

MYTHS ABOUT ABORTION AND BREAST CANCER

Undaunted by the absence of compelling evidence associating abortion with a woman's risk of developing breast cancer, opponents of safe and legal abortion insist on making the connection anyway. Once more they are using misinformation as a weapon in their campaign against safe, legal abortion. In the guise of an ostensible concern for women's health, they point to inconclusive, and at times flawed, studies for alleged evidence of a possible association, while ignoring or dismissing overwhelming evidence that abortion does not place women at greater risk of breast cancer.

Abortion opponents have drawn highly questionable conclusions to develop so-called "public education" campaigns such as the advertisements sponsored by Christ's Bride Ministries that appeared on public transportation vehicles in Philadelphia warning that "women who choose abortion suffer more and deadlier breast cancer" (Slobodzian, 1999).

These misinformation campaigns have used many forms of media and advertising to mislead women about abortion, including television, billboards, bumper stickers, and print ads (Simon, 2002). The same people who want to end access to safe and legal abortion are also lobbying for legislation that would require falsely telling women who are considering abortion that having one would place them at increased risk for breast cancer (Querido, 1999).

Claims linking abortion and breast cancer fly in the face of scientific evidence. The National Cancer Institute (NCI), the American Cancer Society (ACS), and the American College of Obstetricians and Gynecologists (ACOG) have all refuted the reliability of such an association (ACS, 2003 and 2013; ACOG, 2003 and 2009; NCI, 2010a and 2010b).

In February 2003, NCI convened the Early Reproductive Events and Breast Cancer Workshop to "provide an integrated scientific assessment of the association between reproductive events and the risk of breast cancer." After reviewing the body

of scientific literature, NCI concluded that "Induced abortion is not associated with an increase in breast cancer risk" (NCI, 2010b). The NCI reaffirmed its findings in 2010 (NCI, 2010a).

In August 2003, after conducting its own review of the scientific literature, ACOG issued a committee opinion concluding that "early studies of the relationship between prior induced abortion and breast cancer risk have been inconsistent and are difficult to interpret because of methodologic considerations. More rigorous recent studies argue against a causal relationship between induced abortion and a subsequent increase in breast cancer risk" (ACOG, 2003). ACOG reaffirmed its findings in 2009 (ACOG, 2009).

Reproductive Factors and Breast Cancer

While researchers do not know what causes breast cancer, reproductive factors have been associated with risk for the disease since the 17th century, when breast cancer was noted to be more prevalent among nuns. It is known that having a full-term pregnancy early in a woman's childbearing years is protective against breast cancer, and some studies have also indicated that breastfeeding, especially in women who are young when they give birth, may reduce a woman's risk of developing the disease. A woman's age at menarche and menopause also influence her risk for breast cancer, with earlier onset of regular menstrual cycles and later age at menopause associated with higher risk (Kelsey & Gammon, 1991). However, the best available evidence — from large population-based cohort studies — shows abortion does not place women at increased risk for developing breast cancer (ACOG, 2003; ACS, 2003; Bartholomew & Grimes, 1998; Henderson et al., 2008; Michels et al., 2007; NCI, 2010a).

Hypothesis: Hormones Lead to Breast Cell Differentiation

The theory linking breast cancer to ending a pregnancy is based on the hormonal disruption that occurs when a woman's pregnancy is interrupted. Pregnancy initiates a surge of sex hormones (estrogen, progesterone, and prolactin), which leads to differentiation of the cells in the breast glands in preparation for lactation. The changing concentrations of hormones during the second and third trimesters of pregnancy lead to increased differentiation. In a first pregnancy, the results of these hormonal changes permanently alter the structure of the breast. Adherents of this theory claim that interruption of the first trimester of a first pregnancy causes a cessation of cell differentiation that may result in a subsequent increase in the risk of cancerous growth in these tissues (Brumsted & Riddick, 1990; Westhoff, 1997). Attempts to prove this theory, however, have failed.

Many Factors Contribute to Inconclusive Study Results

At least 80 research studies worldwide have collected data about breast cancer and reproductive factors such as childbirth, menstrual cycles, birth control pills, and abortion. More than 30 studies have examined the risk of developing breast cancer for women who have had abortions. Researchers at the National Cancer Institute, the American Cancer Society, the Royal College of Obstetricians and Gynecologists, the World Health Organization, and major universities say that the most reliable studies show no increased risk (ACOG, 2003; ACS, 2013; NCI, 2011; Rosenfield, 1994; RCOG, 2012; WHO, 2000).

A number of factors may render a study unreliable:

- Miscarriages and induced abortion affect a woman's body differently, but many studies have not distinguished between them.
- Many women do not report miscarriages because they are unaware they have had them.
- Abortions are often unreported because of the privacy of a woman's personal decision to end a pregnancy.

- Some studies have not examined the possibly different effects of abortion after or before a full-term pregnancy.
- Other studies have not been careful to examine the impact of age at the time of abortion and age at the time of first childbirth.
- Many studies have been too small to be statistically significant. (Wingo et al., 1997; NCI, 2010a).

Three of the Strongest Studies Published to Date Show No Overall Relationship Between Abortion and Breast Cancer

One of the most highly regarded studies on abortion and breast cancer was published in the *New England Journal of Medicine* in 1997. This study of 1.5 million women found no overall connection between the two (Melbye et al., 1997). This study benefited from its size — 1.5 million women — and by linking data from the National Registry of Induced Abortions and the Danish Cancer Registry, thereby avoiding one of the pitfalls observed in some case-control studies — that women with breast cancer were more likely to recall having had an abortion than women without breast cancer, particularly because abortion had been illegal (Brody, 1997; Westhoff, 1997). An accompanying editorial on the results of the study led the writer to conclude that, “in short, a woman need not worry about the risk of breast cancer when facing the difficult decision of whether to terminate a pregnancy” (Hartge, 1997).

Another large cohort study was done in Sweden. It followed, for as long as 20 years beginning in 1966, 49,000 women who had abortions before the age of 30. Not only did the study show no indication of an overall risk of breast cancer after an abortion in the first trimester, but it also suggested that there could well be a slightly reduced risk. Among women who had given birth prior to an abortion, the relative risk^{*} for breast cancer was 0.58; for those who had never given birth, the relative risk was 1.09; for the total sample, the relative risk was 0.77 (Lindfors Harris et al., 1989).

* The risk of disease in one group, here in women who experienced an induced abortion, divided by the risk of disease in a control group. If the relative risk is 1, both groups have the same likelihood of developing the disease. A number higher than 1 indicates an increased risk and a number lower than 1 indicates a decreased risk.

In 2004, an international collaborative analysis of data about 83,000 women with breast cancer who were involved in 53 studies that took place in countries with liberal abortion laws found that pregnancies that end in abortion do not increase a woman's risk of developing breast cancer (Collaborative Group...2004).

Studies Published During the Past 30 Years Offer Mixed Results

Before Melbye's seminal study appeared in 1997 in the *New England Journal of Medicine*, the body of published research showed inconsistent and inconclusive evidence — some found abortion to have a protective effect, others found a slightly elevated risk. Since then, many others have found no effect at all. Many of the older studies were hindered by the small sample size, others failed to distinguish between induced and spontaneous abortion, and others did not take confounding factors into account (NCI, 2010a).

Here are some of the noteworthy studies of the past 30 years

- A study of 109,893 women who worked in California's education system as teachers or administrators and who were followed for nine years found "strong evidence that there is no relationship between incomplete pregnancy and breast cancer risk." This finding was consistent with the results of a similar study of 105,716 women in the Nurses' Health Study (Henderson et al., 2008).
- A study followed 105,716 U.S. women aged 29–49 for 10 years, during which time 1,458 newly diagnosed cases of invasive breast cancer were reported. Researchers found that the incidence of breast cancer was not associated with abortion, the number of abortions, the age at abortion, having had a child, or timing of abortion in relation to a full-term pregnancy. "Among this predominantly premenopausal population, neither induced nor spontaneous abortion was associated with the incidence of breast cancer" (Michels et al., 2007).
- A 2001 population-based case-control study of women in China sought to determine whether there was an association between induced abortion and breast cancer. Abortion is common and more widely accepted in China, so women involved in this study would not be prone to underreporting their abortion histories — a problem which has rendered other studies unreliable. Because of the small number of women in the study who had never had a live birth, only women who had at least one live birth were included in the analysis. The study compared 1,459 women with breast cancer with 1,556 controls. No relation was found between ever having an abortion and breast cancer. Additionally, women who had three or more abortions were not at greater risk of breast cancer than other women (Sanderson et al., 2001).
- Another case-control study of women who had at least one child was conducted in Washington State to examine the relationship between abortion and breast cancer. A cohort of women who gave birth between 1984 and 1994 were identified. From this cohort, 463 women who developed breast cancer were each matched with five control women. Abortion was not found to increase the risk of developing breast cancer — the relative risk for breast cancer was 0.9 among women who had ever had an abortion (Tang et al., 2000).
- A 1999 population-based case-control study examined data from the Carolina Breast Cancer Study to determine what, if any, connections exist between abortion and other reproductive events in adolescence and the development of breast cancer later in life. The authors reported that neither induced nor spontaneous abortion during adolescence was connected to an increased risk of breast cancer. They did, however, observe that breastfeeding conferred some protection against breast cancer (Marcus et al., 1999).
- In 1996, Joel Brind and colleagues published a meta-analysis of 28 published reports describing 23 studies on abortion and breast cancer. Based on these studies, the authors calculated that induced abortion places women at a slightly increased risk for developing breast cancer (Brind et al., 1996). This analysis has been criticized for attempting to calculate the odds for developing

- breast cancer from widely varying studies (Blettner et al., 1997), some of which have been criticized for methodological flaws and for failing to calculate their results from the raw data of the original studies (Melbye et al., 1997).
- A 1994 study, published in the *Journal of the National Cancer Institute*, was a case-control study of 845 women in Washington State who were diagnosed with breast cancer from 1983 through 1990, and of 961 controls. The study found that among women who had been pregnant at least once, the risk of breast cancer in those who had experienced an induced abortion was 50 percent higher than among other women. Highest risks were observed when the abortion was done at ages younger than 18. No increased risk was associated with a miscarriage. However, the study was relatively small, lacked objective measures for establishing pregnancy duration, and was susceptible to reporting bias, since a breast cancer diagnosis may influence a woman's recall or disclosure of her reproductive history. The authors reported that the study's limitations "argue against a firm conclusion at this time" and called for further research (Daling et al., 1994). An editorial that accompanied the report said that "it is difficult to see how [the study results] will be informative to the public" (Rosenberg, 1994).
 - A 1989 study matched 1,451 women in New York State whose breast cancer was reported from 1976–1980 with controls of equivalent age and residence (Howe et al., 1989). The study examined state health records for the prior incidence of abortion or miscarriage. An odds ratio[†] of 1.9 was found for cases with a history of only induced abortions, 1.5 for only spontaneous abortions, and 4.0 for repeated interrupted pregnancies with no intervening births. However, the cohort consisted only of women under age 40 and the follow-back search was restricted to events that occurred since 1971. The authors believed that the study was inconclusive.
 - In a 1987 study, researchers reported "little relation of breast cancer risk with abortions or miscarriages" (La Vecchia, 1987). Four years later, the same researchers again found no consistent relationship (Parazzini, 1991). Other researchers concluded in 1988 that the data "suggest that the risk of breast cancer is not materially affected by abortion, regardless of whether it occurs before or after the first term birth" (Rosenberg, 1988).
 - A 1985 study examined the association between miscarriage prior to a first birth and the risk of breast cancer among 3,315 Connecticut women who gave birth between 1946 and 1965. Among women who experienced one childbirth, a prior miscarriage was associated with a 3.5-fold increase in the risk of breast cancer. While the study concluded that an abortion prior to the first live birth may increase a woman's risk of breast cancer, it examined only miscarriage. Among the questions left open to speculation was whether a hormonal imbalance may have resulted in both the miscarriage and the onset of cancer (Hadjimichael et al., 1986).
 - A 1981 study of women in Los Angeles County looked at both oral contraceptive use and early abortion as risk factors. The cohort consisted of 163 women diagnosed with breast cancer between 1972 and 1978. All of the women were age 32 or younger at the time of diagnosis. The study found that a first-trimester abortion, whether spontaneous or induced, before first full-term pregnancy appeared to cause a relative risk of 2.4 for subsequent development of breast cancer. The extremely small cohort size and the age restriction of the methodology rendered the results inconclusive (Pike et al., 1981).

Planned Parenthood Promotes Women's Health

As the nation's leading women's health care provider and advocate, Planned Parenthood is concerned above all with women's health and the risk factors for reproductive health problems. Planned Parenthood health centers adhere to strict, nationwide medical standards. Screening and management of breast conditions are integral components of Planned

[†] The odds of having a risk factor if a condition is present divided by the odds of having the risk factor if the condition is not present.

Parenthood services. All clinicians providing routine reproductive health services perform clinical breast examinations. Breast exams are performed regularly as part of a patient's initial and routine examination, during an initial prenatal visit, and during other non-routine visits. In 2011, Planned Parenthood health centers provided 639,384 breast examinations.

Although Planned Parenthood health centers do not offer mammography, each affiliate must have a physician available who is able to evaluate patients identified with abnormal breast findings who have been referred by clinicians, either on-site or by referral, and each affiliate maintains a list of radiologists and breast disease specialists to whom Planned Parenthood patients can be referred. All Planned Parenthood health centers also provide pregnancy options education and referral for or provision of abortion services.

The Planned Parenthood Position Is That Abortion Poses No Demonstrated Health Risks

The link between abortion and breast cancer is a theory whose principal promoters oppose abortion regardless of its safety. The theory has not been borne out by research. While Planned Parenthood believes that women should have access to information about all factors that influence the risk of disease, Planned Parenthood also believes that women deserve unbiased information that is medically substantiated and untainted by a political agenda.

Planned Parenthood agrees with the American Cancer Society: "The issue of abortion generates passionate viewpoints in many people. Breast cancer is the most common cancer in women (aside from skin cancer), and it is the second leading cancer killer in women. Still the public is not well-served by false alarms. At this time, the scientific evidence does not support the notion that abortion of any kind raises the risk of breast cancer or any other type of cancer" (ACS, 2013).

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