

Breast Cancer

1. American Cancer Society. (2014). *Is Abortion Linked to Breast Cancer?* Retrieved from: <http://www.cancer.org/cancer/breastcancer/moreinformation/is-abortion-linked-to-breast-cancer>

Data from the American Cancer Society concludes scientific research studies have not found a cause-and-effect relationship between abortions and increased risk of breast cancer.

2. The American Congress of Obstetricians and Gynecologists (ACOG). (2009, reaffirmed 2015). ACOG committee opinion. Induced abortion and breast cancer. Retrieved from: http://www.acog.org/Resources_And_Publications/Committee_Opinions/Committee_on_Gynecologic_Practice/Induced_Abortion_and_Breast_Cancer_Risk

The American Congress and Obstetricians and Gynecologists (ACOG) examined the relationship between induced abortion and the subsequent development of breast cancer. ACOG identified earlier studies that illustrated an association between induced abortion and the subsequent development of breast cancer were methodologically flawed. More recent studies indicate that there is no causal relationship between induced abortion and subsequent increase in breast cancer risk.

3. Brind, J. (2015). Abortion and Breast Cancer: Recent Evidence Confirms a Robust Link. *Issues in law & medicine*, 30(2), 153.

Dr. Brind reviewed historical scientific data of the correlation between induced abortions an increased risk of breast cancer. This correlation has caused controversy within legislatures, courtrooms, newspaper articles, and scientific medical journals. This article suggests that recent data firmly links abortion to premature births in subsequent pregnancies, which as a result can increase the risk of breast cancer in mothers and cerebral palsy in prematurely born children.

4. Collaborative Group on Hormonal Factors in Breast Cancer. (2004). Breast Cancer and abortion: Collaborative reanalysis of data from 53 epidemiological studies, including 83,000 women with breast cancer from 16 countries. *Lancet*, 363(9414), 1007-1016.

The Collaborative Group on Hormonal Factors in Breast Cancer reviewed the epidemiological evidence from 53 studies examining breast cancer and abortion history. Statistical data were analyzed. A full reference list with 85 citations is provided mostly from the 1990's (ranging from 1957-2003). Prospective studies provide stronger, more accurate evidence compared to retrospective methodologies. It was concluded that abortion and miscarriage do not increase the risk of breast cancer.

5. Erlandsson, G., Montgomery, S., Cnattingius, S., & Ekblom. (2003). Abortions and breast cancer: Record-based case-control study. *International Journal of Cancer*, 103(5), 676-679.

The authors conducted a case-control study using prospective data from national (Swedish) registries and medical records. They discussed the hypothesis that induced abortion may leave breast tissue in a proliferative, but not fully differentiated state, which could be more susceptible to carcinogenesis. Previous studies have varied in their conclusions about a link between induced abortion and breast cancer; Erlandsson et al. suggest methodological issues. This study is in line with current consensus that abortion (spontaneous and induced) is not a risk factor for breast cancer.

6. Guo, J., Huang, Y., Yang, L., Xie, Z., Song, S., Yin, J., ... & Qin, W. (2015). Association between abortion and breast cancer: an updated systematic review and meta-analysis based on prospective studies. *Cancer Causes & Control*, 26(6), 811-819.

A positive association has been frequently reported in case-control studies regarding abortion and breast cancer. Researchers systematically searched for prospective studies on the association between abortion and breast cancer. The current evidence is insufficient and more studies need to be done to further conclude if there is a positive association between abortion and breast cancer.

7. Michels, K., Xue, F., Colditz, G., & Willett, W. (2007). Induced and spontaneous abortion and incidence of breast cancer among young women: A prospective cohort study. *Archives of Internal Medicine*, 167, 814-820.

This large prospective study of mostly premenopausal women found no increased risk of breast cancer in those who have had induced or spontaneous abortions (miscarriage).

8. National Cancer Institute. (2010). *Abortion, miscarriage, and breast cancer risk*. Retrieved from: www.cancer.gov/cancertopics/factsheet/Risk/abortion-miscarriage

This is a National Cancer Institute fact sheet that states over 100 international leading experts conclude abortions and miscarriages do not increase the risk of breast cancer. Having a first term birth at an early age, however, is related to decreased breast cancer. Also included is an NCI document entitled *Summary Report: Early Reproductive Events and Breast Cancer*, which also states evidence does not support early termination of pregnancy as a cause for breast cancer.

9. Newcomb, P. & Mandelson, M. (2000). A record-based evaluation of induced abortion and breast cancer risk (United States). *Cancer Causes and Control*, 11, 777-781.

The authors used medical records of abortion history and cancer history to look for an association. They conclude that the “results do not support a relaxation between abortion and breast cancer incidence.” The strength of the study is the exclusive use of records that have complete patient data in an HMO that covers abortion and so has data for both the abortion and cancer history.

10. Palmer, J. Wise, L., Adams-Campbell, L., & Rosenberg, L. (2004). A prospective study of induced abortion and breast cancer in African-American women. *Cancer Causes and Control*, 15(2), 105-111.

This large prospective study of African-American women concluded there was no increased risk of breast cancer related to induced abortion.

11. Wohlfahrt, J. & Melbye, M. (2001). Age at any birth is associated with breast cancer risk. *Epidemiology*, 12(1), 68-73.

This study showed the reduction of the risk of breast cancer in women giving birth before age 30; also, early timing of subsequent births has a long term protective effects.

Mental Health

12. American Psychological Association (APA) *Task Force on Mental Health and Abortion*. (2008). Report of the APA Task Force on Mental Health and Abortion. Washington DC. APA Public Interest Government Relations Office Mental Health and Abortion. <http://www.apa.org/pi/women/programs/abortion/executive-summary.pdf>

The APA reviewed data from peer-reviewed research on mental health and abortion. It was concluded that a single abortion does not show a causal relationship with adverse mental health outcomes. However, the effect of having multiple abortions is less clear. Research suggests factors such as: poverty, violence, previous unwanted births, substance abuse, emotional disorders, and other personal circumstances are risk factors for unwanted pregnancy and mental health after pregnancy, whether pregnancy ends in childbirth or abortion. The report states that prior mental health is the strongest predictor of post-abortion mental health.

13. Bellieni, C. V., & Buonocore, G. (2013). Abortion and subsequent mental health: Review of the literature. *Psychiatry and clinical neurosciences*, 67(5), 301-310.

This study performed a review of literature from 1995-2011 to assess if a correlation was present between abortion and subsequent mental health issues. The most studied outcomes included: depression, anxiety disorders, and substance abuse. Losing a fetus seems to increase the risk for mental health disorders compared to childbirth. Abortion is a larger risk factor than miscarriage for mental health disorders as well. Further research is recommended.

14. Bleil, M., Adler, N., Pasch, L., Sternfeld, B., Reijo-Pera, R., & Cedars, M. (2011). Adverse childhood experiences and repeat induced abortion. *American Journal of Obstetrics and Gynecology*, 204(2), 122.e1-122.e6.

This research was conducted from a cross-sectional study and the data was obtained through interviews. The results showed that childhood adversity was strongly associated with repeat abortion. Family disruption events were also associated with having abortions. Researchers concluded that finding risk factors for unintended pregnancies is an important women's health issue.

15. Charles, V., Polis, C., Sridhara, S., & Blum, R. (2008). Abortion and long-term mental health outcomes: A systematic review of the evidence. *Contraception*, 78, 436-450.

The authors conducted a systematic review of the literature and concluded that the studies with the most rigorous designs showed "few, if any" indications that women who had abortions were at a risk for mental health problems afterward. The studies with the most flawed designs tended to suggest mental health problems after abortion.

16. Fergusson, L., Horwood, L., & Ridder, E. (2006). Abortion in young women and subsequent mental health. *Journal of Child Psychology and Psychiatry*, 47(1), 16-24.

This study reported the results of a 25 year longitudinal study. The report does not conclude that abortion causes mental health issues, but rather that factors associated with seeking abortion, such as unwanted pregnancy and personal circumstances, impact mental health. Results suggest an association between abortion and risk for mental health disorders such as: depression, anxiety, suicidal ideation, and substance abuse, but cannot determine what comes first- abortion or mental health issues. The authors conclude that there is a possibility that some young women seeking abortion could be at increased risk of common mental disorders.

17. Major, B., Appelbaum, M., Beckman, L., Dutton, M. A., Russo, N. F., & West, C. (2009). Abortion and mental health: Evaluating the evidence. *American Psychologist*, 64(9), 863.

The authors evaluated empirical research that addressed the relationship between induced abortion and women's mental health. Most of the research reviewed posed major methodological problems. The most rigorous studies indicated within the United States, the risk of mental health problems is no greater among adult women who have a single, legal, first-trimester abortion of unwanted pregnancy. Evidence did not support the association between abortion and mental health problems; however, the research did indicate that preexisting and co-occurring risk factors can contribute to a woman's mental health. As a result, a woman's experience should be recognized and validated.

18. Mota, N. P. (2010). Associations between abortion, mental disorders, and suicidal behaviour in a nationally representative sample. *Canadian journal of psychiatry*, 55(4), 239.

The review of literature discussed mixed findings of past studies relating to abortion and mental health. Of past studies, most have design issues making them less specific. "The directionality of the relation between abortion and mental illness remains unclear." "Women undergoing abortion are just as likely, if not more likely, to have a pre-existing mental disorder than to develop a new mental disorder subsequent to the abortion." Substance abuse disorders were strongly associated with abortion history.

19. Munk-Olsen, T., Laursen, T. M., Pedersen, C. B., Lidegaard, Ø., & Mortensen, P. B. (2011). Induced first-trimester abortion and risk of mental disorder. *New England Journal of Medicine*, 364(4), 332-339.

The authors used records from Danish health registries to compare rates of seeking mental health care in women who had abortions to women who gave birth to a child. Women who had an abortion had a higher rate of psychiatric contacts overall (before and after abortion) than women who gave birth, but the relative risk of mental disorder was not significantly different after the abortion than before it. "Psychiatric contact did not differ significantly after abortion compared with before abortion, but increased after childbirth compared with before childbirth."

20. Robinson, G. E., Stotland, N. L., Russo, N. F., Lang, J. A., & Occhiogrosso, M. (2009). Is there an "abortion trauma syndrome"? Critiquing the evidence. *Harvard Review of Psychiatry*, 17(4), 268-290.

The authors provide an extensive review of the methodologies of studies relating to induced abortion and psychiatric issues which included 76 references. The study states that "the most consistent predictor of mental health disorders after abortion remains preexisting disorders, which, in turn, are strongly associated with exposure to sexual abuse and intimate violence."

21. Steinberg, J. R., McCulloch, C. E., & Adler, N. E. (2014). Abortion and mental health: findings from the national comorbidity survey-replication. *Obstetrics and gynecology*, 123(2 0 1), 263.

A cohort study performed with 259 postabortion women and 677 women postchildbirth aged 18-42 found that abortion was not a statistically significant predictor of anxiety, mood, impulse control, eating disorders, or suicidal ideations.

22. Warren, J. T., Harvey, S. M., & Henderson, J. T. (2010). Do Depression and Low Self-Esteem Follow Abortion Among Adolescents? Evidence from a National Study. *Perspectives on sexual and reproductive health*, 42(4), 230-235.

The authors studied depression and self-esteem in adolescents and searched for an association between mental health issues and abortion. Previous studies compared adolescents to adult women rather than to other adolescent peers. This longitudinal study asked participants questions about pregnancy history, depressive symptoms, and self-esteem. The conclusion was that “adolescents who have an abortion do not appear to be at elevated risk for depression or low self-esteem in the short-term or up to five years after the abortion.” Consistent with other studies, the authors found that prior depression or low self-esteem was the strongest predictor for depression or low self-esteem after abortion.

Additional Long-term Adverse Outcomes

23. Cappiello, J. D., Beal, M. W., & Simmonds, K. E. (2011). Clinical issues in post-abortion care. *The Nurse Practitioner*, 36(5), 35-40.

More recent science regarding post abortion care includes a discussion of immediate and long-term complications. The current first trimester techniques do not increase patient’s risk for future fertility problems, pre-term delivery, or low birth weight. In the absence of complications, second trimester abortion techniques do not increase the risk of miscarriage in the future. Complication rates are very low. The authors reference the scientific consensus about abortion and breast cancer stating that abortion does not increase the risk of breast cancer or any other cancer. The lasting mental health issues are rare and are often seen in women with confounding factors of mental illness.

24. Chen, A., Yuan, W., Meirik, O., Wang, X., Wu, S., Zhou, L., Luo, L., Gao, E., & Cheng, Y. (2004). Mifepristone-induced early abortion and outcome of subsequent wanted pregnancy. *American Journal of Epidemiology*, 160(2), 110-117.

In this study, medical abortion was not associated with low birth weight, preterm delivery, or miscarriage when compared to women with no history of abortion or with history of surgical abortion.

25. Gan, C., Zou, Y., Wu, S., Li, Y., & Liu, Q. (2008). The influence of medical abortion compared with surgical abortion on subsequent pregnancy outcome. *International Journal of Gynecology and Obstetrics*, 101(3), 231-238.

The authors reviewed seven prospective studies comparing first trimester medical and surgical abortions and their association with outcomes of the subsequent pregnancy. The literature review suggested that early surgical abortion was not associated with higher rates of adverse outcomes and the study suggested that medical abortion was likely even more safe than surgical abortion.

26. Männistö, J., Mentula, M., Bloigu, A., Hemminki, E., Gissler, M., Heikinheimo, O., & Niinimäki, M. (2013). Medical versus surgical termination of pregnancy in primigravid women—is the next delivery differently at risk? A population-based register study. *BJOG: An International Journal of Obstetrics & Gynaecology*, 120(3), 331-337.

All women who were pregnant for the first time in Finland between 2000 and 2009 who underwent termination of pregnancy were evaluated for complications of subsequent pregnancy. When comparing medical abortion to surgical abortion, researchers found no statistically significant differences in the incidences of preterm birth, low birthweight, or placental complications. Furthermore, the researchers noted that the incidence of preterm, very preterm, and extremely preterm births were somewhat lower in both medical and surgical abortion when compared with national figures and what has been reported in the literature, suggesting the risk of preterm delivery is not elevated with the overall risk at the population level.

27. Kalish, R., Chasen, S., Rosenzweig, L., Rashbaum, W., Chervenak, F. (2002). Impact of midtrimester dilation and evacuation on subsequent pregnancy outcome. *American Journal of Obstetrics and Gynecology*, 187(4).

The authors reviewed medical records and concluded, "Second-trimester D&E is not a risk factor for midtrimester pregnancy loss or spontaneous preterm birth."

28. Raatikainen, K., Heiskanen, N., & Heinonen, S. (2006). Induced abortion: Not an independent risk factor for pregnancy outcome, but a challenge for health counseling. *Annals of Epidemiology*, 16(8), 587-592.

In this study, no statistically significant evidence of adverse pregnancy outcomes was seen after induced abortion after controlling for confounding factors. Women who seek abortion showed a tendency for known risk factors for adverse pregnancy outcomes such as smoking, alcohol use, and overweight.

29. Shah, P. S., & Zao, J. (2009). Induced termination of pregnancy and low birthweight and preterm birth: a systematic review and meta-analyses. *BJOG: An International Journal of Obstetrics & Gynaecology*, 116(11), 1425-1442.

In a systematic review of prior literature, researchers reviewed the risk of an infant being born with low birthweight, preterm, or small for gestational age. The results shows that a history of one induced pregnancy was associated with an increased odds of an infant being born with low birth weight, and preterm but not small for gestational age. A history of more than one induced termination of pregnancy was associated with low birth weight and preterm infant. However, women who seek termination of pregnancy differ from women who decide to continue their pregnancies a variety of sociodemographic and lifestyle factors. This research did not control for confounding factors, especially socioeconomic status.

30. Virk, J., Zhang, J., & Olsen, J. (2007). Medical abortion and the risk of subsequent adverse pregnancy outcomes. *New England Journal of Medicine*, 357(7), 648-653.

Researchers compared the outcomes of subsequent pregnancy comparing medical and surgical abortion. There was no significant difference in ectopic pregnancy, spontaneous abortion, preterm birth, and low birth weight among medical and surgical abortion. Furthermore, the researchers note that past studies have not provided significant evidence that surgical abortion increases adverse outcomes of subsequent pregnancies, thus medical abortions are not likely to increase the risk of ectopic pregnancy, spontaneous abortion, preterm birth, and low birth weight of subsequent pregnancies when compared to women who have not had an abortion

31. Zhou, W., Olsen, J., Nielsen, G.L., & Sabore, S. (2000). Risk or spontaneous abortion following induced abortion is only increased with short interpregnancy interval. *Journal of Obstetrics and Gynaecology*, 20(1), 49-54.

In this study, abortion was only associated with an increased risk of miscarriage in women whose next pregnancy occurred within three months of the abortion.

Abortion Procedures and Immediate Complications

32. Achilles, S. & Reeves, M. (2011). Prevention of infection after induced abortion: Release date October 2010 SFP Guideline 20102. *Contraception*, 83(4), 295-309.

The rate of upper genital tract infection in the United States after induced abortion was less than one percent. Continued discussion follows about the use of antibiotics in treatment and prophylaxis.

33. Bartlett, L., Berg, C., Shulman, H., Zane, S., Green, C., Whitehead, S., Atrash, H. (2004). Risk factors for legal induced abortion-related mortality in the United States. *Obstetrics & Gynecology*, 103(4), 729-737.

This was a descriptive epidemiological study of abortion-related mortality. The overall death rate related to legal induced abortion was less than 1 per 100,000. The risk of death increased significantly with age.

34. Berghella, V., Airoidi, J., O'Neill, A., Einhorn, K., & Hoffman, M. (2009). Misoprostol for second trimester pregnancy termination in women with prior caesarean: A systematic review. *British Journal of Obstetrics and Gynecology*, *116*, 1151-1157.

The authors report a low incidence (<1%) of uterine rupture in women with previous caesarean deliveries. It could be extrapolated that women without a history of caesarean would experience a similar low incidence of uterine rupture as a result of using misoprostol. (No studies were found in the creation of this bibliography that looked for the incidence of uterine rupture after misoprostol use in the first trimester).

35. Chasen, S. T., Kalish, R. B., Gupta, M., Kaufman, J., & Chervenak, F. A. (2005). Obstetric outcomes after surgical abortion at ≥ 20 weeks' gestation. *American Journal of Obstetrics and Gynecology*, *193*(3), 1161-1164.

The authors conducted a retrospective review. After second trimester abortion, preterm labor was associated with "prior cervical dilation and/or PPRM [preterm premature rupture of membranes] or a current multifetal pregnancy."

36. Edwards, R. & Sims, S. (2005). Outcomes of second-trimester pregnancy terminations with misoprostol: Comparing 2 regimens. *American Journal of Obstetrics and Gynecology*, *193*, 544-550/

The authors compared two different dosing schedules of misoprostol in second trimester abortion procedures. The higher dosing of the two regimes was associated with a more rapid delivery (within 24-48 hours) without significant change in side effects compared to the lower dosing of misoprostol.

37. Federal Food and Drug Administration. (2015). *Mifeprex (mifepristone) information*. Retrieved from: <http://www.fda.gov/drugs/drugsafety/postmarketdrugsafetyinformationforpatientsandproviders/ucm111323.htm>

Mifeprex has been approved for abortion in the United States since 2000 for the termination of pregnancies up to 49 days since the last menstrual period. The FDA approved regimen involves 600 mg of oral mifepristone on the first day, 400 mcg of oral misoprostol on the third day, and a follow up appointment on day 14. There has been several known cases of septic deaths following medical abortion with mifepristone and misoprostol. Risk of fatal sepsis is "very rare (approximately 1 in 100,000)". Currently, the FDA does not have sufficient evidence to recommend the use of prophylactic antibiotics. The possible and likely side effects of mifepristone are cramping, bleeding, nausea, vomiting, headache, dizziness, back pain, and tiredness.

38. Guttmacher Institute. (2014). *Fact Sheet: Induced Abortion in the United States*. Retrieved from: http://www.guttmacher.org/pubs/fb_induced_abortion.html

The risk of a major complication is relatively low (.05%). First trimester abortions are not associated with infertility, miscarriage, ectopic pregnancy, preterm delivery, low birth weight, or birth defects. Abortion is not a risk factor for breast cancer and does not harm a woman's mental health.

39. Jackson, J. E., Grobman, W. A., Haney, E., & Casele, H. (2007). Mid-trimester dilation and evacuation with Iminaria does not increase the risk for severe subsequent pregnancy complications. *International Journal of Gynecology & Obstetrics*, *96*(1), 12-15.

This is a retrospective cohort study among women who had a dilation and extraction (D&E) between 12-24 weeks gestation from December 1995 to December 2003. Study results provides evidence suggesting women with a prior history of D&E are not at an increased risk for subsequent pregnancy complications such as: cervical incompetence, preterm delivery, low birthweight infants, and placental abnormalities

40. Naguib, A. H., Morsi, H. M., Borg, T. F., Fayed, S. T., & Hemeda, H. M. (2010). Vaginal misoprostol for second-trimester pregnancy termination after one previous cesarean delivery. *International Journal of Gynecology & Obstetrics*, 108(1), 48-51.

This prospective observational study assessed 50 pregnant women with one prior cesarean delivery. The study found no cases of uterine rupture. Furthermore, the abortion occurred in 45 of the 50 women, for a 90% success rate for inducing abortion with lower misoprostol. However, larger randomized trials need to be conducted to validate the results presented in the study.

41. National Abortion Federation. (2014). *Abortion Facts*. Retrieved from: <http://prochoice.org/education-and-advocacy/about-abortion/abortion-facts/>

This document contains information on abortion procedures, safety, and complications. It describes the FDA approved medical abortion regimen, as well as other evidence-based regimens. Early aspiration abortion is also explained. The information states that risks are the lowest in the first trimester. It suggests that 2.5% are minor complications and 0.5% are major complications with aspiration. It is also suggested that complications in medical abortions are 0.5% while incomplete abortion requiring aspiration is less than 2% of cases. D&C involves wider cervical dilation and the procedure is rarely used. Evidence suggests it could cause more cervical damage leading to problems in future pregnancies. Complication rates increase significantly after 14 weeks gestation. The website also states the following complications from abortion: blood clots in the uterus requiring repeat aspiration (0.2%), infections (0.1-2.0%), cervical tear (0.6-1.2%), perforation (.4%), incomplete abortion requiring repeat aspiration (<0.3%), hemorrhage requiring transfusion (0.02-0.3%), death (0.0006%) 1/160,000.

42. National Institutes of Health (2014). *Abortion-medical*. Retrieved from: <https://www.nlm.nih.gov/medlineplus/ency/article/007382.htm>

The website provided a description of medical abortion and states complications are rare. Risks included continued bleeding, nausea, vomiting, diarrhea, infection, pain, and incomplete abortion requiring surgery. Cramping and bleeding are expected outcomes. Women who feel unsure about ending a pregnancy may find it helpful to seek counselling before making a decision.

43. National Institutes of Health (2014). *Abortion- surgical*. Retrieved from: <https://www.nlm.nih.gov/medlineplus/ency/article/002912.htm>

The website provided a description of surgical abortion and states complications are rare. Risks include structural damage, emotional stress, hemorrhage, and infection. The risks for any anesthesia are reactions to medications and trouble breathing. The risks for any surgery include bleeding and infection. Risks related to abortion increase with gestational age. Women who feel unsure about ending a pregnancy may find it helpful to seek counselling before making it a decision.

44. Niinimaki, M., Pouta, A., Bloigu, A., Gissler, M., Hemminki, E., Suhonen, S., & Heikinheimo, O. (2009). Immediate complications after medical compared with surgical termination of pregnancy. *Obstetrics and Gynecology*, 114(4), 795-804.

The study's purpose was to estimate complications related to medical and surgical abortion procedures up to 63 days gestation with a follow-up period of 42 days. Heavy bleeding and retained tissue were more prevalent after medical abortion. Structural damage was seen rarely but was more likely to occur with surgical abortion than medical abortion. Infection rates did not differ between the two procedures. No deaths were reported during the six year study.

45. Niinimäki, M., Suhonen, S., Mentula, M., Hemminki, E., Heikinheimo, O., Gissler, M. (2011) Comparison of rates of adverse events in adolescent and adult women undergoing medical abortion: Population register based study. *British Medical Journal*, 342, d2111.

This study group was from Finland- a country with a national abortion registry – which helps reduce bias. In- and outpatient records were linked with the abortion registry. Adverse events were low overall, and similar or even lower for adolescents compared to adult women following medical abortion.

46. Paul, M., Mitchell, C., Rogers, A., Fox, M., & Lackie, E. (2002). Early surgical abortion: Efficacy and safety. *American Journal of Obstetrics and Gynecology*, 187(2).

This prospective study of complication rates following early aspiration abortion had the following results: overall complication rate was four percent and failed abortion rate was two percent. Research since the 1970s suggested higher failure rates for abortions performed at less than six weeks so it has been common practice to delay abortion until seven weeks gestation. Aspiration is currently the most common method.

47. Strafford, M., Mottl-Santiago, J., Salva, A., Soodoo, N., & Borgatta, L. (2009) Relationship to obesity to outcome of medical abortion. *American Journal of Obstetrics and Gynecology*, 200(5), E34-E36.

This study was a chart review. “Surgical abortion for obese women is associated with longer operating times, increased technical difficulty, increased blood loss, and increased risk of thromboembolism.” “In light of the additional risks of surgical abortion for obese women, medical abortion should be considered for these women.”

Tobacco

48. U.S. Department of Health and Human Services. (2006). *The health consequences of involuntary exposure to tobacco smoke: A report of the Surgeon General*. Retrieved from: <http://www.surgeongeneral.gov/library/secondhandsmoke/report/executivesummary.pdf>

The report addressed the current status of research on the effects of tobacco smoke based on whether evidence is inconclusive, suggestive, or causative. The conclusions are that children exposed to second hand smoke have weaker lungs, lower respiratory function, and higher incidence of asthma, respiratory infections, and ear infections. Children exposed to second hand smoke are more likely to be born at low birth weight and to die from SIDS. Evidence is suggestive of a link between tobacco exposure and childhood cancer.

Textbooks

49. Ladewig, P., London, M., & Davidson, M. (2006). *Contemporary maternal-newborn nursing care* (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Chapter 4: Growth and development. Chapter 14: Gestational diabetes (7%). Chapter 15: Ectopic (2%); Preterm delivery (11.6%); Pregnancy induced hypertension (3-7% for primiparas, 0.8-5% for multiparas). Chapter 32: Postpartum complications. Postpartal infection (1-7%), metritis after vaginal delivery (1-3%) and after cesarean (up to 27% but improving with prophylactic antibiotics), wound infections after cesarean (3-5%); postpartum depression (7- 30%); postpartal hemorrhage accounts for 11 percent of maternal death. Chapter 11: Maternal smoking associated with preterm, low birth weight, miscarriage, intrauterine growth restriction, sudden infant death syndrome, childhood infections, and decreased lung function. Chapter 5: Abortion – medical and surgical regimens explained; risks associated with surgical abortion include structural damage, medication reaction, hemorrhage, and infection; first trimester abortion is safer.

50. Lowdermilk, D. & Perry, S. (2007). *Maternity and women's health care* (9th ed.). St. Louis, MO: Mosby.

Chapter 13: Growth and development. Chapter 30: Pregnancy induced hypertension (6-8%). Chapter 31: Ectopic pregnancy (2%). Chapter 32: Gestational diabetes (4-7%). Chapter 36: Preterm delivery (12.3%). Chapter 37: Postpartum complications. Postpartum infection five to 10 times more common following cesarean delivery. Chapter 35: Postpartum depression (10- 15%). Chapter 35, p. 905: Maternal smoking is associated with decreased oxygenation to the placenta, low birth weight, changes in brain development, preterm birth, and poor nutrition. Chapter 38: Maternal smoking is associated with problems in child development, growth, 16 | Page intellect, behavior, and emotional health, as well as intrauterine growth retardation, miscarriage, and sudden infant death syndrome. Chapter 9: Abortion – Early aspiration is the most common method (95%) and usually involves local anesthesia; medical abortion fails in one to five percent of cases and side effects include “nausea, vomiting, diarrhea, headache, dizziness, fever, and chills”; abortion after the first trimester has a higher risk of complications; post abortion emotions are mixed and range from relief to guilt while “evidence of long-term depression after elective abortion has been inconclusive.”

51. McKinney, E., James, S., Murray, S., & Ashwill, J. (2005). *Maternal-child nursing* (2nd ed.). St. Louis, MO: Elsevier Saunders.

Chapter 12: Growth and development. Chapter 28: Postpartum infection (3% vaginal deliveries, 15-20% cesarean deliveries), postpartum hemorrhage (5%), postpartum depression (15-20%). Chapter 25, p. 602: Maternal tobacco smoking exposes unborn child to toxins that decrease oxygenation, appetite, and nutrient absorption; smoking while pregnant is associated with “delayed neurologic and intellectual development... hyperactivity, shorter attention span,” and twice the incidence of sudden infant death syndrome. Chapter 31: Abortion – Methods and risks explained, including greater complexity of abortion after the first trimester.

52. Ricci, S. (2007). *Essentials of maternity, newborn, and women's health nursing*. Philadelphia, PA: Lippincott Williams & Wilkins.

Chapter 10: Growth and development. Chapter 19: Gestational hypertension (12-20%); Ectopic (1-2.5%); Preterm delivery (12.5%); Gestational diabetes (7%). Chapter 22: Postpartum complications. Postpartum infection eight percent overall and higher after cesarean delivery (metritis after cesarean 10-20%); postpartum hemorrhage (4%); postpartum depression (20%). Chapter 24: Effects of tobacco and nicotine – impaired oxygenation to fetus, low birth weight, preterm birth, small-for-gestational age infants, sudden infant death syndrome, chronic respiratory illness. Chapter 4: Abortion – most common surgical procedure in the United States; it is legal and safe; medical abortion with mifepristone and misoprostol is 95 percent effective.

Other Resources

53. American Association of ProLife Obstetricians and Gynecologists. (2002). AAPLOG statement on induced abortion and the subsequent risk of breast cancer. *Issues in Law & Medicine*, 18(2), 191-194.

The American Association of ProLife Obstetricians and Gynecologists published a subjective commentary on the belief that there is a link between induced abortion and breast cancer. The commentary is not a scientific report. No statistical data are analyzed. The authors state that 28 of 37 studies worldwide have shown evidence of an association between abortion and breast cancer. A full reference list of the studies is not provided. The few studies cited are not current literature (1970-1994). The authors particularly challenge the idea of recall bias

54. American College of Obstetricians and Gynecologists. (2015). *Pain relief during labor and delivery*. Retrieved from: http://www.acog.org/publications/patient_education/bp086.cfm

This brochure provides information on pain relief options, side effects, and adverse reactions.

55. Hoyert, D. (2007). Maternal mortality and related concepts. *National Center for Health Statistics. Vital Health Stat 3*(33).

This is a report that is used statistics from the national database found through the Vital Statistics Cooperative Program of the Centers for Disease Control and Prevention (CDC) and the National Center for Health Statistics (NCHS). The 2003 maternal mortality rate was 12.1 deaths per 100,000 live births. An increase in the rate was seen when a new question was added to death certificate record, which may be helping to better identify instances of maternal death.

56. Kaiser Foundation. (2008). *Abortion in the U.S.: Utilization, financing, and access*. Retrieved from: <http://www.kff.org/womenshealth/upload/3269-02.pdf>

Presented is a brief fact sheet that states complications which require hospitalization resulting from abortion occurring in less than 0.3% of cases and mortality less than 1 in 100,000 individuals. First trimester abortions are not significantly associated with future infertility, ectopic pregnancy, miscarriage, preterm delivery, or low birth weight. There is also no greater risk of breast cancer as a result of having an abortion.

57. Nilsson, L., Hamberger, L., Holborn, M., & Fjellstrom, A. (2009). *A child is born*. London: Jonathan Cape.

Photographs for the *Information about Pregnancy and Abortion* booklet are the work of Lennart Nilsson and are used with permission. Information about growth and development was also gleaned from the book.

58. Tharpe, N. (2008). Postpregnancy genital tract and wound infections. *Journal of Midwifery and Women's Health*, 53(3), 236-246.

This study was a review of the literature regarding postpregnancy infections. Postpartum infection rates are lower following vaginal delivery vs. cesarean; for example, rate of endometritis after cesarean ranges from 5 to 30 percent when compared to less than one percent after vaginal delivery. Obese women have higher rates of infection. Infection rates post-abortion range from 0.1 percent to about five percent and usually are related to an existing genital tract infection.

59. Tsiaras, A. (2002). *From conception to birth: A life unfolds*. New York, NY: Doubleday.

This book was consulted for photographic comparison to Nilsson (2004) regarding the stages of human growth and development. The pictures are computer enhanced photographs.