved from https://www.medpagetoday.com/ob-gyn/generalobgyn/73664
- 72. Ney PG, Fung T, Wickett AR, Beaman-Dodd C. 1994. The effects of pregnancy loss on women's health. Soc Sci Med. 1994 May;38(9):1193-200.

- https://www.ncbi.nlm.nih.gov/pub-med/?term=Soc+Sci+Med+38%3A1193-1200.
- 73. Coleman PK, Reardon DC, Calhoun B. 2013. Reproductive history patterns and long-term mortality rates: a Danish population based record linkage study" Eur J Public Health. 2013 Aug;23(4):569-74. doi: 10.1093/eurpub/cks107. Epub 2012 Sep 5. Free full text: https://academic.oup.com/eurpub/article/23/4/569/427991
- 74. Coleman PK. 2011. Abortion and mental health: quantitative synthesis and analysis of research published 1995-2009. Br J Psychiatry. 2011 Sep;199(3):180-6. doi: 10.1192/bjp.bp.110.077230. https://www.cambridge.org/core/journals/the-british-journal-of-psychiatry/article/abortion-and-mental-health-quantitative-synthesis-and-analysis-of-research-published-19952009/F8D556AAE1C1D2F0F8B060 B28BEE6C3D
- 75. Reardon DC, Ney PG, Scheuren F, Cougle J, Coleman PK, Strahan TW. 2002. Deaths associated with pregnancy outcome: a record linkage study of low income women. South Med J. 2002 Aug;95(8):834-41. https://www.ncbi.nlm.nih.gov/pubmed/?term=South+Med+J+95%3A834-841.
- 76. Gissler M, Hemminki E, Lonnqvist J. 1996. Suicides after pregnancy in Finland, 1987-94. Register linkage study. BMJ. 1996 Dec 7;313(7070):1431-4. DOI: 10.1136/bmj.313.7070.1431 Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2352979/pdf/bmj00571-0021.pdf

- 77. Karalis E, Ulander V, Tapper A, Gissler M. 2017. Decreasing mortality during pregnancy and for a year after while mortality after termination of pregnancy remains high: a population based register study of pregnancy associated deaths in Finland 2001-2012. BJOG. 2017 Jun;124(7):1115-1121. doi: 10.1111/1471-0528.14484. Epub 2016 Dec 28. Free full text: https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/1471-0528.14484
- 78. Gissler M, Berg C, Bouvier-Collie M, Buekens P. 2005. Injury deaths, suicides and homicides associated with pregnancy, Finland 1987-2000. Eur J Public Health. 2005 Oct;15(5):459-63. Epub 2005 Jul 28. DOI:10.1093/eurpub/cki042 Free full text: https://academic.oup.com/eurpub/article/15/5/459/526248
- 79. Gissler M, Kaupilla R, Merilainen J, Toukomaa H, Hemminki E. 1997. Pregnancyassociated deaths in Finland, 1987– 1994—definition problems and benefits of record linkage. Acta Obstet Gynecol Scand. 1997 Aug;76(7):651-7. DOI:10.3109/00016349709024605 https://obgyn.onlinelibrary.wiley.com/doi/abs/10.3109/0001 6349709024605?sid=nlm%3Apubmed
- 80. Calhoun B. 2013. Systematic review: the maternal mortality myth in the context of legalized abortion. Linacre Q. 2013 Aug;80(3):264-276. doi: 10.1179/2050854913Y.00000000004. Epub 2013 Aug 1. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6027002/
- 81. Reardon DC, Thorp JM. 2017. Pregnancy associated death in record linkage

- studies relative to delivery, termination of pregnancy, and natural losses: a systematic review with a narrative synthesis and meta-analysis. SAGE Open Med. 2017 Nov 13;5:2050312117740490. doi: 10.1177/2050312117740490. eCollection 2017. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5692130/
- 82. Gissler M, Berg C, Bouvier-Colle MH, Buekens P. 2004. Methods for identifying pregnancy-associated deaths: population-based data from Finland 1987-2000. Paediatr Perinat Epidemiol. 2004 Nov;18(6):448-55. DOI:10.1111/j.1365-3016.2004.00591.x
- 83. National Academies of Science, Engineering and Medicine. The Safety and Quality of Abortion Care in the United States. Washington DC: The National Academies Press. 2018. DOI: 10.17226/24950 Free full text: https://www.ncbi.nlm.nih.gov/books/NBK507236/
- 84. Deneux-Tharaux C, Berg C, Boouvier-Colle M, Gissler M, Harper M, Nannimi A, Alexander S, Wildman K, Breart G, Beukens P. 2005. Underreporting of pregnancy related mortality in the U.S. and Europe. Obstet Gynecol. 2005 Oct;106(4):684-92. DOI:10.1097/01.AOG.0000174580.2428 1.e6
- 85. Reardon DC, Ney PG, Scheuren F, Cougle J, Coleman PK, Strahan TW. 2002. Deaths associated with pregnancy outcome: a record linkage study of low income women. South Med J. 2002 Aug;95(8):834-41. https://www.ncbi.nlm.nih.gov/pubmed/?term=South+Med+J+95%3A834-841.

- 86. Op. cit. Endnote 39 Studnicki et al.
- 87. Reardon DC, Coleman PK. 2012. Short and long term mortality rates associated with first pregnancy outcome: population register based study for Denmark 1980-2004. Med Sci Monit. 2012; 18(9): PH71–PH76. Published online 2012 Sep 1. doi: 10.12659/MSM.883338 Free full text:
 - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3560645/
- 88. Campbell M. 2015. Commenting on: Martin J. Bones of contention: Cal paleo expert doubts Homo naledi is new species. California Magazine 2015. Retrieved from https://alumni.berkeley.edu/california-magazine/just-in/2015-12-29/bones-contention-cal-paleo-expert-doubts-homo-naledi-new
- 89. Cleland K, Creinin M, Nucatola D, Nshom M, Trussel J. 2013. Significant adverse events and outcomes after medical Obstet 2013 abortion. Gynecol. Jan;121(1):166-71. doi: http://10.1097/AOG.0b013e318275576 3. Free full text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3711556/
- 90. Upadhyay U, Desai S, Zlidar V, Weitz T, Grossman D, Anderson P, Taylor D. 2015. Incidence of emergency department visits and complications after abortion. Obstet Gynecol. 2015 Jan;125(1):175-83. doi: 10.1097/AOG.00000000000000603. Free full text: https://escholar-ship.org/uc/item/523956jn
- 91. Press E. 2014. A botched abortion. The New Yorker (Feb 3). Retrieved from https://www.newyorker.com/maga-zine/2014/02/03/a-botched-operation
- 92. Raymond EG, Grimes DA. 2012. The Comparative safety of legal induced

abortion and childbirth in the US. Obstet Gynecol. 2012 Feb;119(2 Pt 1):215-9. doi: 10.1097/AOG.0b013e31823fe923. Free full text: https://journals.lww.com/greenjournal/fulltext/2012/02000/The_Comparative_Safety_of_Legal_Induced_Abortion.3.aspx

- 93. Op. cit. Endnote 79 Gissler et al.
- 94. Crutcher M, Lime 5. Life Dynamics: Denton, Texas. 1996:154-155.
- 95. Caughey AB, Cahill AG, Guise J, Rouse DJ. 2014. Safe prevention of the primary cesarean delivery. Obstetric Care

- Consensus No. 1. American College of Obstetricians and Gynecologists. Obstet Gynecol. 2014 Mar;123(3):693-711. doi:10.1097/01.AOG.0000444441.0411 1.1d. https://insights.ovid.com/article/00006250-201403000-00041
- 96. Op. cit. Endnote 63 Zane et al.
- 97. Silverman, E. Few medical journals disclose conflicts held by their own editorial teams. Pharmalot July 26, 2019. Retrieved from https://www.statnews.com/pharma-lot/2019/07/26/medical-journals-conflicts-editors/