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Abortion Safety: At Home and Abroad

Ingrid Skop, M.D.*

ABSTRACT: In the U.S., legal abortion is considered extremely safe, and abortion-related mortality is reported to be far lower than mortality associated with term childbirth. Yet, the voluntary nature of abortion complication reporting and ideological selection biases obscure the poor quality of the data used to support these assumptions.

Worldwide, the World Health Organization reports that illegal abortion is extremely unsafe, killing and injuring vast numbers of women yearly. They advocate for the liberalization of abortion laws so that women can access safer abortions. Yet, their calculations are based largely on subjective opinions from a limited number of health care providers, with little objective verification from external sources.

The limitations in the data should prompt calls for improved studies and more objective estimates of complications and deaths resulting from abortion, both legal and illegal.

“Abortion is safer than childbirth.” “Legal abortion is extremely safe, and illegal abortion is extremely dangerous.” These assumptions drove the widespread legalization of abortion in the United States in 1973, and they continue to drive the effort to overturn all legislative safety restrictions on the procedure within our country, and to liberalize abortion laws internationally today. But are these assumptions true?

How Could Pregnancy Pose a Risk to a Woman?

During pregnancy, dramatic anatomical, physiological and biochemical changes occur in every organ of a woman’s body. Pregnancy-related hormones cause changes in metabolism, stress response, immune action, electrolyte balance and even neurologic function. Growth of the uterus causes a shift in position of intra-abdominal and

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thoracic organs, and relaxation of cartilage leads to musculoskeletal changes. Vascular modifications include altered circulation, functional changes in the heart and lungs, an increased tendency to form blood clots, and a propensity for catastrophic bleeding due to the massive amount of blood within the uterus.¹

How Could an Abortion Be Unsafe?

When discussing maternal morbidity and mortality, consideration is often given only to complications that could occur in a term, gravid uterus, but it should be recognized that physiologic changes begin as soon as a pregnancy commences. Induced abortion interrupts a normal bodily process, and some risk factors are unique to that intervention, such as the need to force open the strong muscular cervix which is designed to remain closed until natural childbirth. Causes of severe injury and death in women experiencing any type of pregnancy separation event can include vaginal and intra-abdominal hemorrhage, infection (local endometritis, cutaneous cellulitis, or systemic septicemia), thrombotic emboli (deep venous thrombosis or pulmonary embolus), intravascular amniotic or air emboli, complications of anesthesia, and cardiac or cerebrovascular events (heart attack or stroke). Incomplete tissue removal or damage to adjacent gynecologic, genitourinary, gastrointestinal or vascular organs may require additional uterine surgery, hysterectomy, bowel resection, bladder repair, or other surgeries.^{2,3,4}

At the time of a term delivery, there are two ways the fetus can be separated from his mother: he may proceed through the vaginal canal, or he may be surgically removed via Cesarean section.⁵ There are several additional ways in which a fetus can be separated from his mother during an induced abortion. A medical abortion (31% of U.S. abortions) causes a disruption in the hormones that maintain the fetus and placenta, and uterine contractions commence to expel the pregnancy tissue.⁶ Dilation and vacuum suction curettage (60%) surgically extracts the pregnancy tissue after the cervix is chemically or mechanically opened. Historically, dilation and sharp curettage (utilizing a sharp curette rather than a suction catheter) was used, but this more frequently resulted in uterine trauma.⁷ Dilation and extraction/evacuation (D&E) is the surgical method necessary when the fetal bones have hardened, and the fetus has grown large enough

¹ Cunningham F. Williams *Obstetrics 19th edition*. Appleton & Lange. Norwalk, CT. 1993. 81-246.

² Niinimaki, "Immediate Complications After Medical Compared with Surgical Termination of Pregnancy" *OBG*. (2009) 114(4) 795-804.

³ Practice Bulletin 135: Second Trimester Abortion: *Obstetrics & Gynecology*. 2013;121(6):1394-1406.

⁴ Practice Bulletin 143: Medical Management of First-Trimester Abortion: *Obstetrics & Gynecology*. 2014.

⁵ *Williams Obstetrics*, 363-394, 591-614.

⁶ Practice Bulletin 143: Medical Management of First-Trimester Abortion: *Obstetrics & Gynecology*. 2014.

⁷ Ireland, et al. Medical compared with surgical abortion for effective pregnancy termination in the first trimester *OBG*. 126(1)22-28.

that he cannot be removed through suction alone.⁸ Non-intact D&E (9%) is commonly referred to as a “dismemberment” abortion because the fetus is removed in a piecemeal fashion with instruments. Intact D&E or “partial birth” abortion has been illegal in the U.S. since 2003.⁹ During that procedure the fetus is delivered feet first until his skull can be compressed and delivered in the final step. Historically, saline or prostaglandin was infused into the amniotic sac in late term abortions to kill the fetus and induce labor. This is used very infrequently today, because it often resulted in maternal deaths from fluid imbalances and infections, although extremely late-term abortions are sometimes still performed by inducing labor. Hysterotomy abortion (performing a Cesarean section to deliver a dead baby) is used infrequently, because it is a major surgery for the mother, and requires an additional intra-cardiac injection to kill the fetus first. It should be noted that the fetus is rarely killed first in the other late term abortions described above. It is assumed the procedure itself will kill him before he is fully delivered,^{10,11} although if he is born alive, recent news reports have revealed that infanticide is often performed.^{12,13}

Complications from surgical abortions most commonly occur during one of two actions. As the cervix is dilated, the instruments may form a false channel, leading to damage to surrounding organs or vessels; or, once cervical dilation has occurred, multiple blind passages of the surgeon’s suction curette or grasping forceps into the soft, gravid uterus could easily result in uterine perforation and damage to surrounding organs, even in experienced hands.^{14,15,16} The reported risks of hemorrhage and cervical laceration are 3.3%, retained products of conception 1% for D&E, 8% for medical abortion, infection and uterine perforation 0.2-0.5%, and uterine rupture 0.28% if the patient had a prior C-section, 0.04% without.¹⁷ Due to the voluntary nature of complication reporting in the U.S., the real complication rates are undoubtedly much higher.¹⁸

The frequency of complications increases in later gestational ages due to inherently greater technical complexity related to the anatomical and physiologic changes that occur

⁸ Practice Bulletin 135: Second Trimester Abortion: *Obstetrics & Gynecology*. 2013;121(6):1394-1406.

⁹ https://en.wikipedia.org/wiki/Partial-Birth_Abortion_Ban_Act

¹⁰ Lalitkumar, et al, Mid-Trimester Induced Abortion: A Review. *Human Reproduction Update*, 13(1) (2007) 37-52.

¹¹ Mentula, et al, “Immediate Adverse Events After Second Trimester Medical Termination of Pregnancy: Results of a Nationwide Registry Study” *Human Reproduction* 26(4) (2011) 927-932.

¹² <https://www.usatoday.com/story/opinion/2019/02/05/ralph-northam-advocating-abortion-infanticide-worse-than-blackface-column/2776498002/>.

¹³ <https://www.dailysignal.com/2018/10/05/the-true-story-of-kermit-gosnell-and-his-victims/>

¹⁴ Niinimaki, “Immediate Complications After Medical Compared with Surgical Termination of Pregnancy” *OBG*. (2009) 114(4) 795-804.

¹⁵ Lalitkumar. Mid-trimester induced abortion: A review. *Hum Rep Update*, 13(1)2007:37-52.

¹⁶ Autry. A comparison of medical induction and dilation and evacuation for second trimester abortion. *AJOG*. 187(2)2002:393-397.

¹⁷ Practice Bulletin 135: Second Trimester Abortion: *Obstetrics & Gynecology*. 2013;121(6):1394-1406.

¹⁸ <https://www.guttmacher.org/state-policy/explore/abortion-reporting-requirements>.

as the pregnancy advances. The increased amount of fetal and placental tissue requires a greater degree of cervical dilation, the increased blood flow predisposes to hemorrhage, and the relaxed myometrium is more subject to mechanical perforation.^{19,20} Thus, it is important to emphasize that although early abortions do appear to be quite safe, they become less so as the pregnant uterus enlarges.^{21,22,23} Although one study found an overall death rate of 0.7/100,000 legal abortions; this number rose to 6.7/100,000 for late term procedures.²⁴ Another study found that the risk of death increased by 38% for each additional week beyond 8 weeks. Compared to early abortions, the relative risk of death was 14.7 times higher at 13-15 weeks (rate 1.7/100,000 abortions), 29.5 times higher at 16-20 weeks (rate 3.4/100,000), and 76.6 times higher beyond 21 weeks (rate 8.9/100,000).²⁵ The American Board of Medical Specialties has recognized the inherent complexity in the performance of a late-term D&E by recommending a two year subspecialty training in the procedure.²⁶

Given the numerous complications that may occur with a surgical abortion, it is not surprising that many women opt to have a medical abortion performed instead. Yet, these women may be unaware that the complication rate is four times higher with this procedure.²⁷ A medical abortion is most commonly performed by provision of two medications. RU 486 (Mifeprex or mifepristone) blocks progesterone receptors to cut off hormonal support for the pregnancy, which results in disruption of the implantation site. This is usually followed in 24 hours with Cytotec (misoprostol) which induces contractions to expel the pregnancy tissue.²⁸

When this regimen was approved by the FDA in 2000, for use in pregnancies up to 49 days gestational age, the regulations were initially very strict. Providers were required to be physicians, who became registered after specific training in the medication's use. They needed to be able to accurately determine the gestational age and location of the pregnancy (usually through an ultrasound), because ruptured ectopic (extra-uterine)

¹⁹ Hilgers, *Abortion Related Maternal Mortality: An In-Depth Analysis. New Perspectives on Human Abortion*. 1981.

²⁰ Peterson, et al, *Second-Trimester Abortion by Dilation and Evacuation: An Analysis of 11,747 Cases*. *OBG*. 62:185 (1983) 185-190.

²¹ Sykes. *Complications of Termination of Pregnancy: A Retrospective Study of Admissions*. *New Zealand Medical Journal*. 106 (1993) 83.

²² D Grossman. *Complications After Second Trimester Surgical and Medical Abortion*. *Reproductive Health Matters*, 16(31) (2008) 173-182.

²³ Zane, et al. *Abortion-Related Morality in the U.S.: 1998-2010*. *OBG*. (Aug, 2015) 126(2) 258-265.

²⁴ Zane, Creanga, et al. *Abortion Related Mortality in the U.S.:1998-2010*. *OBG*. 126:2 (Aug 2015)258-265.

²⁵ Bartlett, Berg, et al, *Risk Factors for Legal Induced Abortion Related Mortality in the U.S*. *OBG*. 103:4 (April, 2004) 729-737.

²⁶ <https://www.abms.org/board-certification/cocert-invites-comments/>

²⁷ Niinimaki. *Immediate complications of medical compared with surgical termination of pregnancy*. *OBG*. 114(4)2009:795-804.

²⁸ *Practice Bulletin 143: Medical Management of First-Trimester Abortion: Obstetrics & Gynecology*. 2014,

pregnancies are a common cause of maternal deaths, and the failure rate of the abortion is far higher at more advanced gestational ages. The prescriber had to have the ability to intervene surgically if the abortion was unsuccessful, or if complications resulted; or he needed to have an agreement with another doctor and facility to provide this care. A fourteen-day follow-up visit was required.²⁹

The initial experience demonstrated that complications were common. The average woman bled for 8-16 days, but 8% bled for more than a month. 4.5-7.9% required surgical intervention for hemorrhage, incomplete abortion, or ongoing pregnancy. If an ongoing pregnancy led to the birth of a child, teratogenic effects such as limb, facial, cranial and other abnormalities (related to misoprostol) were sometimes seen. The FDA required a “black box warning” which stated that use of the medical abortion regimen was contraindicated if there was no access to emergency services. 85% of women had at least one, and often all, of the following adverse effects: cramping, vaginal bleeding, hemorrhage, nausea, weakness, fever, chills, vomiting, headache, diarrhea and dizziness. In the first few years of use, over 2200 adverse events were reported to the FDA, including fourteen deaths, half of which were related to a hitherto uncommon organism: *Clostridium sordellii*.³⁰

Nonetheless, since that time there has been further loosening of restrictions by the FDA. It is no longer required to report a complication unless it leads to a woman’s death, and a follow-up visit is considered unnecessary. Medical abortions may be provided up to 70 days gestational age,³¹ despite the fact that the higher gestational ages (64-70 days) had only been studied on about 300 women, and at those gestational ages only 92.7% of the women passed the tissue completely, and 3.1% required additional surgery.³²

The use of misoprostol alone to induce an abortion in the first trimester has even greater failure rates, but is sometimes recommended because it is easier to obtain. Misoprostol is more readily available because it is also used for the treatment of peptic ulcer disease, does not require the training and registration that mifepristone does, and is available without a prescription in neighboring countries. Although some researchers report that misoprostol use alone is safe and effective,³³ a recent meta-analysis of first trimester use demonstrated that 20% of women required a surgical uterine evacuation, and nearly 7% had ongoing viable pregnancies.³⁴

²⁹ <https://www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm111323.htm>

³⁰ Ibid.

³¹ Dalton. The evolution of medication abortion care: Using science to achieve quality *OBG*. 126(1)2015:3-4.

³² Winikoff. Extending outpatient medical abortion services through 70 days of gestational age. *OBG*. 2012:120:1070-1076.

³³ Singh. *Abortion Worldwide 2017: Uneven Progress and Unequal Access*. New York: Guttmacher Institute, 2018.

³⁴ Raymond E, Harrison M, Weaver M. Efficacy of misoprostol alone for first trimester medical abortion. *OBG*. 133(1);2019:137-147.

When medical abortions are performed after the first trimester, the risk of complications is extraordinarily high.³⁵ A failed abortion occurs in up to 39% of women when misoprostol alone is used in the second trimester or later, with most of these complications related to incomplete evacuation of the pregnancy tissue, hemorrhage and infection.^{36,37} Although it is not common to perform elective medical abortions at these late gestational ages in the U.S., they are more frequently performed worldwide.^{38,39,40}

Long Term Complications

There is potential for long-term health consequences following an abortion as well. Many studies indicate that abortion may increase a woman's risk of breast cancer, early delivery of a subsequent pregnancy, and mental health disorders. However, the research literature on abortion is extremely controversial, in part because abortion is extremely common (30% of American women are estimated to have had an abortion⁴¹), yet often shrouded in secrecy. Researchers sometimes bring bias to their studies,⁴² and there are often shortcomings in the study designs.⁴³ The "gold standard" study design is a randomized, controlled study where one group receives an intervention, and the other does not. Obviously, this would be unethical and impossible to perform regarding abortion. Retrospective studies are often rejected due to the possibility of "recall bias" leading to inconsistent reporting of past abortions by women. It is postulated (but not proven) that the shame many women feel about a prior abortion may lead them not to volunteer this information to a researcher in the absence of an illness, whereas guilt may lead them to confess this history in the presence of a disease such as breast cancer.⁴⁴

³⁵ Diedrich J, Steinauer J. Complications of surgical abortions. *Clinical Obstetrics and Gynecology*. 2009;52(2):205-212.

³⁶ Mentula M, et al. Immediate adverse events after second trimester medical termination of pregnancy: results of a nationwide registry study. *Human Reproduction*. 2011;26(4):927-932.

³⁷ Grossman D. Complications after second trimester surgical and medical abortion. *Reproductive Health Matters*. 2008;16(31 S):173-182.

³⁸ Autry AM, et al. A comparison of medical induction and dilation and evacuation for second-trimester abortion. *Am J Obstet Gyn ecol* 2002;187:393-7.

³⁹ Grossman D, et al. Surgical and medical second trimester abortion in South Africa: a cross-sectional study. *BMC Health Serv Res*. 2011;11:224.

⁴⁰ Bryant AG, et al. Second trimester abortion for fetal anomalies or fetal death: labor induction compared with dilation and evacuation. *OBG*. 2011;117:788-92.

⁴¹ Jones. Changes in abortion rates between 2000 and 2008 and lifetime incidence of abortion. *OBG*. 2011;117:1358-1366.

⁴² Mullane K, Williams M, Bias in research, the rule rather than the exception? <https://www.elsevier.com/editors-update/story/publishing-ethics/bias-in-research-the-rule-rather-than-the-exception>.

⁴³ *National Academies of Science, Engineering and Medicine: The Safety and Quality of Abortion Care in the United States*, The National Academies Press. 2018.

⁴⁴ Response bias in a case-control study: Analysis utilizing comparative data concerning legal abortions from two independent Swedish studies. Lindefors-Harris. *Am J of Epidemiology*. 134(1991)9:1003-8.

Abortion and breast cancer

It is physiologically plausible that the interruption of a normal pregnancy might place a young woman at increased risk for breast cancer later in life. In early pregnancy, dramatically increased estrogen levels promote the development of undifferentiated, immature type one and type two lobules in the breast, which have an increased potential to develop into cancer. Delivery at term, and breastfeeding the infant, will complete the breast development into mature type three lobules, which are more resistant to cancer. If a pregnancy is interrupted prior to 32 weeks gestation, this maturation does not occur, leaving breasts in a state more prone to breast cancer development.^{45,46}

The studies examining an “abortion-breast cancer” link are particularly controversial, because many are plagued by methodological flaws. Although one meta-analysis showed a dose response increase in risk of breast cancer with an increasing number of abortions (44% increase with one, 76% increase with two, and 89% increase with more than two), its findings have been disputed because it relied heavily upon retrospective studies.⁴⁷ One widely referenced meta-analysis reported that prospective studies demonstrated “no link,” although the researchers erroneously used non-pregnant women as a control group.⁴⁸ When a woman has an unintended pregnancy, she has two options: end the pregnancy or continue. Not being pregnant is no longer an option, and thus is an inappropriate control group. It is an indisputable fact that a term pregnancy early in life has a protective effect against breast cancer later in life.^{49,50} There was also a demonstration of “selection bias” in this meta-analysis, whereby some studies were excluded for poorly defined reasons, whereas other studies with known methodological flaws were included.^{51,52,53,54}

Due to poorly designed studies and conflicting data, the correct scientific response should be “more studies,” not definitive conclusion of “no link.”⁵⁵ Yet, the National Can-

⁴⁵ Lanfranchi A. <http://marri.us/wp-content/uploads/Induced-Abortion-and-Breast-Cancer.pdf>.

⁴⁶ Brind J, et al. Induced abortion as an independent risk factor for breast cancer: a comprehensive review and meta-analysis. *J of Epid and Comm Health*. 1996;50:481-496.

⁴⁷ Huang. A Metaanalysis of the Association Between Induced Abortion and Breast Cancer Risk Among Chinese Females. *Cancer Causes and Control*. 2014.

⁴⁸ Beral, et al. Breast cancer and abortion: collaborative reanalysis of data from 53 epidemiologic studies. Oxford Collaborative Group. *Lancet*. 2004.363;9414:1007-1016.

⁴⁹ <https://www.cancer.gov/about-cancer/causes-prevention/risk/hormones/reproductive-history-fact-sheet>

⁵⁰ Age at first birth and breast cancer risk. *Bull World Health Organ*. 1970;43(2):209-221.

⁵¹ Abortion and breast cancer: A case-control record linkage study” Goldacre. *J Epidemiology Community Health*. 55(2001)336-337.

⁵² Melbye. Induced abortion and the risk of breast cancer. 1997: *NEJM* 336:81-85.

⁵³ Erlandsson. Abortion and Breast cancer: Records based case control study. *Int J of Cancer*. Dec 2002.

⁵⁴ Lanfranchi A. The Abortion-breast cancer link revisited. *Ethics and Medics*. 2004;29(11)1-4.

⁵⁵ Review of Abortion-Breast cancer link at National Cancer Institute workshop on “Early reproductive events and breast cancer risk” held Feb 24-26, 2003. www.bcpinstitute.org.

cer Institute definitively pronounced “no link” in 2003, and considers the case closed.⁵⁶ Meanwhile, the lifetime risk of breast cancer in American women climbs steadily upward, from one in ten American women in 1970, to one in eight currently.⁵⁷

Abortion and premature delivery

There are several potential mechanisms by which an induced abortion may increase the risk of subsequent premature deliveries. Forced dilation of an unripe cervix may result in cervical trauma, and later cervical incompetence. Instrumental trauma of the uterus may result in faulty adherence of the placenta in subsequent pregnancies, resulting in chronic abruption or placenta previa/acreta/increta (invasion of the placenta into the cervix, uterine wall, or other adjacent organs). In addition, the procedure may alter the cervical and vaginal bacterial flora, resulting in intra-amniotic infection in subsequent pregnancies,⁵⁸ or the abortion decision itself may cause premature stress-induced activation of the hypothalamic-pituitary-adrenal axis.⁵⁹

There are many statistically significant studies showing a connection between abortion and preterm birth.^{60,61} Prematurity is the number one cause of infant deaths as well as the cause of substantial lifelong morbidity for many children.⁶² 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.⁶³ Likewise, another meta-analysis found a 35% increased risk of delivery of a very low birthweight infant after one abortion, and 72% after two or more abortions.⁶⁴ Despite the widespread knowledge of an abortion-preterm birth link in the academic literature,⁶⁵ women are often not warned by physicians that an elective abortion could increase the risk for premature birth of her next child.

Abortion and mental health disorders

When considering abortion safety, physical complications usually come to mind, but psychological complications are also possible, and can also lead to a woman’s death.

⁵⁶ www.cancer.org/cancer/cancer-causes/medical-treatments/abortion-and-breast-cancer-risk.html.

⁵⁷ www.cancer.gov/types/breast/risk-fact-sheet.

⁵⁸ Klemetti Birth Outcomes after induced abortion: A nationwide register-based study of first births in Finland. *Hum Reprod* 2012.

⁵⁹ Swingle “Abortion and the Risk of Subsequent Preterm Birth: A Systematic Review and Meta-Analysis” *Journal of Reproductive Medicine*. (2009)54:95-108.

⁶⁰ Liao, et al. Repeated medical abortions and the risk of preterm birth in the subsequent pregnancy. *Arch Gyn Ob* 2011;284:579-586.

⁶¹ Van Oppenraaij “Predicting Adverse Obstetric Outcome After Early Pregnancy Events and Complications: A Review” *Human Reproduction Update Advance Access* 1(1):1-13. (2009).

⁶² <https://www.cdc.gov/features/prematurebirth/index.html>.

⁶³ Swingle “Abortion and the Risk of Subsequent Preterm Birth: A Systematic Review and Meta-Analysis” *Journal of Reproductive Medicine*. (2009)54:95-108.

⁶⁴ Shah, “Induced Termination of Pregnancy and Low Birth Weight and Preterm Birth: A Systematic Review and Meta-Analysis” *BJOG*. (2009)116(11):1425-1442.)

⁶⁵ Iams J, Berghella V. Care for women with prior preterm birth. *AJOG*. 2010;203(2):89-100.

Of course, mental health risks can be difficult to decipher, because often poor social support and difficult life circumstances can factor into a woman's decision to have an abortion, and these can affect her mental health as well.⁶⁶ Many interpret the "relief" a woman feels with the resolution of the pregnancy crisis to mean that there could be no mental harm from the procedure.^{67,68} Yet, an increasing body of evidence shows that over time, the feeling of relief declines, and the feeling of negative emotions related to the abortion increase.^{69,70,71}

The widely reported "Turnaway Study" is a series of at least three dozen scientific papers from a cohort of 1000 women seeking abortion, some of whom were denied an abortion due to an advanced gestational age. These researchers reportedly found that mental health outcomes were worse in those denied abortion, and that 95% of those who obtained an abortion did not regret their decision.^{72,73,74,75} Yet, the study had many methodological flaws, most notably the poor participation rate.⁷⁶ Only 27% of eligible women agreed to participate, and only 17% remained in the study for the planned five years. Even the study authors acknowledged that these women were self-selected to be those most confident in their decision. Other compounding factors, such as mental health history or history of other abortions, were not controlled for.⁷⁷ In another study that did control for these factors (and had a much higher retention rate of 88%), the risks of mental health disorders were found to be 30% higher in women who procured abortions than those who did not.⁷⁸

⁶⁶ Reardon DC, Ney P, Abortion and subsequent substance abuse. *Am J Drug & Alcohol Abuse*. 2000; 26(1):61-75.

⁶⁷ Charles "Abortion and Long-Term Mental Health Outcomes: A Systematic Review of the Evidence" *Contraception*. (2008) 78:436.

⁶⁸ National Collaborating Centre for Mental Health at the Royal College of Psychiatrists "Induced Abortion and Mental Health: A Systematic Review of the Mental Health Outcomes of Induced Abortion," (2011).

⁶⁹ Coleman P. Post abortion mental health research: distilling quality evidence from a politicized professional literature." *J of Am Phys and Surg*. 22(2)2017;38-43.

⁷⁰ Coleman P. Induced abortion and anxiety, mood, and substance abuse disorders: Isolating the effects of abortion in the national comorbidity survey. *J of Psychiatric Research*. 1.

⁷¹ Coleman P. Induced abortion and increased risk of substance abuse: A review of the evidence. *Current Women's Health Reviews*, 2005(1):21-34.

⁷² Rocca C. Women's emotions one week after receiving or being denied an abortion in the U.S. *Persp on Sexual and Reproductive Health*. Aug 2013.

⁷³ www.anshirh.org/research/turnaway-study

⁷⁴ Foster D, et al. A comparison of depression and anxiety symptom trajectories between women who had an abortion and women denied one. *Psychol. Med*. 2015;45(10):2073-2082.

⁷⁵ Biggs MA, et al. Does abortion increase women's risk for post-traumatic stress? Findings from a prospective longitudinal cohort study. *BMJ Open*. 2016;6:e009698.

⁷⁶ Dobkin L, et al. Implementing a prospective study of women seeking abortion in the U.S.: Understanding and overcoming barriers to recruitment. *Women's Health Issues*. 2014;24(1):e115-123.

⁷⁷ Reardon, D. C. (2018). The Embrace of the Pro-Abortion Turnaway Study. Wishful Thinking? or Willful Deceptions? *Linacre Quarterly*. <http://doi.org/10.1177/0024363918782156>.

⁷⁸ Fergusson DM, Horwood LJ, Bodon JM. Abortion and mental health disorders, evidence from a 30-year study. *BJPsychiatry*. 193(6):444. (2008).

A meta-analysis of 22 studies found a moderate to highly increased risk (81% overall) of mental health problems after abortion. Specifically, it found 34% increased risk of anxiety, 37% increased depression, 110% increased alcohol abuse, 230% increased marijuana abuse, and 155% increased suicidal behavior.^{79,80}

Unfortunately, many professional organizations in medicine and psychology have a pro-choice bias which affects their interpretation of the literature. The American Psychological Association tried to reassure the public with their 2008 statement: "There is no credible evidence that a single, elective abortion of an unwanted pregnancy, in and of itself, causes mental health problems for the adult woman." The APA has previously shown its hand on abortion, when it stated in 1969, "Termination of pregnancy should be considered a civil right of a pregnant woman."⁸¹

It should be noted, however, that most women obtaining abortions are excluded by this statement: 40-50% of American women have had multiple abortions.⁸² 20-60% of women may desire their pregnancy, but experience pressure or coercion to terminate.⁸³ Or, they may terminate a desired pregnancy due to perceived health risks for themselves, or abnormalities in the baby.⁸⁴ 15-30% of abortions occur in minor women, and one study showed that these young women have a ten times higher suicide rate than their peers.⁸⁵ 20-50% of women have preexisting mental health conditions that may be triggered or aggravated by the abortion.^{86,87,88} A late-term abortion is also a significant risk factor for psychological problems.⁸⁹ Thus, there are a significant number of women known to be at higher risk for mental health issues after an abortion who are excluded by the APA statement.⁹⁰ Surely, the mental health professional societies should be warning those at higher risk, rather than generating a reassuring statement that does not include the majority of women who have abortions.

⁷⁹ Coleman PK, Abortion and mental health: quantitative synthesis and analysis of research published 1995-2009. *British J of Psychiatry*. 2011;199:180-186.

⁸⁰ Coleman "Deriving Sensible Conclusions From the Scientific Literature on Abortion and Women's Mental Health" *Peace Psychology Perspectives on Abortion*. (2016)74-93.

⁸¹ Report of the American Psychological Association Task Force on Mental Health and Abortion. 2008.

⁸² <https://www.guttmacher.org/united-states/abortion>

⁸³ https://www.abort73.com/abortion_facts/us_abortion_statistics/

⁸⁴ <https://www.guttmacher.org/united-states/abortion>

⁸⁵ Garfinkel. Stress, Depression and Suicide: A Study of Adolescents in Minnesota. Univ of Minnesota Extension Service 1986.

⁸⁶ <https://www.nimh.nih.gov/health/topics/women-and-mental-health/index.shtml>

⁸⁷ Rue V, Coleman P, Reardon DC, Induced abortion and traumatic stress: a preliminary comparison of American and Russian women. *Med Science Monitor*. 2004;10(10)SR5-16.

⁸⁸ Mota NP, Sareen BM. Associations between abortion, mental disorders, and suicidal behavior in a nationally representative sample. *Canadian J of Psychiatry*. 2010;55(4):239-247.

⁸⁹ Lalitkumar. Mid-trimester induced abortion: A review. *Hum Rep Update*, 13(1)2007:37-52.

⁹⁰ Coleman PK, et al. Women who suffered emotionally from abortion: a qualitative synthesis of their experiences. *J of American Physicians and Surgeons*. 2017;22(4):113-118.

Abortion to Save a Mother's Life?

Since abortion “for the life of the mother” is a frequent argument against legal restrictions, it is imperative to discuss the extremely rare situations in which ending the pregnancy is recommended to save a mother's life. Perinatologists (high risk obstetricians) have become experienced in helping even the sickest expectant mother make it safely through delivery in a complicated pregnancy, although most women with serious illnesses will have difficulty becoming pregnant in the first place.

The most common situation where termination of the pregnancy is required to save a woman's life is an ectopic pregnancy, where the fetus is implanted in an extra-uterine location. A pregnancy located outside the uterus can never reach viability. Thus, this situation is really an inevitable miscarriage, and there is no controversy in removing this pregnancy in order to protect the mother. Other rare scenarios where delivery is required include severe preeclampsia early in pregnancy, or uterine infection from extremely premature rupture of membranes. Cancers outside the uterus do not often necessitate delivery, because they can usually be treated with chemotherapy or surgery that does not disrupt the fetus.⁹¹

It is clearly a moral imperative, regardless of the law, for a physician to intervene in a pregnancy that poses a threat to the life of the mother. “Abortion,” by definition, involves intentionally ending the life of the fetus. “Premature parturition” is the treatment of choice in these situations. The purpose of the delivery is not to kill the fetus, but to save the life of the mother and the life of the fetus, or to save the life of at least one of them.⁹² These deliveries can be performed by a woman's own obstetrician by induced vaginal delivery or C-section, and the baby can be evaluated by the neonatal intensive care unit team to see if his life can be saved also. If he is too premature to live, perinatal hospice providers can ensure that he remains comfortable, and he can be held and loved by his parents until he passes away.⁹³

Abortion providers, in their unguarded moments, confirm these truths. “It's extremely rare, if nonexistent, for a physician to have a medical reason to abort a woman in the 7th or 8th month of pregnancy,” stated Dr. Rose Middleman in 1960.⁹⁴ “If a woman with a serious illness...gets pregnant the abortion procedure may be as dangerous for her as going through the pregnancy. The idea of abortion to save a mother's life is something that people cling to because it sounds noble and pure, but medically speaking, it probably doesn't exist.” stated Dr. Don Sloane in 1992.⁹⁵ Medicine has advanced considerably in its ability to care for high risk pregnant women, so these statements are even more accurate today.

⁹¹ *Williams Obstetrics*, 691-719, 1083-1087, 1267-1268.

⁹² www.aaplog.org

⁹³ <https://www.perinatalhospice.org/>

⁹⁴ Calderone “Illegal Abortion as a public health problem” *AJ of Public Health*. 50(1960)949.

⁹⁵ D Sloan. *Abortion: A Doctor's Perspective, A Woman's Dilemma*. Donald I Fine, Inc. New York. 1992.

Abortion Safety in the United States

Prior to the nullification of all state abortion laws in 1973, it was frequently stated that 5000-10,000 women were killed yearly by illegal abortions,⁹⁶ and this figure is still sometimes quoted today.⁹⁷ Numerous reliable sources tell us the number of deaths from illegal abortion was far lower. The American Medical Association documented 263 deaths in 1950, and only 119 in 1970.⁹⁸ The Guttmacher Institute reported a decrease in abortion related deaths from 200 in 1965 to 110 in 1967.⁹⁹ The Center for Disease Control reported only 39 deaths in 1972.¹⁰⁰ Abortion was becoming safer in the U.S. long before it was legalized due to advances in medicine such as instrument sterilization, antibiotic use, improved anesthesia and modern surgical techniques.¹⁰¹

Contrary to the common assumption of a hack job by a medically illiterate abortionist, 90% of “illegal” abortions were performed by physicians. Most of the rest were done by nurses, midwives, or those with some medical training.¹⁰² The term “back alley” referred to the door the women were advised to use to enter the medical clinic, not where the abortion took place.¹⁰³ Legalization of this procedure did not suddenly convert an unsafe procedure into a safe one. Prior to legalization, it was not as unsafe as most assumed, and since legalization, it is not as safe as frequently implied.

A widely reported study asserted that abortion was fourteen times safer than childbirth.¹⁰⁴ This study used four disparate and difficult to calculate numbers to make its conclusion. Abortion-related deaths were compared to the number of legal abortions, whereas maternal deaths were compared to the number of live births. Of the four variables, only live births can be accurately measured due to mandated birth certificates. Even so, only 60% of maternal deaths occur in conjunction with a live birth.¹⁰⁵ The U.S.

⁹⁶ Leavy “Criminal Abortion: A Failure of Law” *American Bar Association Journal*. 50(1)1964:52-55.

⁹⁷ <https://www.weeklystandard.com/sophia-buono/feinstein-overstates-deaths-from-illegal-abortion-in-kavanaugh-questioning>

⁹⁸ AMA Council on Scientific Affairs “Induced Termination of Pregnancy Before and After Roe v Wade: Trends in the Mortality and Morbidity of Women. *JAMA*. 268 (1992) 3231-3239.

⁹⁹ Gold. *Abortion and Women’s Health*. Alan Guttmacher Institute. 1990.

¹⁰⁰ <https://www.cdc.gov/mmwr/preview/mmwrhtml/ss5609a1.htm>

¹⁰¹ Calderone “Illegal Abortion as a public health problem” *AJ of Public Health*. 50(1960)949.

¹⁰² Germain Grisez, *Abortion: the Myths, the Realities, and the Arguments* (New York: Corpus Books, 1972) 49.

¹⁰³ *Ibid.*

¹⁰⁴ Raymond, Grimes, “The Comparative Safety of Legal Induced Abortion and Childbirth in the US” *OBG*. 119:2 (2012) 215-219.

¹⁰⁵ CDC Abortion Surveillance-U.S. 2009. *MMWR Surveillance Summary*. 61 (2012) 1-44.

does a poor job of accurately detecting maternal deaths,¹⁰⁶ and studies show as many as 50% of maternal deaths may be missed on death certificates.^{107,108}

The total number of legal abortions in the U.S., and their resulting complications and deaths, are not accurately known.¹⁰⁹ The estimated number of abortions are only voluntarily reported to the CDC by state health departments, and the state with the largest number does not report any data.¹¹⁰ The Guttmacher Institute also tracks these numbers, and they consistently report higher numbers than the states.¹¹¹ For example, in the most recent year calculated, the states reported 638,169 abortions, whereas GI reported 926,000. Some states (27) require abortion providers to report their complications, but there is rarely an enforced penalty for noncompliance. Even fewer states (12) require other physicians, coroners or emergency rooms to report abortion-related deaths for investigation.¹¹²

Information about an abortion preceding death is often not recorded on a maternal death certificate. Inconsistent implementation of a pregnancy checkbox on death certificates, or search engine failure to provide ICD 10 codes specific to abortion-related deaths or complications may thwart this documentation.¹¹³ Even when an abortion initiated a cascade of events resulting in death, only the most proximate events may be listed on the death certificate due to space limitations. The certifying physician may be unaware of the abortion, as many abortion providers lack hospital admitting privileges, and care is often provided by other physicians. Or he may mistakenly believe that a miscarriage, and not an abortion, led to the complications. Further, ideological commitments may lead a certifier to omit this information.^{114,115} One investigative reporter was able to document 30% more abortion related deaths nationwide than the CDC had reported, merely by correlating public documentation of malpractice cases with autopsy reports. Since most women with abortion complications do not initiate a malpractice lawsuit, this number probably represents only the tip of the iceberg.¹¹⁶

¹⁰⁶ MacDorman, et al, "Recent Increases in the U.S. Maternal Mortality Rate: Disentangling Trends from Measurement Issues." *OBG*. 128:3 (Sept 2016) 447-455.

¹⁰⁷ Horon. "Underreporting of Maternal Deaths on Death Certificates and the Magnitude of the Problem of Maternal Mortality." *AJ of Public Health*. 95 March 2005; 478-82.

¹⁰⁸ Dye TD, Gordon H. Retrospective maternal mortality case ascertainment in West Virginia, 1985 to 1989. *Am J Obstet Gynecol*. 1992;167(1)72-6.

¹⁰⁹ Studnicki J, et al. Improving maternal mortality: Comprehensive reporting for all pregnancy outcomes. *Open Journal of Preventive Medicine*. 2017;7:162-181.

¹¹⁰ CDC Abortion Surveillance-U.S. 2009. *MMWR Surveillance Summary*. 61 (2012) 1-44.

¹¹¹ Guttmacher.org

¹¹² Guttmacher.org

¹¹³ International Classification of Diseases Maternal Mortality 2012.

¹¹⁴ Calhoun B. Systematic Review: The maternal mortality myth in the context of legalized abortion. *The Linacre Quarterly*. 2013;80(3):264-276.

¹¹⁵ Reardon DC, et al. Deaths associated with abortion compared to childbirth-A review of new and old data and the medical and legal implications. *The Journal of Contemporary Health Law and Policy*. 2004;20(2):279-327.

¹¹⁶ Kevin Sherlock. *Victims of Choice*. Brennyman Books. 1996. 134-135.

How is maternal mortality defined?

Deaths of women that occur in proximity to childbirth are separated into three categories, based on their timing and causation. “Maternal death” is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration or site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. “Pregnancy-related death” is the death of a woman while pregnant, or within 42 days of termination of pregnancy, irrespective of the cause of the death. Additionally, a “Late maternal death” is the death of a woman from direct or indirect obstetric causes more than 42 days, but less than one year after termination of the pregnancy.¹¹⁷

While a physical complication caused by, or exacerbated by, changes in a woman’s physiology during pregnancy is the most evident event to consider, one would be remiss to fail to consider events associated with a woman’s mental health. Joyous events (such as the birth of a child) have been associated with improvement in health and well-being, and likewise the stress and guilt that can accompany a pregnancy loss may adversely impact a woman’s health.¹¹⁸ In addition, motherhood may have a protective emotional effect, whereas an abortion may have a deleterious emotional effect, leading to greater risk-taking activities.¹¹⁹ It is evident that a suicide on the anniversary of a coerced abortion or stillbirth should be linked to that pregnancy outcome, but none of these definitions will make that connection.

What do other studies say?

Recently, the National Academies of Science, Engineering and Medicine published a book which concluded that induced abortion is extremely safe.¹²⁰ It concluded that serious complications or long term physical or mental health effects are virtually non-existent. It stated that abortion is so safe, that the only deterrent to its safety is legislative restrictions enacted by the states that may prevent a woman from accessing an abortion immediately, “creating barriers to safe and effective care.” Abortions can be performed safely in an office-based setting or by telemedicine without the need for hospital admitting privileges. No special equipment or emergency arrangements are required for medical abortions. It is so safe, in fact, that it does not need to be performed by physicians; it can safely be performed by trained certified nurse midwives, nurse practitioners, and physician assistants. The NAS concluded that abortion has no long-term adverse effects,

¹¹⁷ Singh S. *Abortion Worldwide 2017: Uneven progress and unequal access*. Guttmacher Institute.

¹¹⁸ Ney PG, et al. The effect of pregnancy loss on women’s health. *Soc Sci Med*. 1994;38(9):1193-1200.

¹¹⁹ Coleman PK, Reardon DC, Calhoun B. “Reproductive History Patterns and Long-term Mortality Rates: A Danish population based record linkage study” *Eur J of Public Health*.

¹²⁰ National Academies of Science, *Engineering and Medicine: The Safety and Quality of Abortion Care in the United States*, The National Academies Press. 2018.

and it specifically does not increase the risk of preterm delivery, mental health disorders or breast cancer.¹²¹

However, when one examines the research studies they used for their conclusions, the poor quality of the literature regarding long-term complications becomes apparent. For many questions, there were very few or no studies that met their stringent criteria, and they disqualified many studies (especially those regarding mental health) due to perceived study defects. Thus, in all cases, there were less than a handful of studies on which they based their definitive conclusion of “no long-term impact.”

When evaluating for short-term abortion complications, their conclusions were limited to studies performed by the abortion providers themselves, or organizations with which they are closely aligned. The biggest studies used to show a low incidence of complications were performed by Planned Parenthood in California, where an enormous number of abortions are performed (the studies they quoted included greater than 233,000, 30,000, and 54,000 women).^{122,123,124} The only conclusion that can reasonably be drawn from this report regarding abortion complications is that extremely high volume providers have low complication rates, not that every single abortion provider does it well. The paucity of the literature should have prompted a call for more studies, not a categorical dismissal of any possible complications in any situation. Severe complications and deaths, particularly from independent late-term abortion providers, have been sporadically reported in the media,^{125,126,127} and the website of a watchdog organization, Operation Rescue, catalogues many of these catastrophic events,¹²⁸ although, as noted previously, the voluntary nature of abortion complication reporting means that many complications are never identified.

Meanwhile, a meta-analysis revealed a curious lack of interest by most investigators in the question of whether abortion is safer than childbirth. Of 989 studies that examined maternal deaths and pregnancy outcomes, only eleven provided results which allowed comparison between the death rates associated with all possible pregnancy outcomes. Nonetheless, in the studies that could be analyzed, the meta-analysis demonstrated that

¹²¹ National Academies of Science, *Engineering and Medicine: The Safety and Quality of Abortion Care in the United States*, The National Academies Press. 2018.

¹²² Cleland. Significant adverse events and outcomes after medical abortion. *OBG*. 2013. 121(1):166-171.

¹²³ Ireland. Medical compared with surgical abortion for effective pregnancy termination in the first trimester. *OBG*. 126(1)22-28.

¹²⁴ Upadhyay. Incidence of emergency department visits and complications after abortion. *OBG*. 2015;125:175-83.

¹²⁵ https://www.washingtonpost.com/news/wonk/wp/2013/04/15/the-gosnell-case-heres-what-you-need-to-know/?noredirect=on&utm_term=.c1959a006305

¹²⁶ <https://www.newyorker.com/magazine/2014/02/03/a-botched-operation>

¹²⁷ <https://www.liveaction.org/news/the-troubled-past-of-embattled-abortion-doctor-leroy-carhart/>

¹²⁸ operationrescue.org

within 180 days, the risk of death is over twice as high following abortion compared to following delivery and remains elevated for at least 10 years.¹²⁹

The best type of study to answer this question would link records for all deaths in reproductive aged women with all medical records of all pregnancies, so that no deaths were missed.¹³⁰ The only study done this way in the U.S. examined the records of California Medicaid recipients. Those women who had an induced abortion or delivery of a baby were followed for eight years. Compared with those who delivered a baby, those who aborted had a significantly higher age-adjusted risk of death from all causes (162% higher), from suicide (254% higher), as well as from natural causes (144% higher).¹³¹

Similar studies in Finland found that following an abortion, a woman was two to three times as likely to die within a year,¹³² six times as likely to commit suicide,^{133,134} four times as likely to die from an accident, and fourteen times as likely to be murdered,¹³⁵ compared with a woman who carried to term.¹³⁶ 94% of abortion-related deaths and 73% of maternal deaths were not identified on death certificates, demonstrating the clear inadequacy of death certificate data alone.¹³⁷ 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 28/100,000.¹³⁸

Danish studies also confirmed these findings. A woman who had a first trimester abortion had an 84% higher risk of dying within 180 days, and a 39% higher risk of dying within ten years, compared with one who carried to term. After a late-term

¹²⁹ Reardon, Thorp, "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 Medicine*. Vol 5:1-17, 2017.

¹³⁰ Deneux-Tharaux C, et al. Underreporting of pregnancy related mortality in the U.S. and Europe. *OBG*. 2005;106(4):684-692.

¹³¹ Reardon DC, Ney PG, Scheuren F, Cogle J, et al. Deaths associated with pregnancy outcome: A record linkage study of low income women. *So Med J*. 2002;95:834-841.

¹³² M Gissler. "Pregnancy Associated Deaths in Finland 1987-1994" *Acta Obstetrica et Gynecologica Scandinavica*. 76 (1997) 651-657.

¹³³ Gissler. Suicides after pregnancy in Finland, 1987-94. Register linkage study. *BMJ*. 1996;313:1431-1434.

¹³⁴ Karalis E, et al. 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;124:1115-1121.

¹³⁵ Gissler M. et al. Injury deaths, suicides and homicides associated with pregnancy, Finland 1987-2000. *Eur J of Public Health*. 2005;15(5):459-463.

¹³⁶ 25 M Gissler. "Pregnancy Associated Deaths in Finland 1987-1994." *Acta Obstetrica et Gynecologica Scandinavica*. 76 (1997) 651-657.

¹³⁷ 26 Gissler, Berg, et al, "Pregnancy Associated Mortality After Birth, Spontaneous Abortion or Induced Abortion in Finland. 1987-2000." *AJOG* 190 (2004) 422-427.

¹³⁸ Gissler, Berg, et al, "Methods of Identifying Pregnancy Related Deaths: Population Based Data From Finland. 1987-2000." *Pediatrics and Perinatology Epidemiology*. 18:6 (2004) 448-55.

abortion she had a 341% higher risk of dying within a year, and a 131% higher risk of dying within ten years.^{139,140}

Abortion Safety Worldwide

While the “safety” of abortion is emphasized in the U.S., the narrative suddenly changes when one looks abroad, particularly in countries where abortion is prohibited or restricted. In 2003, the World Health Organization estimated there were 42 million abortions worldwide, and 20 million of these were unsafe.¹⁴¹ 68,000 women died from abortion related complications yearly, and this accounted for 8-13% of all maternal mortality.^{142,143} An additional five million women suffered long term complications.^{144, 145}

When the World Health Organization updated these numbers in 2017, despite comprehensive worldwide efforts to improve contraceptive access and reduce unintended pregnancies in the intervening years, the numbers were rising.¹⁴⁶ There were now an estimated 56 million induced abortions yearly, of which 25 million were unsafe. This resulted in the hospitalization of seven million women, and a similar number of deaths.¹⁴⁷

Definition of unsafe and safe abortions

Until recently, the WHO definition of “unsafe abortion” assumed that most abortions performed in areas with restrictive abortion laws were performed in non-sterile conditions, via dangerous methods such as abdominal trauma, insertion of objects into the uterus, or ingesting poisons; by the women themselves, or by shady, untrained individuals. Thus, they encouraged countries with restrictive abortion laws to liberalize these laws, implying that if the laws were changed, abortions would suddenly become safe.^{148,149} In 2017, in response to the awareness that many illegal abortions are already

¹³⁹ Reardon DC, Coleman PK. 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):PH 71 – 76.

¹⁴⁰ Coleman PK, Reardon DC, Calhoun B. “Reproductive History Patterns and Long-term Mortality Rates: A Danish population based record linkage study” *Eur J of Public Health*.

¹⁴¹ Haddad L, Nour N, Unsafe Abortion: Unnecessary maternal mortality. *Reviews in Obstetrics & Gynecology*. 2(2)2009:122-126.

¹⁴² Khan K, Wojtyla D, Say L, Gulmezoglu, P, et al. WHO analysis of causes of maternal deaths: a systematic review. *Lancet*. 367(2006)1066-74.

¹⁴³ Say L, Gemmill A, Tunçalp O, Moller AB, et al. Global causes of maternal death: A WHO systematic analysis *Lancet*. (2014 online).

¹⁴⁴ WHO Fact Sheet: Preventing Unsafe Abortion. (2003, revised 2017).

¹⁴⁵ “Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2003” WHO 5th edition.

¹⁴⁶ Sedgh G, Singh S, et al. Induced abortion: incidence and trends worldwide from 1995 to 2008. *Lancet*. 2012;379:625-632.

¹⁴⁷ Singh. *Abortion Worldwide 2017: Uneven Progress and Unequal Access*. New York: Guttmacher Institute, 2018.

¹⁴⁸ “Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2003” WHO 5th edition.

¹⁴⁹ The Alan Guttmacher Institute. *Sharing responsibility: Women, society and abortion worldwide*. 1999. P 32-56.

being performed in medically recommended ways, researchers began documenting more nuanced categories.^{150,151}

They defined an abortion as “safe” if done with a method WHO recommends, such as medical abortion, vacuum aspiration, or dilation and evacuation, that was appropriate to the pregnancy duration, and if the person providing the abortion was trained. This category accounts for 55% of worldwide abortions (approximately 30.6 million yearly).

They defined the abortion as “less safe” if only one of the two criteria were met, either done with a trained provider but with an outdated method (sharp curettage), or a safe method of abortion (misoprostol) was used but without adequate information or support from a trained provider, accounting for 31% of worldwide abortions (17.1 million).

Finally, they defined an abortion as “least safe” if it was provided by untrained individuals using dangerous methods, such as ingestion of caustic substances, insertion of foreign bodies, or use of traditional concoctions, accounting for 14% of worldwide abortions. (8 million).

They reported that they were able to subdivide the unsafe abortions into the “less” and “least safe” categories by accounting for factors such as abortion service-delivery environment, financial access to services, abortion stigma, legal context, development, number of years mifepristone and misoprostol have been registered, proportion of population living in urban areas, and gender inequality index, although how these factors are weighted is ill-defined. The researchers confessed that empirical data in the model were scarce.¹⁵²

This new methodology acknowledged the reality that many abortions in countries with restrictive laws are performed by medical practitioners via established medical or surgical techniques, just as they were prior to legalization in the U.S., and thus may be considered as safe as legal abortions by those same providers if the laws were liberalized. But rather than celebrating the improvement in safety of illegal abortions, WHO has continued to advocate for a change in laws as a human rights issue. WHO’s emphasis has subtly shifted from avoiding a negative situation: “unsafe” abortion, to a positive right to pregnancy termination.^{153,154}

The areas of the world that are reported to have the highest number of unsafe abortions, complications and deaths are also the ones in which it is the most difficult to obtain accurate information. An investigation of how WHO makes these calculations is in order. In addition, it is helpful to recognize the ideology of the researchers. Most of

¹⁵⁰ Ganatra B, Gerdt C, Rossier C, Johnson BR, et al. Global, regional and subregional classification of abortions by safety, 2010-14: estimates from a Bayesian hierarchical model. *thelancet.com* 2017.

¹⁵¹ Singh. *Abortion Worldwide 2017: Uneven Progress and Unequal Access*. New York: Guttmacher Institute, 2018.

¹⁵² Ganatra B, Gerdt C, Rossier C, Johnson BR, et al. Global, regional and subregional classification of abortions by safety, 2010-14: estimates from a Bayesian hierarchical model. *thelancet.com* 2017.

¹⁵³ Unsafe Abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2003.” WHO 5th edition 2007.

¹⁵⁴ WHO: *Safe Abortion: technical and policy guidance for health systems*.

the studies cited by WHO are performed by researchers for the Guttmacher Institute. This organization started as a research affiliate of Planned Parenthood, and its stated purpose is to advance “reproductive rights.” A perusal of its website demonstrates this consists almost exclusively of advocating for widespread abortion access.¹⁵⁵

Calculating birth rates

The difficulty of accurately determining the incidence of an illegal activity such as abortion is self-evident. The first step WHO researchers must take is to calculate the “abortion incidence,” or absolute numbers of abortions that occur yearly in each country. In order to compare that number to other countries, they also determine the “abortion rate,” or abortions/1000 women of reproductive age, and the “abortion ratio,” or number of abortions/100 live births. Thus, they need to know the population numbers, live births, and total fertility rate for a given country. They may use country sources or the UN World Population Prospects database. These numbers may be reasonably accurate in countries with good record keeping, but many developing countries do not maintain detailed civil registration and vital statistics data,¹⁵⁶ and WHO often resorts to using estimates or prior records in these instances. Globally, total fertility rates have been falling in most countries, and this may introduce error if older statistics are used.¹⁵⁷

Calculating abortion numbers

Even in countries where laws are liberal, less than half (29 of 66) have complete statistics (defined as including at least 80% of abortions). Abortions may be missed due to voluntary reporting, data collection systems that only identify publicly funded or public sector abortions, uneven quality when broken down into central, state or provincial level collections, exaggeration when reporting is linked to reimbursement, or underreporting in population-based surveys.¹⁵⁸

In countries where laws are restrictive, abortions may be estimated with both direct and indirect methods, although each of these methods has limitations. The difficulty in obtaining these estimates is demonstrated by the fact that at least eight different methods have been described in the literature. Direct surveys of women (especially face to face interviews) may underestimate the numbers of abortions due to shame and stigma, and fear of punishment, and may be influenced by that society’s religious beliefs regarding abortion. Surveys may be non-representative of all women, especially if performed as a convenience or random sample survey. Women who voluntarily self-report tend to be a highly selective group which may introduce bias. Thus, when using survey data, WHO devised a correction factor which revised these numbers upward by 55%, based on studies indicating that reported abortions in countries with liberal laws represent

¹⁵⁵ Wikipedia, Guttmacher.org

¹⁵⁶ <http://www.worldbank.org/content/dam/Worldbank/document/HDN/Health/CRVSScaling-up-overview5-28-14web.pdf>

¹⁵⁷ WHO Annex 1: Estimating the incidence of unsafe abortion and associated mortality 2003.

¹⁵⁸ Remez L, Singh S, Tartaglione A. Methodologies for estimating abortion incidence and abortion related morbidity: A review. 2010. Guttmacher/IUSSP.

30-80% of true incidence.¹⁵⁹ When providers are surveyed, it may be difficult to identify a representative sample, and they also may underestimate the incidence due to fear of punishment, or censorship from other providers.

Thus, WHO often resorts to indirect methods of measuring abortion incidence in countries with restrictive laws. Some Latin American countries do maintain accurate data on Ministry of Health websites, but most developing countries have little publicly available data. There are few prospective health facility studies due to logistical complexity, high cost, and difficulty ensuring data quality. Thus, WHO researchers rely almost exclusively on a voluntary retrospective survey, the “Health Professionals Survey,” created by the Guttmacher Institute in the 1990s. This survey sought out local experts, often from ideologically similar non-governmental organizations, who were felt to be knowledgeable about abortion provision in the study area. They included medical providers who had experience treating abortion complications, but also included researchers, women’s health activists, policymakers, family planning program planners and administrators. Most of those surveyed worked in urban areas. The survey queried these responders for their opinions about the abortion methods used in their area, the types of abortion providers (doctors, trained nurses or midwives, untrained practitioners, pharmacy workers, or the woman herself), the likelihood of complications, where and how likely injured women would seek treatment, and how these factors might differ between rural and urban women, and between poor and better off women.¹⁶⁰

The sampling was sparse, with the opinions of relatively few providers magnified to calculate important assumptions. As an example, they interviewed a total of 232 professionals in the following countries: Afghanistan, Bangladesh, India, Iran, Nepal, Pakistan, Sri Lanka, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam, to develop estimates for south central and southeast Asia¹⁶¹ and 197 professionals from Brazil, Chile, Colombia, Peru, Dominican Republic and Mexico to develop estimates for Latin America.¹⁶² With these subjective opinions from a limited number of ideologically similar providers, they drew some big assumptions about the regions. The researchers acknowledged that rates in developing countries estimated using these indirect approaches were far higher than official statistics from these same countries.¹⁶³ They did not report an external objective component which could act as a benchmark for comparison or correction.

They also developed a theoretical framework in which abortion incidence was estimated as the sum of abortions in subgroups of women defined by their marital

¹⁵⁹ Rossier C. Estimating induced abortion rates: a review. *Stud Fam Plann* 2003;34:87-102).

¹⁶⁰ Remez L, Singh S, Tartaglione A. Methodologies for estimating abortion incidence and abortion related morbidity: A review. 2010. Guttmacher/IUSSP.

¹⁶¹ Singh S, Wulf D, Jones, H. Health professionals’ perceptions about induced abortion in south central and southeast asia *Int Fam Planning Perspectives*. 23:59-67, 1997.

¹⁶² Singh S, Wulf D. Estimated levels of induced abortion in six Latin American countries *Int Fam Planning Persp*. 20:4-13, 1994.

¹⁶³ Singh. *Abortion Worldwide 2017: Uneven Progress and Unequal Access*. New York: Guttmacher Institute, 2018.

status, contraceptive need and use, education, age distribution and national wealth. They calculated contraceptive failure rates as the reported percent of women using each method multiplied by the failure rate for that method.¹⁶⁴ They assumed that globally the majority of women with unintended pregnancies would procure an abortion,¹⁶⁵ although only 42% of unintended pregnancies in the U.S. are documented to end in abortion, even though it is much more widely available.^{166,167}

With these dubious methods, they determined that abortions occur as frequently in the two most restrictive categories of countries (banned outright or allowed only to save the woman's life-37/1000), as in the least restrictive category (allowed without restriction as to reason-34/1000). They also calculated an annual abortion rate of 36/1000 for married women, and 25/1000 for unmarried women.¹⁶⁸ These numbers are counterintuitive, because abortions in developed countries are far more common in single women, where societal mores prohibit single motherhood, than in married women who have the support of a husband.¹⁶⁹

In addition, numerous studies have found that abortion numbers increase dramatically when the procedure is legalized.¹⁷⁰ Increased access, societal acceptance and removal of the threat of punishment for breaking the law are all factors that would be expected to contribute to an increase in abortion's incidence. Prior to abortion legalization in the U.S, it was estimated that there were about 98,000 illegal abortion yearly.¹⁷¹ Six states allowed legal abortions prior to *Roe v Wade*, and women often travelled to those states for the procedure. Yet the nationwide legalization of abortion caused the CDC to document an increase from 13.2 abortions/1000 women in 1972, to 19.3 in 1974, to 29.3 in 1980. Since legalization, the U.S. has consistently reported about 1-1.5 million abortions yearly.¹⁷² Conversely, studies have shown that state level restrictions do decrease the number of abortions.¹⁷³ Other sources confirm that countries in which abortion is

¹⁶⁴ Singh S, Darroch J, Ashford L. Adding it up: the costs and benefits of investing in sexual and reproductive health 2014. Guttmacher, UNFPA.

¹⁶⁵ Sedgh G, et al. Intended and unintended pregnancies worldwide in 2012, and recent trends. *Stud Fam Plann.* 2014;45(3):301-314.

¹⁶⁶ Jones RK, Finer LB, Singh S. Characteristics of U.S. abortion patients, 2008. New York: Guttmacher Institute, 2010 (<http://www.guttmacher.org/pubs/US-Abortion-Patients.pdf>).

¹⁶⁷ Finer LB and Zolna MR, Shifts in intended and unintended pregnancies in the United States, 2001–2008, *American Journal of Public Health*, 2014, 104(S1):S44–S48.

¹⁶⁸ Sedgh G, Bearak J, et al. Abortion incidence between 1990 and 2014: Global, regional and sub-regional levels and trends. *Lancet.* 2016;388:258-267.

¹⁶⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/570040/Updated_Abortion_Statistics_2015.pdf

¹⁷⁰ Levine P, Staiger D. Abortion policy and fertility outcomes: the eastern European experience. *J of Law and Economics.* 2004;47:223-243.

¹⁷¹ Syska B. "An Objective Model of Estimating Criminal Abortions and Its Implication for Public Policy." *New Perspective On Human Abortion.* University Publications of America. 1981.

¹⁷² CDC Abortion Surveillance. U.S. 2009. *MMWR Surveillance Summary.* 61(2012): pp. 1-44.

¹⁷³ Blank R, George C, London R. State abortion rates: The impact of policies, providers, politics, demographics and economic environment. *J of Health Economics.* 15(5)1996:513-553.

legal only to save the mother's life have 5-25% of the level observed in countries in which abortion is legal on request.¹⁷⁴

Additionally, WHO assumes that abortion rates in countries without data are comparable to those in countries with similar demographic characteristics, but for which evidence is unavailable.¹⁷⁵ Thus, they often extrapolate known data for a small area to other unknown areas.

Counting abortion complications

As previously noted, it is difficult to determine the incidence of serious complications or deaths from abortions, as well as from childbirth in general. Although some health facilities have high quality statistics derived from International Classification of Disease (ICD) codes, these systems may still have limitations due to delays in submission to a central system, incomplete or poor-quality records, budgetary constraints, or political factors. A comprehensive analysis of the medical record-keeping evaluating maternal mortality for all of the world's countries found that only 2% use the method of assessment considered the "gold standard," 34% use the next best system (where at least 90% of deaths are registered), 16% rely upon the "sisterhood method" of surveying women about the causes of deaths of their family members, and a full 35% of the world's countries have no empirically based data sets or estimates for maternal mortality ratios.¹⁷⁶

Even the ICD codes available are often not specific for induced abortion, and usually include women who have complications related to miscarriages. Relying only on hospital coding also fails to identify women with similar abortion complications who were not hospitalized due to finances, inaccessibility, or fear of punishment in areas where abortion is illegal.

WHO assumes that most women who have complications from induced abortions will not report the induced abortion but will lead the caregiver to believe it is a miscarriage that caused her complication, so they have developed several approaches to distinguish between induced and spontaneous abortion complications when the coding is nonspecific.^{177,178} WHO makes a general assumption that women with early pregnancy miscarriages will not need to be hospitalized, although this is an assumption without support.¹⁷⁹ Even in the high resource setting of the U.S., women with early miscarriages frequently require hospital care. Women in poorer, developing countries with complicating factors such as sanitation issues, nutritional deficiencies, anemia,

¹⁷⁴ New M. How the legal status of abortion impacts abortion rates. Charlotte Lozier Institute.

¹⁷⁵ Sedgh G, Bearak J, Singh S, Bankole A, et al. Abortion incidence between 1990-2014: global, regional and subregional levels and trends *Lancet*. 388(2016)258-267.

¹⁷⁶ Hill K, AbouZahr C, Walker N, Say L, et al. Estimates of maternal mortality worldwide between 1990 and 2005: an assessment of available data *Lancet*. 370(2007)1311-19.

¹⁷⁷ "Unsafe Abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2003" WHO 5th edition.

¹⁷⁸ Grimes "Unsafe abortion: The preventable pandemic" *Lancet*. 368(2006)1908-1919.

¹⁷⁹ Singh S, Maddow-Zimet I. Facility based treatment for medical complications resulting from unsafe pregnancy termination in the developing world, 2012: a review of evidence from 26 countries. *BJOG*. 2016;123:1489-1498.

HIV or tuberculosis may be even more likely to suffer complications from spontaneous abortions and require hospitalization.^{180,181} Nonetheless, disregarding these factors, they determine a “biologic estimate” of late miscarriage rates from a forty year old study that predicted that 3.41% of all live births resulted in miscarriage between 13 and 22 weeks (which are the only miscarriages they felt would lead to hospitalization). They lowered this number further to 2.48% to account for the presumed numbers of induced abortions that would have miscarried.¹⁸² This number was subtracted from the hospital reported unspecified abortion rate to produce the number of induced abortion complications.¹⁸³

They also made further adjustments under the assumption that the proportion of women who would seek care for an abortion complication would be the same as the proportion of women giving birth in that facility. However, it has been documented that many healthy women do not deliver in facilities for cultural reasons, and it is unknown if this holds true for a woman who is truly sick from an abortion complication. Recognizing this, Ugandan and Pakistani studies further inflated the abortion complication numbers by 50%. Deferring again to the Guttmacher surveys, researchers estimate that 40% of women with severe abortion related complications will not receive care in a health facility.¹⁸⁴

Another study allowed a “FLASOG (*Federacion Latinoamericana de Sociedades de Obstetricia y Ginecologia*) estimate” to be derived, which concluded that only 33% of hospitalized abortion patients had complications due to spontaneous abortions. The charts of over 8000 women hospitalized for complications in four Latin American countries were reviewed. Only 9% of these women confessed to having an induced abortion. The researchers applied the following criteria to determine the likelihood that a woman’s complication was due to an induced abortion: the woman was “certain to have had one” if she or a family member reported it as such, or there was evidence of genital or cervical trauma or foreign body in genital tract (13%), “probably had one” if she was diagnosed with sepsis and stated that she had been using contraception or that she did not want the pregnancy (6%), “possibly had one” if she had been using contraception or did not want the pregnancy (49%), and she was “unlikely to have had one” if she met none of those criteria (33%). Thus, they assumed that 67% of these women (first 3 categories combined) had an induced abortion, leading to the estimation that only 33% of the women hospitalized had a complication from a spontaneous abortion. It

¹⁸⁰ “Hospital admissions resulting from unsafe abortions: estimates from 13 developing countries” *Lancet*. Nov 2006.

¹⁸¹ Lumbiganon. Indirect causes of severe adverse maternal outcomes: a secondary analysis of the WHO multi country survey on maternal and newborn health. *BJOG*. 2014.

¹⁸² Hammerslough C. Estimating the probability of spontaneous abortion in the presence of induced abortion, and vice versa. *Public Health Reports*. 107:269-277, 1992.

¹⁸³ Harlap S. A life table of spontaneous abortions and the effects of age, parity and other variables. in Hook EB. *Human Embryonic and Fetal Death*. Academic Press. New York. 1980. table 1, p 148 and 157.

¹⁸⁴ Singh S, Maddow-Zimet I. Facility based treatment for medical complications resulting from unsafe pregnancy termination in the developing world, 2012: a review of evidence from 26 countries. *BJOG*. 2016;123:1489-1498.

is an unwarranted assumption that not desiring the pregnancy would lead to a 100% likelihood that a woman would induce an abortion, but WHO included all the women who had a contraceptive failure or undesired pregnancy (half of the women studied) in the abortion numbers, almost certainly inflating these numbers. Further, during field trip interviews, local health care providers reported they felt only 5-10% of hospitalized patients had true miscarriage complications, so they further lowered this number to 15-25%.^{185,186}

In addition, WHO again resorted to another survey developed by the Guttmacher Institute to estimate the numbers of women hospitalized for complications. The “Health Facilities Survey” queried a nationally representative sample of health facilities that are likely to provide post-abortion care. A key informant or senior staff member at each identified facility was asked to estimate the number of women who developed complications and received treatment at their facility during the most recent month, and during an average month. These numbers were averaged and multiplied by 12. A consistent pattern emerged whereby the estimation of the “average” month’s counts was higher than the count from the most recent month, possibly reflecting a recall bias.¹⁸⁷

A study from Uganda provides an example of this technique. 313 of 359 health care facilities approached returned the survey, and 53 health care professionals were interviewed. It appears that only one survey was completed from each facility. A better technique to control for outliers or biased responses would be to average several responses from each facility.¹⁸⁸

Based on these “Health Facilities Surveys” and “Health Professionals Surveys,” WHO developed multipliers (ranging from two to seven)¹⁸⁹ to be applied to the number of women hospitalized, to estimate the true number of women who suffered induced abortion complications but did not obtain care.¹⁹⁰ These multipliers were determined based on the estimated demographic characteristics of poor/urban, poor/rural, nonpoor/urban, nonpoor/rural women (with education levels as a proxy for poverty), and the percentage distribution of all women who obtained an induced abortion, according to the type of provider. This number was multiplied by each type of provider’s expected complication rate, to calculate the proportion likely to experience complications, and further adjusted by the estimated probability that a woman with complications will receive medical care at a health facility. Based on this methodology, some countries have

¹⁸⁵ Singh S, Wulf D. The likelihood of induced abortion among women hospitalized for abortion complications in four Latin American countries *Int Fam Planning Persp.* 19:134-141. 1993.

¹⁸⁶ Bankole A, et al. The severity and management of complications among postabortion patients treated in Kinshasa Health Facilities. *Int Perspectives on sexual and reproductive health.* 2018;44(1):1-9.

¹⁸⁷ Remez L, Singh S, Tartaglione A. Methodologies for estimating abortion incidence and abortion related morbidity: A review. 2010. Guttmacher/IUSSP.

¹⁸⁸ Singh S. The incidence of induced abortion in Uganda. Guttmacher.org. 2005.

¹⁸⁹ Remez L, Singh S, Tartaglione A. Methodologies for estimating abortion incidence and abortion related morbidity: A review. 2010. Guttmacher/IUSSP.

¹⁹⁰ Singh S, Wulf D. Estimated levels of induced abortion in six Latin American countries *Int Fam Planning Persp.* 20:4-13, 1994.

been determined to have an abortion complication rate requiring medical attention as high as 40%.¹⁹¹ Of note, there is very little external validation of this subjective data independently derived from population-based or community surveys.¹⁹²

Extrapolation to larger areas

Once again, sparse local data is extrapolated to larger areas under the assumption that all areas have similar rates of unsafe abortions and complications. With this inherently unreliable data, WHO creates a ratio of “unsafe abortions to live births,” which, when multiplied by the national birth rate, yields a “national unsafe abortion” number for a country, with the data errors also multiplied. Based on the previously discussed sketchy hospital data, or random interviews with family members, WHO estimates the numbers of “maternal deaths due to unsafe abortion.” When data are not available for a given country, researchers substitute their own data based on estimates of countries with similar abortion laws and demographics.^{193,194,195}

Challenging WHO’s Assumptions

Are there standard epidemiological techniques that can be used?

There are other standard epidemiological techniques which may be used to verify these estimations. Researchers may also use other demographic indicators directly obtained from vital statistics, or may use known rates from a standard population, to obtain an extrapolation.¹⁹⁶ The country of Colombia allows an analysis of how these estimates differ when calculated by such a standard epidemiological technique. Based on the methodology previously described, WHO/Guttmacher Institute estimated 400,400 clandestine abortions in Colombia yearly.¹⁹⁷

Since abortion is banned in most South American countries, abortion estimates in these countries are difficult to ascertain. Spain is the most demographically similar country which keeps a registry of induced abortions that could be utilized for comparisons. After Spanish abortion legalization in 1985, there were 16,766 registered abortions in

¹⁹¹ Singh. *Abortion Worldwide 2017: Uneven Progress and Unequal Access*. New York: Guttmacher Institute, 2018

¹⁹² Remez L, Singh S, Tartaglione A. Methodologies for estimating abortion incidence and abortion related morbidity: A review. 2010. Guttmacher/IUSSP.

¹⁹³ Singh, Wulf “Health Professional’ perceptions about induced abortion in South Central and South-east Asia” *Int Fam Planning Perspectives*. 23(1997)59-67.

¹⁹⁴ Sedgh, et al. “Abortion incidence between 1990-2014: global, regional and subregional levels and trends” *Lancet*. 388(2016)258-267.

¹⁹⁵ Sedgh, et al. “Abortion incidence between 1990-2014: global, regional and subregional levels and trends” *Lancet*. 388(2016)258-267.

¹⁹⁶ Wilcosky T. Chapter 6. Standardization of rates and ratios in *Understanding the fundamentals of epidemiology: an evolving text*. Schoenbach V, Rosamond WD. Fall 2000 Edition. UNC School of Public Health. Chapel Hill.

¹⁹⁷ Prado https://www.guttmacher.org/sites/default/files/report_pdf/unintended-pregnancy-colombia.pdf.

1987. This number is considered closest to the number of illegal abortions before legalization. These numbers have evolved steadily upward to reach 115,812 after 22 years.¹⁹⁸

By determining the numbers of reproductive aged women in Colombia and Spain, it is possible to determine the rate of induced abortions and extrapolate the likely number of induced abortions in Colombia.¹⁹⁹ Based on this technique, the Colombian illegal abortion number would be estimated to be 21,978, exposing the WHO/Guttmacher Institute number as an 18-fold overestimation. These independent researchers stated that WHO's sole reliance on convenience surveys introduced serious selection bias, causing their estimates to be "based on imaginary numbers underlying mere opinions," and revealed that "a completely different scenario is observed when calculating figures of illegal abortions on the basis of actual vital statistics, scientifically valid epidemiological methods, and well known biological reproductive rates."²⁰⁰ When this same methodology is applied to other South American countries, the WHO/GI estimates range from 12 to 43-fold overestimations of the likely numbers of abortions.²⁰¹

In order to approximate the number of complications from induced abortions treated in Colombian hospitals, researchers can look to another demographically similar country, Chile, which maintains high quality vital statistics data, including diagnostic codes for all hospital discharges, and has been acknowledged by WHO to have exemplary data for Latin America. As discussed earlier, most abortion complications are coded without respect to whether induced or spontaneous, so the biologic probability-associated relationship between viable conceptions, pregnancies with live birth outcomes, and spontaneous abortions can be examined.²⁰² From prior studies, live births are expected to represent 0.66 of total viable conceptions, clinical spontaneous abortions 0.08, and imperceptible abortions before six weeks 0.25. Thus, if live births are known, one can calculate how many miscarriages (and correlating number of induced abortions occurred).²⁰³ The difference, or residue in excess, between observed and expected cases is assumed to be due to complications of induced abortions. Use of this methodology in Chile concluded that 89.4% of hospitalizations for abortion complications were related to spontaneous abortions. When these ratios are applied to the total number of abortion

¹⁹⁸ Eurostat portal.

¹⁹⁹ Koch, E, Bravo M, Gatica S, Stecher J, et al. Overestimation of induced abortion in Colombia and other Latin American Countries. *Ginecol Obstet Mex.* 2012;80(5):360-372.

²⁰⁰ Ibid.

²⁰¹ Singh S, Wulf D. Niveles estimates de aborto inducido en seis paises latinoamericanos. *Perspectivas Internacionales en Planificacion Familiar*, numero especial de 1994;3-13. Guttmacher Institute. 1994.

²⁰² Wilcox AJ, Weinberg CR, Baird DD. Timing of sexual intercourse in relation to ovulation. Effects on the probability of conception, survival of the pregnancy and sex of the baby. *N Engl J Med* 1995; 333:1517-21.

²⁰³ Wilcox AJ, Weinberg CR, Baird DD. Timing of sexual intercourse in relation to ovulation. Effects on the probability of conception, survival of the pregnancy and sex of the baby. *N Engl J Med* 1995; 333:1517-21.

complications reported in Colombia, it appears that the Guttmacher report overestimated the number of induced abortion complications by nine times.²⁰⁴

A comment regarding these methodologies: WHO assumes that women will not need to seek medical help for a complication from a miscarriage until the second trimester, thus they subtract off only the estimated number of late pregnancy losses. The Chilean study assumes that all women will seek medical help if the pregnancy has progressed beyond six weeks gestation. In the U.S., most women will seek help for a miscarriage because help is readily available. In developing countries, it may be more difficult to access medical care, particularly for women in rural communities and this may decrease the number of miscarriage complications seen; but unsanitary conditions, malnutrition and poorer health of women in developing countries makes them more likely to suffer complications from early miscarriages, thereby potentially increasing the numbers of miscarriage complications seen, and this should not be discounted. The reality is that the rate of induced abortion complications undoubtedly lies somewhere between the 10% incidence assumed by Dr. Koch, and the 75-85% assumed by Guttmacher Institute.

Using these same epidemiologic techniques in Mexico City, it would be determined that abortion numbers were overestimated forty-fold by WHO/GI.²⁰⁵ They estimated between 725,070 and 1,024,424 abortions yearly before decriminalization, whereas other nongovernmental sources estimated 16,945 in 2010.^{206,207,208}

Do these assumptions hold up in real world comparison of demographically similar countries with disparate abortion laws?

If legal abortion is necessary to reduce maternal mortality, it is worthwhile to investigate whether this holds true in countries with similar demographics but disparate abortion laws. WHO studies often failed to account for deficiencies in the health care systems in developing countries when alleging that maternal mortality was higher in countries with restrictive abortion laws. When other factors are controlled for, there are not significant differences in maternal mortality in countries with restrictive and permissive abortion laws.²⁰⁹

The Republic of Ireland, until recently, had very restrictive abortion laws, yet has a very low maternal mortality rate of 8/100,000 live births. Its neighbor, the United Kingdom, has permissive laws, but virtually the same maternal mortality rate of

²⁰⁴ Koch E, Bravo M, Gatica S, Stecher J, et al. Overestimation of induced abortion in Colombia and other Latin American countries. *Ginecol Obstet Mex* 2012;80(5):360-372.

²⁰⁵ Koch. "Fundamental discrepancies in abortion estimates and abortion-related mortality: A reevaluation of recent studies in Mexico with special reference to the International Classification of Diseases" *Int J of Women's Health*. 2102:4 613-623.

²⁰⁶ Prado https://www.guttmacher.org/sites/default/files/report_pdf/unintended-pregnancy-colombia.pdf

²⁰⁷ Juarez. Estimates of induced abortion in Mexico. *Int Fam Planning Persp*. 2008;34(4);158-168.

²⁰⁸ Koch "Women's Education Level, Maternal Health Facilities, Abortion Legislation and maternal deaths: A Natural experiment in Chile from 1957 to 2007" *Plos One*. 2012.

²⁰⁹ New M. How the legal status of abortion impacts abortion rates. Charlotte Lozier Institute. 2018.

9/100,000 live births.²¹⁰ Compared to the U.K., Ireland has lower rates of breast cancer, low birthweight infants and mental health disorders, even though they are otherwise demographically homogenous.²¹¹

Chile made abortion illegal in 1989, but a downward trend in maternal mortality has continued, from 41.3 to 12.7/100,000 live births, leading researchers to conclude that it was an increase in the educational level of women,²¹² universal access to prenatal and postnatal care, and child delivery attended by health professionals,²¹³ rather than access to abortion, that lowered the rates.²¹⁴ Likewise, abortion mortality continued to drop from 13.7 to 1.7/100,000 live births despite these restrictive laws.²¹⁵

Poland banned abortion in 1993 yet documented a persistent decrease in maternal mortality from 15/100,000 in 1990 to 7.3/100,000 by 1999.²¹⁶ And finally, Malta, the only country in the European Union to ban abortion entirely, also has one of the lowest maternal mortality rates in the world, dropping from 15 to 8/100,000.²¹⁷

Finally, the United States should be considered. While the U.S. has some of the most permissive abortion laws in the world (it is one of only seven countries to allow abortion for any reason after viability),²¹⁸ it has the worst maternal mortality rate in the developed world (despite being the world's leader in medical technology). The data is so poor that it is difficult to calculate the exact rate, but it appears to be around 26/100,000 live births.^{219,220}

What is the World Health Organization's objective?

As previously demonstrated, WHO primarily uses subjective opinions as the basis for their methodology, and thereby obtains elevated numbers of illegal abortions, complications and deaths, when compared with estimations obtained using objective

²¹⁰ Trends in Estimated of Maternal Mortality Ratios: 1990-2015. WHO, UNICEF, USFPA, World Bank, UNPD, Nov. 2015.

²¹¹ Carroll P, Ireland's Gain: The demographic impact and correlation for the health of women of the abortion laws in the Republic of Ireland and Northern Ireland since 1968. PAPRI: Pension and population research institute.

²¹² McAlister C, Baskett TF. Female education and maternal mortality: A worldwide survey. *J Obstet Gynaecol Can.* 2006;28:983-90.

²¹³ Adegoke AA, Van den Broek N. Skilled birth attendance-lessons learnt. *BJOG.* 2009;116 Suppl 1: 33-40.

²¹⁴ Koch "Women's education level, maternal health facilities, abortion legislation and maternal deaths: A natural experiment in Chile from 1957 to 2007" *Plos One.* 2012.

²¹⁵ Donoso-Sina E. Unsafe abortion in Chile? *Rev Chil Obstet Ginecol.* 2008;73:359-61.

²¹⁶ Levine P, Staiger D. Abortion policy and fertility outcomes: the eastern European experience. *J of Law and Economics.* 2004;47:223-243.

²¹⁷ <https://www.timesofmalta.com/articles/view/20100522/local/malta-has-one-of-lowest-rates-of-maternal-mortality.308438>

²¹⁸ www.Lozierinstitute.org

²¹⁹ MacDorman "Recent increases in the U.S. Maternal mortality rate: Disentangling trends from measurement issues" *OBG.* 128(3)2016:447-455.

²²⁰ <https://www.npr.org/2017/05/12/528098789/u-s-has-the-worst-rate-of-maternal-deaths-in-the-developed-world>

epidemiological techniques. They acknowledge that these estimates provide a tool for advocacy and a rationale for changing restrictive abortion laws.²²¹ They recommend widespread abortion legalization to prevent unsafe abortions which may kill or severely injure women. Yet, further investigation shows that maternal mortality rates are similar in demographically similar countries with disparate abortion restrictions, casting doubt on whether abortion legalization is necessary to reduce maternal mortality.

Women are increasingly accessing information through the internet or by word-of-mouth to help them obtain “safe” though still illegal abortions. WHO has begun promoting these “safer” methods, even though it once called those methods unsafe, and even though these abortions remain against the laws of sovereign countries.²²² It has begun to seem that WHO’s goal is not safety, but simply widespread abortion access.²²³

WHO has a problem in their quest to provide abortion more readily throughout the world. Few physicians want to perform abortions. Though many health care professionals profess to be “pro-choice,” the reality is that most do not want to perform a procedure that ends a human life. This problem is reflected in the U.S., where 89% of counties lack an abortion provider²²⁴ and 86-93% of obstetrician/gynecologists will not perform an abortion when requested by their patients.^{225,226} WHO acknowledges that the lack of trained, willing providers is one of the most critical barriers to abortion care. They estimate that the global deficit of skilled health care providers will reach 12.9 million by 2035.²²⁷

In their quest to promote widespread abortion access, WHO has lowered its standards, and now recommends that lesser skilled providers be trained to perform abortions. After considering the types of providers available, WHO has concluded that specialist physicians, non-specialist physicians, advanced clinicians, midwives, and even nurses can become qualified to perform vacuum aspiration for induced abortion or incomplete abortion, prescribe medical abortion pills, manage post abortion hemorrhage and infection, place intrauterine devices, and even perform bilateral tubal ligations (an intra-abdominal surgery) in low resource settings.²²⁸ They have published manuals demonstrating the surgical technique on papayas for training, disregarding the significant differences between a woman’s vascular, dynamic uterus, and a piece of fruit.

²²¹ Remez L, Singh S, Tartaglione A. Methodologies for estimating abortion incidence and abortion related morbidity: A review. 2010. Guttmacher/IUSSP.

²²² Grimes “Unsafe abortion: The preventable pandemic” *Lancet*. 368(2006)1908-1919.

²²³ Remez L, Singh S, Tartaglione A. Methodologies for estimating abortion incidence and abortion related morbidity: A review. 2010. Guttmacher/IUSSP.

²²⁴ Jones RK, Jerman J. Abortion incidence and service availability in the United States, 2011. *Perspectives on sexual and reproductive health*. 2014, 46(1):3-14.

²²⁵ Stulberg D, et al. Abortion provision among practicing obstetricians and gynecologists. *OBG*. 2011;118(3):609-614.

²²⁶ Desai, et al. Estimating abortion provision and abortion referrals among U.S. ob/gyns in private practice. *Contraception on-line*. 2017.

²²⁷ WHO: Safe Abortion: Technical and policy guidance for health systems.

²²⁸ WHO Health worker roles in providing safe abortion care and post-abortion contraception. 2015.

They also recommend manual suction aspiration abortions with a reusable device in areas that lack electricity, the very areas in which sterility is likely to be compromised.²²⁹

WHO recommends several methods of abortion in which they call their “strength of recommendation” strong, yet they admit that the quality of evidence to support their recommendations is weak (despite elsewhere in their report stating “National standards and guidelines for safe abortion care should be evidence based”). These recommendations include medical abortion regimens in later gestational ages, misoprostol only methods, and the recommendation that pre-abortion sonogram is not necessary.²³⁰ None of these recommendations are considered the standard of care in the U.S., yet apparently, they are good enough for developing countries that “need” abortion.²³¹

Until recently, WHO categorized misoprostol as “unsafe,” but now has begun recommending its use alone in situations where abortion is illegal,^{232,233} even though 70% of the women hospitalized for abortion complications in Brazil had used misoprostol. WHO advocates expanding misoprostol only abortions in low-income countries due to its low cost, even though they acknowledge that the failure rates are high, resulting in complete abortions only 60-85% of the time.²³⁴ They boldly state that where abortion is highly restrictive, accurate information on how to safely use misoprostol alone should be widely conveyed to help make clandestine abortions safer.²³⁵ They seem unconcerned that women may seek this course before an intra-uterine pregnancy has been documented, placing them at risk for a deadly ruptured ectopic pregnancy, or that they may use it later in pregnancy than is effective, due to inaccurate estimation of gestational age.²³⁶ They dispassionately calculate how many deaths they would prevent by recommending misoprostol, while knowing full well that they will also cause deaths by encouraging its use in women with poor access to emergency services.²³⁷

When considering medical abortion use in developing countries, it is important to understand that hemorrhage is the most common cause of maternal death worldwide, and it is also the most common complication of medical abortions. In countries with poor blood banking facilities, endemic anemia, and poor access to medical and surgical care, this may lead to disastrous complications. The FDA prohibits use of the medical abortion regimen in women with a hemoglobin of less than 9.5. This is likely the baseline

²²⁹ 2012 WHO Technical Guidance on Maternal Morality.

²³⁰ WHO: Safe Abortion: Technical and policy guidance for health systems.

²³¹ Atrash H, et al. Ectopic pregnancy concurrent with induced abortion: Incidence and mortality. *AJOG*. 1990;162(3):726-730.

²³² Grimes, et al. “Unsafe abortion: the preventable pandemic” *Lancet*. 368(2006)1908-1919.

²³³ Singh. *Abortion Worldwide 2017: Uneven Progress and Unequal Access*. New York: Guttmacher Institute, 2018.

²³⁴ Delphine. “Cost effectiveness analysis of unsafe abortion and alternative first trimester pregnancy termination strategies in Nigeria and Ghana” *African Journal of Reproductive Health*. June 2010;14(2):85.

²³⁵ Singh S. *Abortion Worldwide 2017: Uneven progress and unequal access*. Guttmacher Institute.

²³⁶ Reducing maternal mortality due to elective abortion: potential impact of misoprostol in low resource settings” *Harper*. 2007.

²³⁷ A harm reduction model of abortion counseling about misoprostol use in Peru with telephone and in person followup: A cohort study.” Grossman. *Plos One*. 2018. Jan 10.

level found in African women affected with sickle cell anemia, thalassemia, or suffering from malnutrition or parasitic infections. If such a woman takes misoprostol in a remote area without access to emergent medical care, and suffers an incomplete abortion, there is a high likelihood she could hemorrhage and die.²³⁸ Instead of warning against its use in such settings, WHO continues to encourage developing countries to liberalize their abortion laws and provide these pills more widely.²³⁹ Where the laws remain restrictive, they urge distribution of information about the pills anyway.²⁴⁰

It is implied that uneducated rural women are more likely to seek the services of an unscrupulous “quack,” than a real medical professional. But that assumption gives far too little credit to the intellect of these women. Surely, even an unschooled woman can understand that drinking acid or jumping off a roof is as likely to injure her as end the pregnancy. Most of the women who seek abortions in countries where abortion is illegal do so in the ways women in the U.S. did prior to legalization. They contact a medical professional, who performs the procedure in a medically standard way, although illegally.²⁴¹ An immediate question arises: how can the same procedure, provided by the same type of provider, result in no complications in countries where it is legal, and yet complicate so many of the procedures in countries where it is not legal?

Without supporting evidence, WHO confidently states “Almost every abortion death or disability could be prevented through sexuality education, use of effective contraception, and provision of safe, legal induced abortion, and timely care for complications.”^{242,243} It is well documented that almost half of unintended pregnancies occur when a woman is using a method of contraception,²⁴⁴ and WHO reports that the rate of illegal abortions has increased despite widespread provision of contraception,²⁴⁵ so once again, they seem to be stating that a change in the legal status of the procedure will magically convert the number of women dying worldwide from 68,000 yearly to zero.

It is frequently asserted that if the stigma of abortion were reduced, women would come out of the shadows and would be less likely to be injured with secretive abortions. Yet, there is always going to be a stigma surrounding abortion, because even those without medical knowledge, or even religious ideology, have an innate sense that abortion is the destruction of human life, and not a morally neutral action. Science has confirmed

²³⁸ Cost effectiveness analysis of unsafe abortion and alternative first trimester pregnancy termination strategies in Nigeria and Ghana” Delphine. *African J of Reproductive Health*. June 2010;14(2):85.

²³⁹ Efficacy and acceptability of a mifepristone-misoprostol combined regimen for early induced abortion among women in Mexico City” Pena. *Int J of Gyn and Ob*.

²⁴⁰ Documenting the economic cost of unsafe abortion among post-abortion care patients in Uganda” Sundaram Guttmacher.

²⁴¹ Singh, Wulf “Health professionals’ perception about induced abortion in South Central and South-east Asia” *Int Fam Planning Perspectives*. 23(1997)59-67.

²⁴² WHO Fact Sheet: Preventing Unsafe Abortion (2003, revised 2017).

²⁴³ WHO: Safe Abortion: Technical and policy guidance for health systems.

²⁴⁴ www.guttmacher.org/fact-sheet/contraceptive-use-united-states

²⁴⁵ Sedgh G, Singh S. Intended and unintended pregnancies worldwide in 2012 and recent trends. *Stud Fam Planning*. 2014;45(3)301-314.

that immediately after fertilization the fetus is living, based on his active metabolism, progressive growth, and consumption of nutrients, and he rapidly develops a beating heart and active brainwaves. He is human, based on possession of a distinct human genetic code, different from that of either parent, that guides his in-utero development and forms the traits he will ultimately display later in life.²⁴⁶

Thus, in some countries a legal suction abortion is called “menstrual extraction.” It is sometimes done without a pregnancy test (even up to 10 weeks gestation), so a woman can fool herself into thinking she had a procedure merely to bring on a delayed menses.²⁴⁷ WHO decries “conscience protection” of providers who do not want to be involved in a procedure they find morally objectionable.²⁴⁸ Surveys in the U.S., where an estimated 30% of women have had an abortion, nonetheless find that most people consider abortion to be “immoral.”²⁴⁹ How much more so in traditionally religious countries where the procedure is illegal, and thus not condoned by society. Yet, those providers who are not willing to join WHO in their headlong rush to provide worldwide widespread abortion access are accused of “apathy and disdain toward women.”²⁵⁰

Today, nearly everyone rightly rejects the history of affluent countries imposing their values and lifestyles upon developing countries. Yet, we see this happening today worldwide, as elite secular organizations such as the World Health Organization, International Planned Parenthood Federation and Marie Stopes International are strongly urging countries with restrictive abortion laws to liberalize their laws under the guise of “safety.” Most of the approximately sixty countries with restrictive abortion laws are majority Christian,²⁵¹ and have a strong belief in the value of human life, as well as the centrality of children and family to society. In these societies, motherhood has a highly revered status. A Pew poll found that 80% of Africans reject abortion as unacceptable.²⁵² Yet, WHO tells us that these same countries have the highest rates of illegal abortions in the world.

It is counterintuitive that so many women in countries that prioritize religion and family would willingly submit to an unsafe procedure that they must know could threaten their life, in order to avoid bearing a child. The countries where we are told the greatest number of clandestine abortions occur are the same countries where women tell us they desire many children. Polls report that women in almost all countries in the region of Western and Middle Africa want more than five children, and several of these countries desire an average of nine.²⁵³ How can there be so many abortions, when these

²⁴⁶ Williams Obstetrics, 81-246.

²⁴⁷ Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2003. WHO 5th edition.

²⁴⁸ Singh. *Abortion Worldwide 2017: Uneven Progress and Unequal Access*. New York: Guttmacher Institute, 2018

²⁴⁹ Marist poll 2014.

²⁵⁰ Grimes, et al. “Unsafe abortion: the preventable pandemic” *Lancet*. 368(2006)1908-1919.

²⁵¹ Worldwide Abortion Report.

²⁵² <http://www.pewglobal.org/2014/04/15/global-morality/>

²⁵³ Desired number of children: 2000-2008. C Westoff. *DHS Comparative Reports No 25*. 2010.

women themselves tell us they prioritize large families? Some have suggested that these women are being asked to set aside their traditional values in the interest of progress, as imposed on them from abroad, in a modern-day form of “ideological neocolonialism.”²⁵⁴

Summary

Closely examined, the impressive assembly of statistics regarding abortion begin to look more like a house of cards, one undocumented assumption balanced upon another, with very little hard, reliable data at the bottom.²⁵⁵ The competing mantras of the “safety of legal abortion” and “danger of illegal abortion” have been used to overturn safety restrictions in the U.S., under the premise they pose an “undue burden” to women seeking abortion; while at the same time, they are being used to pressure hesitant countries worldwide to legalize abortion, under the guise of “saving women’s lives.”²⁵⁶ Since the procedures and providers are often the same before and after legalization, the questions must be asked, “Which is true? Is abortion safe? Or is it dangerous? Or could the truth lie somewhere in between?”

It is sad to note that whereas once the mantra was “Abortion should be safe, legal and rare,” it seems to have become “Immediate abortion access and convenience over safety.” Based on the American experience, if a country liberalizes their abortion restrictions, they can expect abortion to quickly become much more common. Once legalized, abortion will be presumed safe. Due to the presumption of safety, there will be little oversight of abortion providers and facilities. Unwarned, women will continue to suffer from mental and physical complications of abortions, both in the short-term and long-term. A word of warning should be extended to countries around the world who are experiencing pressure to liberalize their abortion laws. Resources are far better spent promoting improvements in health care systems so that childbirth becomes safer,^{257,258} than in preventing the births of children already conceived, due to coercive pressure to provide more abortions.

²⁵⁴ Ekeocha O. *Target Africa: Ideological neocolonialism in the Twenty-first Century*.

²⁵⁵ World Abortion Estimates: An Audit. *National Right to Life News*. 2003.

²⁵⁶ Abbamonte J. Growing abortion advocacy at the World Health Organization. May 17, 2018.

²⁵⁷ Delivering for women. *Lancet*. 370(2007)1285-1287.

²⁵⁸ Singh S, Darroch J, Ashford L. Adding it up: The costs and benefits of investing in sexual and reproductive health 2014. The Guttmacher Institute.